

A smart city is a city where people feel safe.

Stories of Axis network video
solutions on the job.



Your city can't be safe if you can't see it.

Network video solutions from Axis and our partners give the people protecting your citizens a 24-hour window onto everything going on in your town – in sharp, real-time HDTV, anywhere and anytime. City staff will be able to:

- > See in bright light and in the dark
- > Scan large areas and zoom in on small details
- > Monitor everything from a central location
- > Dispatch personnel to the right place at the right time

And the solutions we deliver won't just help your citizens feel safer. They'll also help you protect facilities and critical infrastructure from threats of all kinds.





Your city can't be smart if it isn't safe.

While a "smart city" means slightly different things to different people, one thing everyone agrees on is that smart cities use digital technologies to improve the quality of life of the people who live in them, reduce environmental impact, and make everyday services run smoothly. Another thing is that a safe city is the first step toward a smart city.

Safety first

It's impossible to have a smart city when your citizens don't feel safe, of course. So that's one reason protecting your citizens with a network video solution from Axis and our partners is step one on the road to a smart city. But it's not the only reason. Network video solutions have another important role to play in smart cities.

Smart sensors

Network video solutions from Axis and our partners incorporate applications such as license plate recognition, people counting and vehicle tracking. Which means our solutions are taking on the role of smart sensors, facilitating components that provide data that can be analyzed to enable everything from smoother traffic flow to optimized energy consumption and reduced pollution.

A woman with red hair and a young girl in a white sun hat are smiling and feeding pigeons in a public square. The woman is holding a pigeon, and the girl is offering it a piece of bread. Other pigeons are on the ground around them. In the background, other people are walking, and the scene is bright and sunny.

Safe city. Smart investment.

Network video solutions from Axis and our partners are based on open industry standards and have open interfaces. We can provide you with a complete A-Z network video solution, designed to suit your town's specific circumstances and requirements right off the bat.

Smart today. Smart tomorrow.

Or you can integrate exactly what you need right now into your existing analog or digital solution, and add more Axis – and more functionality – at your own pace.

We can also assure you that network video solutions from Axis and our partners will be compatible with future innovations and that our cameras can take on the role of smart sensors in your smart city.



Five **smart** reasons to work with **Axis**.

- 1.** Cameras – and excellent image quality – are our core competences.
- 2.** We can help you develop detailed specifications of your needs.
- 3.** Our wide portfolio means we have products to fulfil those needs – whatever they are.
- 4.** We have the markets' most extensive program of software and hardware partners and a global network of integrators, which ensures a well-supported, vendor-neutral and future-proof solution.
- 5.** Our legacy as the inventors of network video and our position as market leaders means you can trust us as suppliers of cameras as smart sensors.

Stories of safe cities.

On the following pages, we share stories from cities like yours – from Asia to Europe to North and South America and more. They're stories of cities that have experienced first hand the benefits of working with Axis and our global network of integrators to make their citizens and their infrastructure safer – and smarter.

We hope you find our stories inspiring and assuring.

And we hope when you've finished reading them that you'll visit www.axis.com/safecities to learn more about how together we can create your own story of a safe city.

Axis joins the Queen City's guard.

Cincinnati Police Department embraces smart security technology to improve public safety.



Organization:

Cincinnati Police Department

Location:

Cincinnati, Ohio, USA

Industry segment:

City surveillance

Application:

Law enforcement, public safety, city operations

Axis partners:

Federal Signal, Genetec, Firetide, Cambium

Mission

Cincinnati, Ohio is an historic American city of 300,000 with a highly developed downtown, diverse neighborhoods and over 20 miles of shoreline along the Ohio River. Working with Federal Signal Corporation, a security and safety systems integrator and Axis partner, the Cincinnati Police Department decided to enhance their operations by installing several analog cameras downtown in 2008. However, in just two years, the CPD decided the analog camera technology was not delivering the image clarity it needed. It decided to retire its analog cameras in favor of more advanced, high-definition network camera technology.

Solution

The CPD asked Federal Signal to design and install a new IP-based, citywide surveillance system comprised of nearly 100 Axis high-definition pan/tilt/zoom (PTZ) managed by Genetec Security Center, the unified security platform which includes the Omnicast video management system.

Most of the critical locations did not have a communications backbone, so Federal Signal, a wireless broadband expert, designed and deployed a wireless streaming solution featuring a secured Firetide mesh network and Point-To-Point licensed backhaul utilizing Cambium PTP 810 microwave transmitters for longer distances.

Result

While the Axis cameras are used to help the CPD deter and apprehend criminals, they also play a vital role in public safety. Cameras monitor the downtown business districts, neighborhoods throughout the city and the riverfront to protect the welfare of residents and visitors to the area. They have been used to rescue boaters on the Ohio River, monitor weather conditions on city thoroughfares and help contain hazardous spills.



Building a comprehensive video solution

Situated on the north bank of the Ohio River, Cincinnati is the third largest city in the state of Ohio. With a police force of 1,000 officers, the Cincinnati Police Department (CPD) is committed to using the best law enforcement tools available to protect residents, businesses and visitors within the city's 77-square-miles.

To provide its officers with additional support, the CPD consulted with other departments and citizens' groups to discuss the benefits of installing cameras in the city. Together, they developed a plan and deployed the first analog video cameras in the downtown business district in 2008. Two years later, the department was ready to expand the coverage into neighborhoods and along the riverfront. At that point, they decided a more advanced IP video solution would deliver far better image quality than the original analog technology.

Immediate incident response

Axis partner Federal Signal recommended high-definition AXIS Q6034-E and AXIS Q6044-E PTZ Network Cameras for the job.

According to Nirmal Chudgar, Director of Business Development/Professional Services for Federal Signal, reliability was a key factor in recommending Axis. "From past experience we knew that Axis technology always worked and technical support would always be there when we needed it," Chudgar said.

All cameras are managed through Genetec Security Center video management system at a sophisticated operations center at police headquarters. The video travels over the City's fiber optic network, as well as by wireless technology. Firetide mesh nodes allowed the City to add Axis cameras in critical areas without wired connections. For longer distances, Cambium Networks' PTP 810 microwave transmitters provided a reliable high bandwidth backhaul for the video traffic.

Highly efficient H.264 compression technology retains HD resolution without overwhelming the mesh network's throughput or consuming excessive data storage. The video is stored for 14 days on a 64 TB Dell Compellent SAN as well as on SD cards inside the cameras for backup.

"When an incident occurs, officers on duty in our Real Time Crime Center (RTCC) can grab control over the Axis PTZ cameras and zoom in for a closer look," said Barry Whitton of the Cincinnati Police Department Technology and Systems Section. The cameras can also be accessed on video walls in the Emergency Operations Center (EOC) and 911 Center during major events.

The readily accessible video allows the CPD to quickly assess situations and determine the most appropriate response. Whitton recalled one instance where the department received a report alleging a fight involving 20 people armed with guns and knives.

"There was a camera right there," Whitton said. "We were able to see, almost as the incident was being dispatched, that the report was not correct. The crowd was small, and there were no guns and no knives."

In 2013, the CPD added the mobile application from Genetec Security Center to push video out to officers in the field. "This has been an especially valuable tool in covert operations and emergency response situations on the streets and along the Ohio River," Whitton said.

In addition, the CPD operates a mobile command van that tows a trailer housing lights and Axis cameras mounted on a boom for events in open fields, parking lots or other temporary locations. Whitton stressed that the department is very conscious of the balance between public safety and individual privacy, and they have strict guidelines on who can operate the cameras and for what purpose.

"Everything we do is audited," Whitton said. "We keep close tabs on who has camera access, and we tightly control who has permission to use them and request archived video."

Providing digital back-up on the road





and in the water

"Video cameras don't replace police officers in the field, but they do give them another set of eyes," Whitton said. Those extra eyes have been particularly valuable in recovering stolen vehicles. When the Real Time Crime Center gets an alert that a stolen car has passed a license plate recognition camera, an RTCC officer takes control of the nearby Axis PTZ cameras, if available, to follow the car as it drives through the city streets.

"We had one case where we wanted to make a safe, controlled stop to apprehend the car thieves. We didn't want them jumping out of the car and fleeing the scene. We watched the vehicle on the Axis camera and radioed the officers near the scene to execute the stop when the car reached the bottom of the hill."

The CPD also uses Axis PTZ cameras to support maritime security efforts along 25 miles of the Ohio River shoreline. They often share the video with the US Coast Guard and other regional maritime first responders from Ohio, Kentucky and Indiana.

In one incidence, an intoxicated man crashed his car on the Kentucky side of the river and tried to flee by swimming to Ohio.

"I was able to track him as he swam along the shore and direct the police boat where to fetch him out of the water," Whitton said.

Sharing the benefits of public safety

cameras citywide

As the system grew, its role evolved from policing crime to enhancing public safety and increasing the City's overall quality-of-life. The CPD shares the real-time video with other city departments, including Fire, EMS and Traffic Engineering. The video has been used to support such diverse efforts as directing first responders during medical emergencies and diesel spills, tracking snowfall on major roadways and charting the progress of highway construction projects.

In addition, the CPD partnered with a major local university, parks, metropolitan housing authorities and a casino to add cameras along the perimeter of their properties to ensure the safety of those heading to and from those locations.

According to Chudgar, "What makes this such a successful public safety tool has been the strong collaboration among everyone involved in this mission critical initiative – our Axis and Genetec technology partners, our wireless broadband vendors, ourselves and the Cincinnati Police Department."

"Axis is the flagship of our fleet of cameras. The digital zoom is so clear we can read details like a license plate number from two blocks away."

Barry Whitton of the Cincinnati Police Department Technology and Systems Section.

"With strong collaboration among multiple agencies, this solution is serving as a core platform for protecting people in greater Cincinnati area – setting a classic example of interoperability."

Nirmal Chudgar, Director of Business Development/ Professional Services, Federal Signal



“ Both the technology and the Axis camera images are excellent. Both those that we installed via wireless network and those that we have installed via fiber optics in the places where it was impossible to utilize wireless service. We are very happy with the choice.”

Susana Gonzalez, Ensenada City
Secretary of Security and Justice.

Feira de Santana fights violence with high definition images.

Video surveillance project in Bahia involves more than 200 fixed and mobile cameras from Axis Communications.



Organization:

City Government of Feira de Santana

Location:

Feira de Santana, Bahia, Brazil

Industry segment:

City surveillance

Application:

Urban monitoring

Axis partners:

Wimaxi, Digifort, Radwin

Mission

The municipality of Feira de Santana, Brazil, in the state of Bahia and 100 kilometers from the state capital of Salvador, had 18 analog cameras for its population of more than 600,000. The police could not rely on their low-resolution images to solve crimes. Levels of violence in the city were analyzed, including the districts of São José and Humildes, in order to determine which points to include in a new video surveillance system.

Solution

The project was created by Wimaxi, a systems integrator partner of Axis Communications that specializes in digital cities, using radios from Radwin, another Axis partner. The solution uses 106 AXIS Q6034-E PTZ Network Cameras that can pan, tilt and zoom as they monitor intersections and areas that require inspection, offering 360 degrees. It also uses 96 AXIS P1354-E Network Cameras dedicated to monitoring areas with high human traffic flows, such as hallways, bus stations, and entrances to public buildings.

In all, 202 high-definition cameras are managed by software from Digifort, an Axis partner.

Result

The urban security project included 320 radio points linking 150 schools and 28 public health units, and the 122 public broadband hotspot points, making Feira de Santana one of the largest digital cities of the country. The analog cameras were decommissioned.

“We’re already proposing to expand the system. It’s a service that everyone’s looking for when it comes to safety: full integration of all agencies in the sector.”

Mauro Moraes, Secretary of Violence Prevention in Feira de Santana.

Optical fiber and radio

For Victor Soares Bezerra, Director of Wimaxi, “the choice of high definition digital cameras is critical in order to generate reliable images that can help identify perpetrators of crimes.” All images are accessed by the Municipal Guard and the Civil and Military Police at the Secretariat of Violence Prevention, inside a monitoring center with a videowall.

The transmission of high definition images has been made possible adopting a hybrid network system that combines fiber optic backbone and two pre-assembled radio base stations: one in the city center and another in the hills of São José, located 28 km from downtown – an area lacking electricity – where the station is powered by solar and wind power.

The radios that broadcast the camera images were used for more distant locations, where cabled infrastructure cannot reach. Radios from Radwin’s 5000 series (point-multipoint) and 2000 series (point-to-point) were chosen, distributed through WDC Networks.

“The current technology of Radwin radios is different from conventional radios,” says Marco Santoro, Director of Business Development at WDC. “Because it is asymmetric, it is possible to split the band as needed. For image transmission, it is possible to put, for example, 8 MB for download, for receiving images, and 2 MB for upload, to control the PTZ controls,” he explains. Another advantage is that, with the radios, you can save time and, depending on the distance, cost.

For a second phase of the project, a study is being made for the installation of cameras in other districts and the use of video analytical capabilities, such as license plate recognition and automatic intruder detection in restricted areas. These intelligent systems are already supported by the camera models adopted and can be added to Digifort’s video management software.



A new image for Maceió.

Axis network cameras help Alagoas' government reduce crime rates, identify unregistered vehicles and raise driver awareness.

**Organization:**

Secretary of State for Social Protection

Location:

Maceió, Brasil

Industry segment:

City surveillance

Application:

Public safety and security

Axis partners:

Anixter, Eyes Nwhere, ISS

Photo: Teotonio Vilela

Mission

The Secretary of State for Social Protection has taken on the challenge of fighting crime and reducing violence and traffic accidents. Its investments have included the expansion of the number of local and military police and the installation of video surveillance systems, not only in the capital, but also in cities in the interior of Alagoas.

Solution

A total of 125 AXIS Q6034-E, AXIS P1354-E and AXIS P1344-E Network Cameras were installed across 26 of Maceió's 50 districts. These models include mobile cameras that can pan 360° and fixed cameras for reading license plates, which are considered one of the more advanced features of the project. The system also uses the SecurOS video management software solution from Intelligent Security Systems (ISS), an Axis partner, and uses Eyes Nwhere for OCR, along with HP storage servers and Enterasys core switches.

Result

The cameras installed in Alagoas have boosted the agility of security force activities. The video surveillance center allows effective monitoring of Social Defense intelligence targets in the fight against organized crime. Thanks to their HD quality, these images can be used as evidence in police investigations involving various types of crimes. And crime rates have been falling.



Optimizing human resources

According to the Core Unit of the Social Defense Integrated Operations Centers, when a camera records an incident the response procedure starts with the work of the camera operator monitoring a certain location. A supervisor is informed and they immediately engage the operations center. At the operations center, teams can use ten high resolution screens and individual computers to display everything that is happening at key strategic points around the city.

The supervisor is also responsible for defining what kind of public safety personnel (firefighters, military police or local police) are to be sent to the incident. Depending on the incident, images can be shared with other security agencies after undergoing an internal review. So the cameras optimize the use of public resources and serve the needs of the population.

The same thing happens at bars and restaurants that have a "panic button", which is used in dangerous situations. When it is pushed, it triggers an alarm in the Military Police operations center - following a cooperation agreement between the Maceió Association of Bars and Restaurants (Abrasel) and police headquarters.

The entire 125-camera project includes mobile cameras that can pan 360° and fixed cameras that are ideal for reading license plates. The design uses 98 AXIS Q6034-E PTZ Network Cameras, along with 22 AXIS P1344-E and five AXIS P1354-E Network Cameras, all with high-definition resolution.

License plate reading

One of the main advantages of the project is its ability to monitor traffic so as to ensure good traffic flow and keep an eye out for accidents and crashes.

Cameras operate along the main roads in and out of the city with the support of radio operators, and the images are monitored at the Municipal Transport and Traffic Division headquarters.

The license plate cameras allow plates to be cross-checked against a database of stolen vehicles and can identify vehicles that have not paid their registration fees.



The project, which began in the capital city of Maceió, is being expanded to other cities in the interior of the state.

Photos: Agência Alagoas - Divulgação;
Divulgação



Photo: Secom – Maceió

Homicides on the decline

“One of the biggest technical challenges of this project was to put the first phase on-line in 30 days. We needed to install 20 cameras and 100 km of fiber optics, set up the entire server infrastructure, and remodel the Control Center. We had to increase the number of staff in the field to get the work done on time,” says Edson J. Pires, Eyes Nwhere Director of Projects and Products.

Police statistics are already revealing the outcomes of the project. Intelligence from the State Department of Social Defense shows the drop in homicides in the state is due “to operations and measures taken by the state government in fighting crime”, through measures that include “the added value of technology used in this initiative, including video surveillance in the capital and elsewhere in the state,” a government official said.

Amilton de Lucca, CEO of Eyes Nwhere said that sharing images among various agencies and coordinating the work of the government plays an essential role in achieving a significant reduction in violence. “In the places where the Axis cameras were installed, crimes has fallen by as much as 70 %. The population is feeling much safer,” explains Amilton.

The images of public roads are also helping to raise residents' awareness of traffic laws. Maceió's Superintendent of Transportation and Traffic has released videos captured by Axis cameras showing serious accidents on Maceió's main roads, such as Av. Durval de Goés Monteiro and Fernandes Lima—such as a scene where a vehicle runs a red light and collides with another.

In making the videos public, the Secretariat said that “many accidents could be prevented and lives saved if drivers drove more carefully.”

“Every day, operators have access to cameras that can display images of interest to the city, such as people who might vandalize public property or cars parked on sidewalks. The Municipal Transport and Traffic Division can then be alerted.”

**Edmilson Cavalcante,
Municipal Secretary for
Community and Citizen Safety.**



Photo: Secom – Maceió

“ My colleagues from the security department were very careful when choosing both equipment and a professional company to install and maintain the system. Now we are sure that Axis was the right choice – the image quality is excellent and the general system performance perfectly meets our expectations. ”

Mr. Jordan Lechkov, Mayor, City of Sliven.

Axis goes to Brianza.

More than 350 Axis network cameras protect the environment and provide security in the municipalities of the eastern Milan region.

**Organization:**

18 eastern Milanese municipalities

Location:

Lombardia, Italy

Industry segment:

City surveillance

Application:

Surveillance of urban areas and ecological platforms

Axis partner:

CEM Ambiente S.p.A.

Mission

CEM Ambiente S.p.A. is the company responsible for managing the service of collecting, transporting and disposing of solid urban waste, including the province of Milan and 49 municipalities to the east of Milan, in a basin with more than 420,000 residents. The company's core business is based on the collection of waste with sorting and the related services of disposal and salvage of materials. In 2004 CEM Ambiente signaled the need to install cameras to monitor the waste collection areas, which are often subject to theft and acts of vandalism. In 2007, the need to protect residents against crime, and the optimal results achieved by CEM Ambiente, led the municipalities to decide to extend the installation of cameras throughout the territory; not just in the ecological platforms.

Solution

To meet the security demands of the municipalities, CEM Ambiente studied and implemented various video surveillance solutions designed on the basis of required specifications, and committed themselves to Axis as the supplier of network cameras.

Result

To date, more than 350 cameras have been installed, and the solution has proven itself to be fully satisfactory to all municipalities involved. In particular, a reduction in crime has been recorded thanks to the extremely sharp images captured by the cameras even in situations with limited visibility or difficult weather conditions.

“The installation of a video surveillance system can constitute an effective deterrent against acts of vandalism, violence and theft that often occur in various public areas. In addition, the Axis cameras allow the identification of various violations of the highway code and, above all, allow intervention in the case of accidents at road intersections and at-risk areas..”

Giancarlo Caprotti, Local Police Chief of the Municipality of Cassano D'Adda..

From the ecological platforms to the entire territory

The project was launched in Brugherio and was later expanded to Gorgonzola and 16 other municipalities (Basiano, Bellinzago, Bernareggio, Cassano d'Adda, Cassina dé Pecchi, Gessate, Liscate, Masate, Pantigliate, Pessano con Bornago, Pozzuolo Martesana, Rodano, Roncello, Truccazzano, Vaprio d'Adda, and Vignate).

The solution involved the creation of a 25 km-long wireless backbone to connect the different points in the territory, which permits the remote maintenance of the entire system and the resolution of possible anomalies. The 350 Axis network cameras were installed to monitor "sensitive" points such as squares, schools, public parking lots, and sports grounds, and to keep watch over the principal access roads to the municipalities, and were selected based on different requirements: indoor or outdoor locations, areas with dim lighting, and the need for remote control. "Some municipalities wanted to monitor access to particular areas subject to traffic restrictions: the use of cameras permitted the remote monitoring of the opening up of gaps and the monitoring of possible abuses of access and entries on the wrong side of the highway," stated Gianni Barzaghi, Information Systems Manager of CEM Ambiente.

The monitoring of the access routes to the territory allows the creation of a database of vehicle license plates used by law enforcement to meet any requirements relating to security and investigations. In relation to road safety, the placement of cameras at certain particularly dangerous intersections allowed the dynamics of accidents to be clarified, even in the absence of eye witnesses.

The cameras installed are of different types: for the first systems, AXIS 221 and AXIS 223M were selected as cameras for contexts where the day & night feature makes them capable of capturing high-quality images under all lighting conditions; as the observation cameras, AXIS 214 PTZ, AXIS 232D+ and AXIS 233D Network Dome Cameras were selected, the former

because it offers PTZ features that can be managed remotely by operators using a mouse or joystick, and the latter because it permits the magnification of small and distant objects, such as license plates, which can be identified in real time to obtain a sharp and clear view even under difficult lighting conditions.

The monitoring and recording centers are spread around the police stations in the municipalities, while technical system supervision and maintenance is entrusted to CEM Ambiente; in this way, each municipality can independently monitor its own territory and use the system to intervene quickly in case of need, by delegating the management and maintenance activities to CEM Ambiente.

When introducing the new models, CEM Ambiente primarily installed AXIS Q1755 and AXIS P5534 Network Cameras with HDTV performance and H.264. "The use of H.264 allows the transmission of extremely high-quality video feeds occupying a greatly reduced bandwidth," explained Gabriele Carè, Project Manager of CEM Ambiente.

The desire to continue the expansion of the system is undoubtedly the best testimony to the satisfaction of the associated municipalities: besides being indispensable for intervening in case of need, the cameras installed in public areas also act as an effective deterrent against threats and aggressive behavior, theft and acts of vandalism.

"One of the many violations reported by the municipalities is the dumping of tires and other bulky materials outside of the ecological platforms. Thanks to the introduction of video surveillance in these areas, it was possible to control a problem that was having a severe impact on the environment," stated Gianni Barzaghi, Information Systems Manager of CEM Ambiente.



City surveillance in high resolution.

The video surveillance of Novi Sad with 1000 Axis network cameras and HDTV resolution has successfully decreased criminal activity and enhanced traffic logistics.



Organization:

City of Novi Sad

Location:

Novi Sad, Serbia

Industry segment:

City surveillance

Application:

Public safety and security

Axis partner:

JKP Informatika,
IP WAY d.o.o., Aimetis

Mission

City development and urban planning require a high level of commitment and simultaneous deployment of all available resources. The City of Novi Sad requested a proposal for the procurement of an IP video surveillance solution that would be flexible enough to efficiently perform precise video monitoring of public places both day and night.

The main objectives of the Novi Sad City surveillance system were to increase the common citizen's security by monitoring educational institutions (pre-school, school and university campus), as well as surveillance of the most important city infrastructures. Not only was a centralized event management software solution with real-time information alerts and on-demand reports required, but the provision of HDTV quality network cameras was of equal importance.

Solution

In order to provide this solution the City of Novi Sad was equipped with Axis network cameras and Aimetis software for advanced video management and analytics.

Due to innovative, leading technology and the widest camera model portfolio, Axis was chosen as the only network camera manufacturer which completely covered all the requirements and specifications of this city surveillance project. Based on its seamless platform of video management and market-leading analytics, innovative licensing and easy-to-use interface, Aimetis Symphony was used for central management of the IP video surveillance system and video analytics. This state-of-the-art intelligent software along with Axis HDTV network cameras made the IP video surveillance system much easier to use.

Result

Novi Sad made it clear that the safety of citizens right down to the youngest child was top priority. The implementation of IP video surveillance in the city of Novi Sad rationalized the use of existing resources, improved city traffic logistics and enhanced the safety of the citizens.

“Over the past few years we have been very busy with the realization of ICT infrastructure for the City. Now that this vast job is finished we have an optical network infrastructure right across Novi Sad. IP video surveillance with Axis network cameras was the next step in exploiting the full possibilities of this existing network. It is a huge benefit that the city of Novi Sad now has a centralized video data center which is able to effectively conduct traffic and citizen safety everywhere.”

Vladimir Knežević, Chief Technical Officer, JKP Informatika Novi Sad.

New challenges

For the first time in the history of city urban planning in Novi Sad, IP video surveillance was introduced as an infrastructural and integral planning component.

Video surveillance of large, open places such as major traffic intersections, university campuses and city squares, requires a superior camera. The cameras need to provide HDTV megapixel resolution, 16:9 aspect ratio and day/night functionality.

System scalability

JKP INFORMATIKA installed approximately 1000 Axis network cameras across the town's optical network ring. The city surveillance system was designed from the very beginning to be extremely flexible and scalable. Due to different location specifics, and variety of outdoor lighting conditions a very special solution was deployed.

The wide Axis product portfolio demonstrated the full potential that IP technology could offer. The IP video surveillance system based on Axis network cameras was the perfect solution for securing city areas where greater image detail is essential.

With HDTV resolution and individually configurable camera frame rates, the City of Novi Sad has achieved a precise and well optimized video surveillance system, with the possibility to scale upwards in the coming years.

With the Aimetis licensing model, by being able to mix and match the use of both Enterprise and Professional licenses and to add required number of licenses when needed, City of Novi Sad definitely invested in well optimized and smart-scalable IP video surveillance system.

Data and video monitoring center

For the purpose of storing video data, centralized event management and faster onsite response, Novi Sad constructed a data and video monitoring center based on the latest technology standards.

The use of Aimetis software, the market leader in IP video software solutions, insured that the video analysis was successfully integrated as an important part of the data and video monitoring platform.

Along with the centralized management, Aimetis provided real-time information alerts based on multiple applications such as: motion tracking, object classification, people/vehicle counting, virtual fencing, left/removed objects, dwell time, and auto-PTZ tracking.

Close cooperation with the Novi Sad police department lead to forming another data and video monitoring center in police headquarters. This way the police can always oversee important city areas and can intervene more efficiently.

“Axis network cameras with HDTV resolution were definitely a justified investment. Today Novi Sad has a significantly high level of public safety and improved city logistics. The state of the art technology that we have implemented is now a representative example of good city surveillance for all the cities in the region,” says Vladimir Knežević, JKP Informatika

The city video surveillance of Novi Sad with approximately 1000 Axis cameras represents a milestone in the safety of citizens and a vast improvement of city logistics matters.

This successful city surveillance project with Axis network cameras will be an exemplary model for other city governments who are striving towards better city development and growth in the future.



Axis supports implementation of all-digital high definition surveillance solutions at China Art Palace.



Organization:

China Art Palace

Location:

Shanghai, China

Industry segment:

City surveillance

Application:

Safety and security

Axis partner:

Aimetis Corp.

Mission

China Art Palace, formerly the China Pavilion at Shanghai World Expo 2010, has an exhibition area of up to 64,000 m² with 27 exhibition halls. The museum serves the primary functions of collection and custody, academic research, display of exhibits, education and cultural exchange. It is an art treasure that reflects the origins and development of modern arts in China through its collections, exhibits and displays.

In order to enhance the level of security and ensure efficient and orderly operations, China Art Palace hoped to have a full upgrade of its security surveillance system. The surveillance scope included the 27 exhibition halls and library, which covers a total area of 167,000 m². These areas are under constant surveillance with video recording 24 hours a day, and key exhibition areas needed to be equipped with intelligent video analytics to fulfill functions such as people counting.

Solution

The brand new surveillance system employs a system of distributed surveillance and centralized management and is made up of 1300 channels. These include some 600 analog cameras installed previously by China Art Palace and 700 newly installed IP cameras. The HD network cameras are connected directly to the access layer switch that is equipped with the Power over Ethernet (PoE) function, while the analog cameras are seamlessly connected to the new system via Axis video encoders, making it possible to reuse the existing system.

Different Axis IP cameras are used for different areas according to China Art Palace's requirements. These include HDTV network cameras, and Axis cameras with low-light Lightfinder technology deployed around the perimeter, Wide Dynamic Range (WDR) cameras deployed at exits and entrances, and IP cameras that combine both the panoramic and PTZ functions employed at large exhibition areas. The entire system is built upon the existing dedicated network architecture and video data is transmitted to the surveillance center, allowing centralized surveillance and management.

“We chose the combination of Axis Communications and Aimetis Corp because we believe that the expandability, openness and compatibility of the system will bring long-term benefits. Axis has been proven to be a global leader in the IP video market and Aimetis’ stable video management platform allows us to manage the surveillance system with greater ease.”

Management staff member, China Art Palace.

The video surveillance software platform is supplied by Axis partner, Aimetis Corp. Besides fulfilling basic functions such as real-time viewing, video recording, playback, digital mapping and other video management functions, the Aimetis Symphony enterprise intelligent video analytics license is employed to carry out people counting at critical areas, making it possible for China Art Palace to consolidate and analyze real-time visitor flow. At night, the crossline detection alarm module is employed to trigger an alarm when a person is detected entering or leaving the premises. Hence, a single camera is able to serve different functions at different times of the day by using different video analytic algorithms, which reduces the client’s investment significantly.

The entire network is designed with redundancy to ensure that a single point of failure will not lead to a loss of function over large areas. The access server, convergence layer, central access equipment, server interface, server cluster and storage are all designed with redundancy. The surveillance center consists of 40 HDTV screens and 10 TV wall workstations. Every TV wall workstation is connected to four large screens that can be split into 1-16 frames depending on functional requirements, providing HD display and surveillance management function.

Result

The application of Axis’ latest IP camera technology greatly improves surveillance efforts at China Art Palace and enables more efficient management. For example, Lightfinder technology enhances the capability to carry out round-the-clock perimeter surveillance. In particular, Lightfinder enables images taken at night in daylight quality. Wide Dynamic Range technology provides clear details of people entering or leaving the premises and prevents backlight interference. Axis network video, which combines both the panoramic and PTZ functions, also allows a single camera to effectively manage very large exhibition areas in the museum. The new system possesses an open architecture that fully utilizes existing infrastructure such as analog cameras, network facilities and TV walls, reducing construction time, protecting the client’s investment and minimizing human and material resources. The open system architecture also creates greater room for system upgrade and conversion.

The Aimetis Symphony network video management software provides intelligent applications in areas such as people counting and virtual fencing, bringing practical benefits to China Art Palace and raising management efficiency. A highly integrated system is created by linking access control and alarm system, providing greater ease of managing the system and realizing all the capabilities of a unified security management platform.



Axis keeps an eye on the streets.

Epping City Improvement District cleans up with IP video surveillance.



Organization:
Epping City Improvement District

Location:
Western Cape, South Africa

Industry segment:
City surveillance

Application:
Safety and security

Axis partner:
Myertal Tactical Security, Visec

Mission

Epping, a bustling industrial center in the Western Cape, is home to more than 700 businesses employing roughly 20,000 individuals. Far removed from the golden beaches and verdant vineyards synonymous with the Cape, Epping is a gritty, hard-working industrial zone. In an attempt to reverse the ravages of urban decay, a section 21 company was founded by community members to supplement the basic services offered by the local municipality. Predictably, the alleviation of crime is one of the crucial objectives of this company.

Solution

Axis partner Myertal Tactical Security appreciated the shortcomings of relying solely on the physical presence of patrol cars in such a vast area. These reaction vehicles require direction and are only able to respond to incidents that are immediately visible to security personnel.

An Axis IP surveillance solution was identified as the most effective method of coordinating the movements of armed response and law enforcement, thereby providing a safer environment for the inhabitants of Epping City Improvement District (ECID).

Result

The faster response time, coupled with the capability of monitoring numerous zones simultaneously, has resulted in a significantly increased arrest rate. Footage is also being utilized for perpetrator identification and positive prosecution. Business owners are able to concentrate on their individual endeavors uninhibited by the constant threat of the devastating economic and psychological consequences of crime.

“The unparalleled quality and functionality of Axis products as well as the professional support available has assisted Myertal in delivering well beyond our client’s expectations.”

Warren Myers, CEO, Myertal Tactical Security (Pty) Ltd.

Maintaining business as usual

One of the scourges of industrialized areas worldwide is the continuous struggle to sustain and improve existing infrastructure. As these service demands outstrip incoming revenue, it becomes necessary for property owners to dip into their own pockets to ensure the survival of their businesses. The establishment of Epping City Improvement District allows the 273 businesses within its limits to work in unison with the local authorities to promote economic growth, facilitate investment and to generally enhance and uplift their environment. With a property base of more than R1.5 billion, it is of utmost importance to safeguard against the degeneration of the area.

Myertal Tactical Security is a specialized security company committed to offering IP surveillance solutions tailored to initiate zero tolerance crime prevention measures on the streets. Their proactive approach to security includes a state-of-the-art control room, their own private wireless infrastructure and highly trained controllers, centrally monitoring over 100,000m² commercial, retail and industrial client space.

Myertal Tactical Security takes a proactive hands-on stance when providing a security solution, from advising on product selection, installing the chosen solution and then the 24/7 off-site monitoring of live footage gleaned from the network cameras. Control room operator's radio dispatches roaming patrol vehicles when suspicious behavior is observed and armed response are immediately dispatched to the scene. This proactive monitoring technique allows for early detection and intervention before serious crimes are committed, effectively executed from their secure off-site security control room.

Tracking with precision

The considerable size of the ECID, harsh climatic conditions and the limited manpower available necessitated the installation of a versatile, robust product.

“We chose AXIS Q6032-E PTZ Dome Network Camera for its superior coverage and first-class optical zoom,” remarks Myertal's CEO, Warren Myers, “AXIS Q6032-E also functions extremely well in low-light conditions. This was a vital feature as lighting is poor in many of the surveillance areas. Dust, water and extreme temperature fluctuations also pose no danger to these exceptionally reliable cameras.”

One of the most important aspects of ECID surveillance is the ability to track suspicious behavior; these activities can be the actions of an individual, groups of individuals or even vehicles. The AXIS Q6032-E's high-speed pan/tilt response, 220° tilt range and powerful, 35x zoom permits controllers to maintain an eagle eye view regardless of terrain or movement. A further attribute of the AXIS Q6032-E is the legibility of license plates from a distance of 160 meters.

The security solution is run wirelessly to simplify installation and reduce cost and the H.264 video stream keeps bandwidth requirements to a minimum. Recordings, managed by Visec Platinum Edition software, are kept for a 14-day period or stored indefinitely if an incident is detected.

Clarity and control

“In any surveillance situation, image quality is imperative. The ECID comprises more than just business premises, high activity areas such as the railway tracks and the informal market increase the challenge of providing sufficient monitoring capacity. Axis network cameras cover our needs and provide high resolution footage that never lets us down,” explains Myers. “A secure Epping inspires business confidence which equates to an increase in property prices and a productive working environment.”



Maastricht City keeps track of mobility with traffic monitoring using Axis network cameras.



Organization:
City of Maastricht

Location:
Maastricht, Netherlands

Industry segment:
City surveillance

Application:
Traffic monitoring

Axis partners:
Arkasis B.V., SeeTec AG,
Cognimatics AB

Mission

The City of Maastricht needs to control and manage traffic flows in and around the city efficiently. The cameras previously used for this have been replaced by an integrated monitoring system based on Axis network cameras.

Solution

Working with Axis partner Arkasis (webcamcenter.nl), the City of Maastricht has developed and implemented a fiber optic central monitoring system for Axis network cameras located at traffic lights. Images from the cameras are processed centrally on a special server in the data center at city council offices. From the control center, current and slightly older images can be viewed centrally from workplaces or via iPads. The images can also be made available to external parties, such as the police or the public.

Result

The central monitoring system gives Maastricht a fully integrated solution for viewing traffic situations in real time. This forms a good basis for taking suitable action and assessing the effects of this action. The new environment is also flexible and scalable enough to allow other practical applications to be implemented quickly. For example, showing the progress of the large-scale construction project for the A2 tunnel on a public website, making time-lapse films, or installing special tele-software (Cognimatics software) for monitoring bicycle traffic to and from the historic city center.

Maastricht is a popular tourist destination with 21 million visitors a year. This high number of visitors puts great pressure on the narrow streets of the historic center. The A2 highway also passes through the city. The dense traffic makes it a real challenge to guarantee mobility in and around the city. In addition to safety and economic interests, air quality is another important reason for ensuring a smooth traffic flow. To get a good overview of traffic behavior and anticipate this where possible, city authorities have installed Axis network cameras at traffic lights at major intersections. These cameras offer the dynamic traffic management team an uninterrupted central overview of the current situation and access to older data or previously recorded images so that the right action can always be taken.

"Mobility is a hot topic in Maastricht", says assistant traffic expert Roger Chambille. "The traffic is dense, and to monitor traffic flow and air quality in the historic center, we decided to influence traffic outside the city as much as possible. We can control traffic carefully as necessary, based on real-time data. As a border district, we also have to take into account the interests of surrounding towns and villages. Good traffic management requires a complete picture of the current situation. First, to effectively control the traffic signals and test out our ideas and scenarios in practice and second, to be able to intervene in emergency situations. The fact that Maastricht has several times in recent years been awarded the title of 'Traffic Light City' of the year by professionals, testifies to the effect of this approach."

One central monitoring system

To monitor traffic, Maastricht previously used cameras and storage systems requiring separate license agreements for the individual components. "Because some of the cameras were due for replacement, and the costs of the licensing structure were relatively high, we looked for alternatives. In consultation with Arkasis B.V., we opted for a solution using Axis network cameras at traffic lights. AXIS Q1604-E and AXIS Q6035-E Network Cameras are linked to a central server in our data center via SeeTec Surveillance Software. This switch was made easier by the fact that here in Maastricht, we have our own fiber optic ring with a connection to all traffic lights. In the new situation, all cameras form part of one system that we manage centrally."

"From the data center in the council offices, we have round-the-clock access to high quality images from high-end cameras. Current and stored pictures can also be viewed from other locations, such as workplaces or via iPads. We can also share these easily with other organizations like the police. That's very useful in the case of accidents or at busy times."

Live online images

Thanks to the central system, the cameras can also be used for other purposes. Chambille says, "At the moment, Maastricht is the scene of an architectural masterpiece. A two-level tunnel is currently being built where the A2/N2 motorway runs now. During construction, traffic is still running above ground in the old way. The work has a major impact on traffic flows in and around the city. As a Council, we need to keep an eye on this unusual situation, so we've installed Axis cameras at strategic points. In particular, we've chosen to make these images available externally via websites such as www.MaastrichtBereikbaar.nl. This contributes to good communication with local residents who might be inconvenienced by the work. Also, anyone can now keep close track of the project and the traffic situation."

Time-lapse films

The live traffic images from the cameras can be viewed online via NetcamViewer Live Streaming Video, and visitors can choose their own preferred location for a personal view. To provide a good overview, the cameras have been positioned at what Chambille describes as "smart sites that are often hard to reach."

"For this very reason, Arkasis has made various adaptations to get a clear and reliable picture. An extra advantage is that we can easily make time-lapse films of the tunnel project and other special events. For example, we and the residents can watch the work at high speed." One point for attention in relation to public accessibility of the images is that the cameras must be switched off if accidents occur, to prevent shocking images. So Arkasis has developed a smart SMS switch for this. If an accident happens, the online replay of images can be stopped by one SMS. Using the SeeTec Surveillance software, the images can, however, be viewed as usual in the monitoring room.

“We are always seeking a good balance between using the best technological solutions and keeping to the available budget. The choice of a central environment using Axis technology is a good foundation for meeting our monitoring needs in a practical and profitable way, now and in the future.”

Roger Chambille, Assistant Traffic Expert, Maastricht Council

Good picture of incidents

Although the main focus for use of the cameras is traffic monitoring, the choice of a central system with network cameras also offers countless other possibilities for city authorities. Chambille says, “Monitoring movable barriers at the edge of the city center is a good example. The historic center is closed to through traffic. If unauthorized drivers try to get into the center, it usually leads to a collision with a so-called soft post. When such incidents occurred in the past, it was always difficult to precisely determine guilt. Camera images help us provide evidence.” So when these cameras were due for replacement, Axis cameras were chosen. “The images from the cameras pointing in the area of the soft posts are saved automatically. When an incident occurs, the situation soon becomes clear. We can now always show that the traffic light at the soft post was red. The camera is coupled to the traffic light and special software has been written to show text in the images, stating whether the light on the back of the post was red or green. Before, this could not be seen by the camera, but now the problem has been solved in this practical way.”

Counting cycles

The soft posts are a way of keeping the historic center car-free. At the same time, the Council encourages residents and visitors to access the center by bicycle or on foot. For example, one campaign was ‘Come In! Cyclists Welcome’, an attractive discount promotion for employees of local businesses with a reward of ten cents per kilometer cycled. Another was ‘Leave the car at home’, where people were asked to hand in their car keys for ten days and use public transport, an (electric) bike or (electric) shared cars. Participants received a free public transport chip card with 200 Euro credit for use during the promotional period.

Changes to the infrastructure for bicycles must also ensure that the climate for cyclists in Maastricht has improved, and visiting the center by bike becomes more attractive.

To measure the effect of this activity, the City Authorities wanted to monitor the number of cyclists entering and leaving the city. During the search for a suitable solution, the Council received a proposal for a highly specialist solution which was complex and costly. In this case too, Arkasis found the answer with Axis cameras. Axis has continuously improved the technology and memory capacity in recent years. As Chambille says, “This means that the cameras now have room for extra applications. Using special tele-software in the camera, we can monitor cycle traffic on a main bicycle route. The observations and resulting analyses were used to refine the Maastricht Cycle Plan, which was established in 2009, and provides better traffic flow and facilities for cyclists in the capital of Limburg province. The fixed positions of the cycle-counting cameras mean that we have long-term statistics on the use of the main bicycle paths. It is also possible to suspend the camera for short periods to analyze bottleneck sites.”

“The reporting tool is also precisely tailored to our needs. We now know how many cyclists come into the inner city and leave it again.” The latter application, according to Chambille, is a good example of how Maastricht wants to use technology. “We are always seeking a good balance between using the best technological solutions and keeping to the available budget. The choice of a central environment using Axis technology is a good foundation for meeting our monitoring needs in a practical and profitable way, now and in the future.”



“ Axis network cameras, services and solutions represent an innovative and practical resource. The implementation of a video surveillance system with IP technology in the municipality of Misterbianco was a choice in favor of development and modernity, while at the same time providing a useful service to safeguard our towns. ”

Aldo Palmeri, Surveyor of the municipality of Misterbianco.

From spaceships to the stars: LAPD safeguards city events with Axis.

Los Angeles Police Department uses Axis cameras as a smart, flexible tool to protect public events and gather intelligence in covert operations.



Organization:

Los Angeles Police Department

Location:

Los Angeles, California, USA

Industry segment:

City surveillance

Application:

Situational awareness, crime investigation, event security

Mission

The Counter Terrorism and Special Operations Bureau of the Los Angeles Police Department (LAPD) needed surveillance cameras that could be easily installed for temporary covert investigations and public events. The bureau wanted to give incident commanders real-time situational awareness from a command post, as well as push video out to officers' iPads and smartphones in the field.

Solution

The Technical Support Unit in Major Crimes Division, which is responsible for ad hoc surveillance camera operations, began acquiring an inventory of fixed and pan/tilt/zoom (PTZ) Axis network cameras in 2007. The cameras record directly to on-board SD cards, and the department uses AXIS Camera Companion software to manage the system. The video is also transmitted back to police headquarters for live monitoring. It is sent over a secure wireless mesh network to avoid interruptions from cellular traffic.

Result

Axis cameras have helped the LAPD manage crowd safety at events like the retirement voyage of the spaceship Endeavor through the streets of LA and the annual red carpet celebration at the Academy Awards. When Occupy L.A. established a protest encampment in front of City Hall and the surrounding Civic Center, the surveillance cameras helped officers spot and detain a truck approaching the fringes of the camp. This stopped the truck before it could unload its cargo of long clubs that could have been used as weapons on officers trying to maintain a peaceful evacuation.



Surveillance at the ready

Los Angeles, CA, the United States' second most populous city, is a sprawling metropolis home to nearly four million people. While the Los Angeles Police Department maintains an extensive, permanent network of analog cameras, its Counter Terrorism and Special Operations Bureau needed a more responsive and flexible option for special investigations and one-off events.

Deputy Chief Michael Downing directed his Technical Support Unit to investigate network surveillance cameras that would allow officers to remotely control the cameras over the department's secure network and monitor video at headquarters wherever the cameras were placed. Axis cameras came out on top.

"The cameras work seamlessly over the network," said Richard Cowgill of the Technical Support Unit. "You don't have to do any special configuring. You just assign an IP address to the camera, and it's basically plug and play." He also noted that it's easy to make last minute adjustments based on the fluidity of the situation.

When real-time situational awareness is needed for special operations, Cowgill's highly-trained Technical Support Unit surveys the intended site and strategically mounts the network cameras. The installations are temporary in nature and rarely last more than a month or two before the cameras are redeployed to a new location.

Long distance stakeouts

To ensure the video can reliably stream anywhere the cameras are deployed, Cowgill's unit relies on a mesh network that bounces the signal off antennas on the tallest buildings in the city. The video stream has been tested as far as 20 miles away from the command post with no frame drops. When the location has no direct line of sight, Cowgill's team bridges the gap with "hops" of mesh nodes until a direct line of sight can be established. The video is stored at the edge with SD cards and managed at police headquarters with AXIS Camera Companion software. The department also records to a 1TB network-attached storage device for redundancy.

As the department reuses cameras for a variety of missions, they needed a flexible array of options to meet any scenario. Their arsenal includes 1080p HDTV-quality AXIS Q6035-E PTZ Network Cameras, smaller AXIS P5534-E PTZ Network Cameras and AXIS Q1755 Fixed Network Cameras for more covert scenarios. For undercover operations, the department utilizes custom built enclosures that disguise the cameras' appearance.

In cases where the unit has to use an analog camera in a sting operation, such as in a warehouse or an office that the LAPD is controlling, Cowgill can connect the analog cameras to an Axis video encoder to digitize the footage and stream it back to the command post.

The cameras have become a dependable partner in their investigations. Cowgill recalled one case that required an officer to keep eyes on a house down a dead-end street: "There were too many people coming and going for an officer to sit in an unmarked car unnoticed, so he asked for a camera," he said. Cowgill's crew discreetly mounted the cameras to give the officer eyes on the target without having to physically be at the scene.

"We do these types of intelligence-gathering investigations probably five or six times a month," said Deputy Chief Downing. "It's become a force multiplier for us because we can use cameras in places where an officer would be too conspicuous."





Princes, kings and outer space explorers

As one of the country's leading cultural centers, the City of Los Angeles plays host to a number of major events on the national stage that require a tough, yet nimble pop-up video surveillance system.

The cameras have been used to monitor high exposure events such as a visit from the British royal family, victory parades for pro sports teams like the LA Lakers and LA Kings and the break-up of the 2011 Occupy LA encampment.

In 2012, the retired NASA Endeavor space shuttle embarked on a 12-mile, 2 day road trip and parade through the city streets to its final home at the California Science Center. Traveling at just 1 to 2 miles an hour, the shuttle's final journey allowed spectators to have an up close and personal experience, but the slow speed also increased the security risks from vandalism, theft, accidents and more.

AXIS Q6035-E PTZ Network Cameras were deployed along the route to help keep the crowds, the shuttle and the city's historic landmarks safe. In order to accommodate the shuttle's size, the city temporarily removed hundreds of street signs, lights and trees –the traditional fixtures for outdoor cameras. Thanks to the cameras' ease of installation, they were able to overcome this unique challenge by mounting the cameras on stands and buildings to oversee the events with detailed precision.

Axis for best picture

The LAPD also use Axis cameras and a mesh network to protect the iconic red carpet area at the annual Academy Awards ceremony outside the Dolby Theater. The event presents a number of surveillance challenges, including large crowds, variable outdoor lighting conditions and cameras flashes. The red carpet itself even poses a challenge since red is one of the hardest colors for video to render.

To address those challenges, the LAPD chose AXIS Q6035-E PTZ Network Cameras and AXIS P5534-E PTZ Network Cameras due to their high color fidelity, HDTV-quality resolution and precision zoom capabilities. Camera placement was critical, and the LAPD combined cameras providing comprehensive, wide angle overhead views with dedicated cameras at high risk zones throughout the area. Using this set up, officers on the ground could relay any suspicious activity back to police headquarters seven miles away. There, commanders could zoom in and provide instant support.

Commanders at headquarters managed the cameras through AXIS Camera Companion software. The edge-based software running inside the camera network let them select, control and view all cameras wirelessly on 70-inch display monitors at City Hall, as well as access the recorded video.

The flexibility and ease of use of the software lets the LAPD work seamlessly to protect these events and others throughout the city to the best of their ability.

“We’ve been using Axis network cameras since 2007 because of their reliability and easy redeployment. As Axis continues to improve its optics and provide higher definition images, surveillance just gets better and better.”

Michael Downing, Deputy Chief and Commanding Officer for Counter Terrorism and Special Operations Bureau, Los Angeles Police Department.



“You don’t have to do any special configuring. You just assign an IP address to the camera, and it’s basically plug and play.”

Richard Cowgill, Technical Support Unit, Los Angeles Police Department.



About Axis Communications

Axis offers intelligent security solutions that enable a smarter, safer world. As the global market leader in network video, Axis is driving the industry by continually launching innovative network products based on an open platform - delivering high value to customers through a global partner network. Axis has long-term relationships with partners and provides them with knowledge and ground-breaking network products in existing and new markets.

Axis has more than 1,900 dedicated employees in more than 40 countries around the world, supported by a network of over 75,000 partners across 179 countries. Founded in 1984, Axis is a Sweden-based company listed on NASDAQ Stockholm under the ticker AXIS.

For more information about Axis, please visit our website www.axis.com.