FROST & SULLIVAN

A High Resolution Breakthrough in Public Safety

A Frost & Sullivan White Paper

"We Accelerate Growth"

www.frost.com

TABLE OF CONTENTS

Table of Contents

Foreword

Imagine finding yourself caught up in an act of terrorism on a hotel, a violent incident in a school, a bank robbery, or an attack on the public transport system. These are all situations that could confront you in an increasingly unpredictable world, events in which the difference between life, death or serious injury will depend on the effectiveness of established security provisions and the responsiveness of the police and emergency services.

In the course of tracking the evolution of the security industry worldwide, Frost & Sullivan researches breakthrough technologies to combat such growing threats, and identifies the best-of-breed manufacturers of the innovative products and solutions required. In this regard, we have been particularly impressed by recent developments in high resolution CCTV camera technologies, which are significantly reshaping the face of the video surveillance industry.

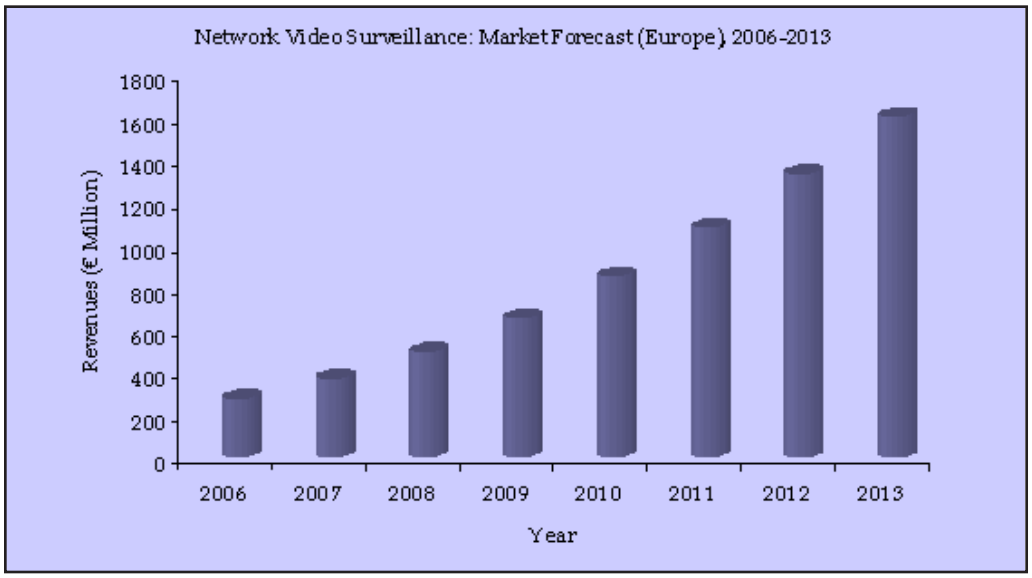
Whereas traditional analogue cameras and recording equipment produce volumes of largely unusable forensic information, the advent of high resolution digital cameras has brought about a huge improvement in the performance of surveillance equipment in a wide range of industry applications and industry sectors.

This White Paper examines the latest state-of-the-art solutions in video surveillance technology, and the specific technological and economic benefits to end-users that are now available from one the industry's leading companies, Mobotix AG.

Background

The video surveillance industry today is experiencing the biggest wave of change in its history. Video surveillance systems have come a long way since their inception in the 1960s, but the latest developments are proving to be the most far-reaching to date, namely the wide-spread adoption of IP-based network video surveillance systems and solutions.

IP-based Digital Video Recorders (DVRs) first appeared in the mid-nineties, and the higher image resolution capability they ushered in marked the beginning of the current IP revolution and the birth of the network video surveillance industry. Since then, the industry has been on an explosive growth path, which is evident in the chart below:



Source: Frost & Sullivan

The Road to High Resolution

IP video surveillance is defined as the transmission of video utilising open internet protocols and standards (IP) for the purpose of recording and monitoring. The current generation of digital IP-based cameras are replacing the previous generation of analogue video cameras for many reasons (better performance, ease of installation, total cost of ownership, compatibility with other systems), but the overriding factor in their favour is superior image quality.

Time and again, analogue cameras have been found wanting in terms of providing high quality images for identifying security breaches. A clear example of this is seen in the UK, where the Home Office has stated publicly that video recordings from eight out of ten of the existing analogue video surveillance cameras in operation nationally are no use in solving crimes.

However, the growth of IP-based video surveillance has also enabled the introduction of the other key requirement necessary for high resolution video surveillance, namely megapixel cameras. Megapixel cameras, as the name implies, typically offer a resolution 30 times higher than conventional analogue cameras. These cameras provide not only higher image resolution but also wider area coverage. For example:

The associated economic benefits of megapixel cameras include the need for fewer cameras in a video surveillance system, and reduced installation cost. In addition, the ability to add more cameras anywhere within the network makes the installation of a video surveillance system flexible and scalable.

These features are crucial for enabling the wide range of new applications driving today's video surveillance market: Reliable facial recognition, advanced passenger screening, automatic number plate recognition, intelligent stadium security, advanced traffic surveillance, etc.

With the superior image quality of IP-based digital cameras now firmly established, the market has finally moved on from the old debate about analogue vs. IP technology, to new and more productive discussions about the key issues determining the ability to provide high resolution versus low resolution solutions to technology providers and end-users of IP video surveillance.

The Challenge of Bandwidth Restraints

Proven and robust IP networks which are the communication backbone of most business organisations today make video surveillance systems increasingly future-proof, standardised, flexibly integrated with other security systems and highly scalable.

Megapixel camera manufacturers have to overcome significant challenges in achieving the right balance between image quality, file size and frame rate. For example, a single 3-megapixel camera transmitting 15 frames per second consumes tens of megabits of network capacity, and this bandwidth consumption grows exponentially in large installations where hundreds of cameras may be deployed. Despite the increasing availability of gigabit Ethernet for this task, the management and PC processing power required to handle huge volumes of data is a very significant technical and economic obstacle.

Part of the solution to the problem of balancing image quality and bandwidth consumption has been provided by improvements in compression standards. The latest advance, H.264 technology, compresses video files by 80% compared with M-JPEG format, and 50% compared with MPEG-4 format. This reduces file size, bandwidth requirement and storage space without compromising image quality, but requires more PC processing power, adding significant expense to the installation.

The Role of Distributed Intelligence

Advanced compression standards that reduce bandwidth usage often rely on the central management server to carry out the necessary decompression (decoding) required. The use of video analytics has paved the way for the effective analysis of captured video using intelligent algorithms to automate procedures like object and motion detection, thereby reducing human-error factor and improving the performance of video surveillance systems.

However, the use of video analytics with advanced compression standards has added to the processing requirements of these systems, requiring powerful servers to cope with the huge amount of data to be processed and analysed. To solve this problem cost-effectively, the market is evolving towards the concept of decentralised systems. This involves locating the system's digital signal processors (DSPs) at the edge of the network, which in practice means inside the video cameras themselves.

In this way, cameras with in-built video motion detection and alarm management act as independent devices making decisions on transmission rates and the recording of video resolutions based on the specific nature of triggered events. This provides significant savings in terms of data requiring transmission and analysis, reducing the total bandwidth needed to function effectively, and reducing the amount and therefore the cost of expensive computing power required. Now with the availability of up to 16GB storage inside the camera, you can have a network surveillance camera operating with virtually zero network load.

This also means that there is a significant reduction in terms of the irrelevant/redundant data to be stored and/or analysed. Coupled with this benefit, end-users also have access to actionable real-time information, enabling for example the close monitoring of suspicious behaviour in airport or timely traffic route alerts, which helps companies adopt a highly proactive approach to developing problems (e.g. via a two-way audio warning capability), rather than merely reacting to security and business situations.

Understanding Price Comparisons

Megapixel cameras cost more than analogue cameras in terms of their stand-alone unit cost, but their end-user benefits outweigh the extra cost significantly. As no one uses video surveillance cameras purely on a stand-alone basis, but only as part of total security solutions, it is necessary to compare megapixel cameras with analogue cameras in terms of their system quality and total system costs, rather than just the unit price of the cameras.

The key benefits of moving from analogue to IP are higher image quality, the additional functionality of IP-based systems and a huge savings on installation costs. As IP is now the backbone of almost every business network, it allows organisations also to leverage their existing network infrastructure for video surveillance, eliminating high additional cabling costs. In addition, IP-based systems have the advantage of being able to use Power over Ethernet (PoE), bringing cost-efficiency in terms of power consumption, reduced equipment costs and simplicity of installation. Functions such as remote system updating (impossible with analogue systems) are also easily available. Furthermore, distributed intelligence and event-based recording enable more cameras to share one server, delivering savings on server costs and storage requirements.

The Advantages of Hemispheric Technology

A heated debate is ongoing in the industry regarding pan-tilt-zoom (PTZ) cameras versus fixed cameras. An important point in this regard is that however well a video surveillance system is able to identify a particular security breach in one monitored area, it is essential to maintain monitoring of other areas as well. For example, a decoy manoeuvre can create a disturbance in one area, in order to distract a camera or an operator from a security breach occurring elsewhere.

However, a high resolution fixed camera featuring the latest hemispheric technology views and records a complete room or scene, capturing all events and information from any area of that scene in detail. The result is a live overview of an entire scene, and also of each individual area within that scene. This allows the camera operator to simultaneously zoom into any specific area or event in live and/or in playback mode. With this technology in place, no event can be missed, and multiple areas of a scene can be viewed by different operators from different locations using just one camera.

One fixed high resolution hemispheric camera can thus replace 3 or 4 lower resolution cameras, and with intelligent on-board recording can reduce both bandwidth and server costs by recording and/or transmitting only when an event is occurring and saving only the relevant parts of the scene.

The World's First 360-Degree High Definition Hemispheric Camera

In a ground-breaking initiative, the world's first 360-degree, low profile, high resolution fixed security camera has just been brought to the market by the IP video solutions provider Mobotix. This is the result of its evolving strategy in the video surveillance industry stretching back many years. According to Mobotix founder and CEO Dr. Ralf Hinkel:

We have been preparing the concept of this technology for some time, but it is only since the introduction of decentralised system architecture for intelligent high resolution cameras with on-board processing that it has become a viable and cost-efficient option for our customers.

A HIGH RESOLUTION BREAKTHROUGH IN PUBLIC SAFETY

To understand the significance of this major technical breakthrough from MOBOTIX, it is necessary to understand that the basis for excellent panorama and virtual PTZ image quality depends on the effective use of high resolution 'raw' (unprocessed) hemispheric images with a minimum 3 Megapixel resolution. These images require 100 times more storage space and network capacity than conventional video surveillance images, which has made the technical realisation of the hemispheric concept such a formidable challenge for many manufacturers.

The primary difference between the MOBOTIX decentralised camera system and other systems attempting to achieve this task using centralised architectures, is that MOBOTIX cameras can perform all the hemispheric transformation functions for the 180-degree panorama view and virtual PTZ ***inside*** the camera. This means that the enormous raw hemispheric images (each of approx. 10 megabytes) do not have to be sent to a central PC and its video-management software for processing, thus avoiding the most common problem of centralised systems: Critical bandwidth overload slowing or halting network communications and delaying vital image/data processing.

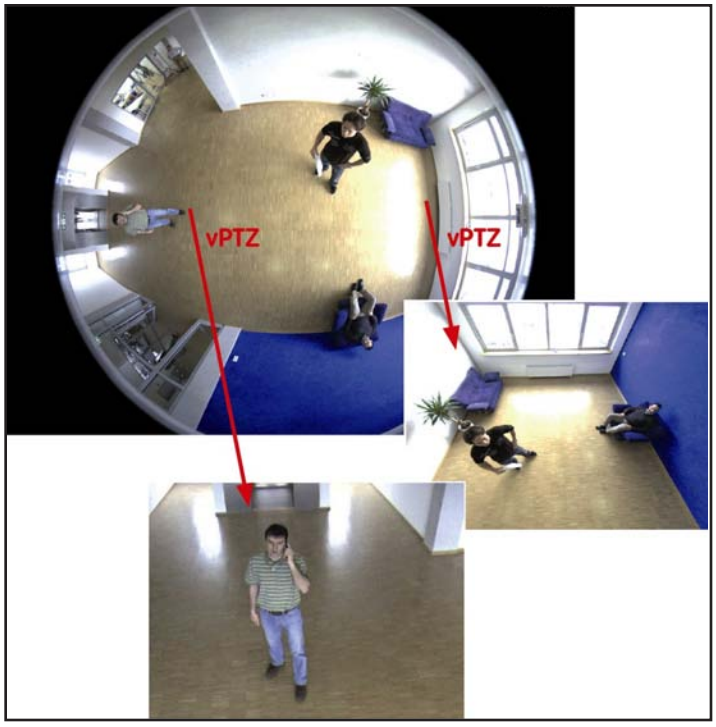
To avoid this, centralised system designers have been forced to attempt the compression of raw hemispheric images prior to transmission to the central server, leading to tremendous loss of detail (since no suitable compression codec exists), and putting massive strain on PC processing power when multiple camera systems are involved.

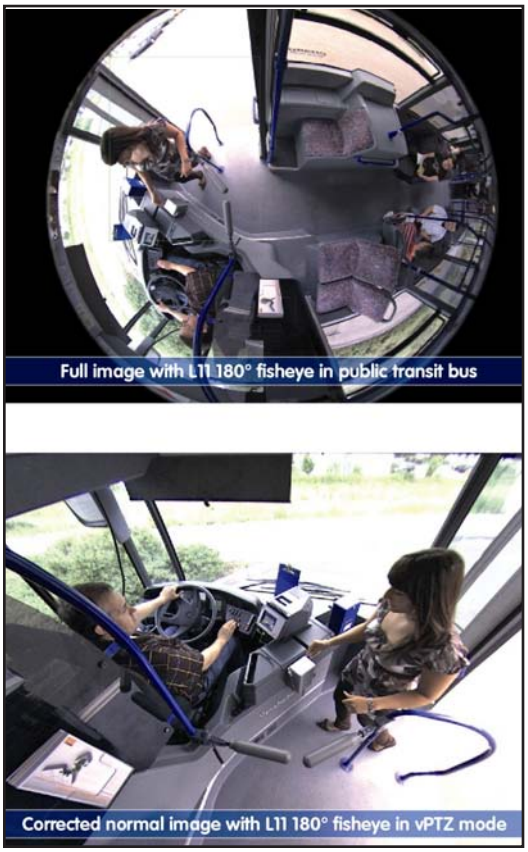
The MOBOTIX hemispheric technology, on the other hand, offers high quality 180-degree panoramic views and virtual PTZ precisely because it is able to use the high resolution, uncompressed raw images for the hemispheric 3D-transformation, *without* compression. In addition, the displaying PC can handle dozens of hemispheric cameras, because all the time-consuming image transformations are done on each camera itself, without putting any strain on the processing PC. This results in very short delay between the occurrence of an event and its display on-screen at a high video frame rate, providing very cost-efficient outcome for the user.

What is a Hemispheric Camera?

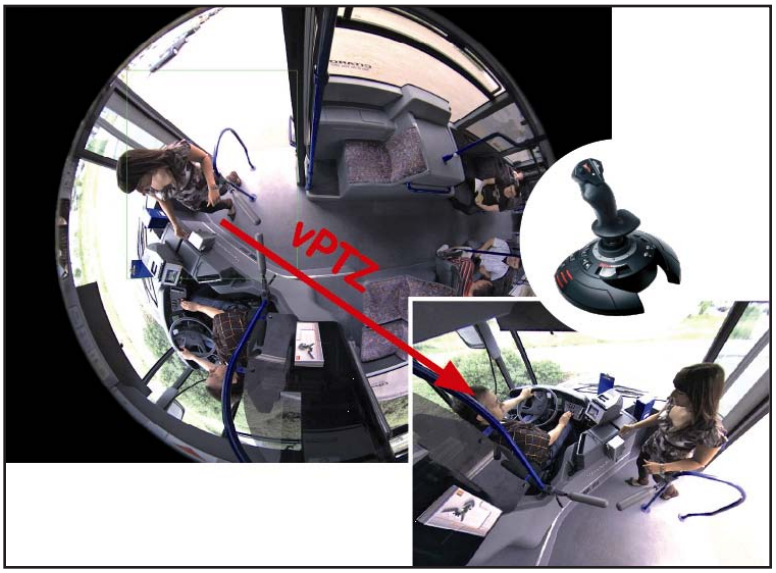
The key components of a hemispheric camera are an extremely wide angle fish-eye-lens, a high-resolution digital image sensor (> 3 Megapixel) and integrated software inside the camera for image correction. Using this unique lens, a Hemispheric Camera captures a hemispherical view of a room and projects this view onto a high resolution image sensor. When ceiling mounted, such a hemispheric overview covers an entire room:

In this half spherical form the image appears very curved and distorted, especially around the edges. In order to observe the desired scene in a more familiar and useful format, the relevant image sections are corrected for the user using the integrated image correction software:



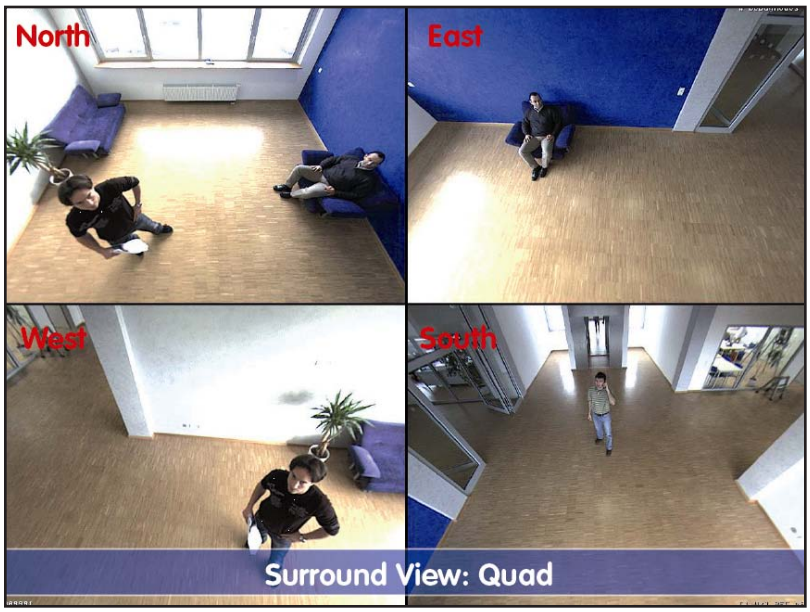


Enlarging or manipulating the image sections within this three-dimensional half sphere gives the impression of a moving camera providing **virtual PTZ** functionality with no moving parts:



This in-camera hemispheric correction can be applied to multiple image sections. Unlike a mechanical PTZ camera, the Mobotix camera allows multiple areas within a room to be viewed and recorded.

The user is viewing and controlling multiple virtual camera views - **from one fixed camera!**



Discreet and Maintenance Free

By using just one lens, hemispheric cameras operate very inconspicuously, with the single lens focused on the entire room scene and not on a particular object. Having no moving parts, the camera is not subject to wear and tear and generates no noise when panning and focusing on another image area.

To achieve an even better, more encompassing overview of the surveillance relative to that delivered by multiple individual cameras or camera views, the perspective of the curved hemispherical image can be transformed and presented as a wide angle panoramic view through 180°, covering an entire room without blind spots, including providing left and right peripheral views along the wall.

Compared with a standard camera, the hemispheric technology provides a far better overview of the scene and requires fewer cameras:

A ceiling mounted hemispheric camera is capable of covering the entire room, generating two 180° panoramic views simultaneously:

Subject Always Visible

In a conventional application using multiple single cameras, the subject of the surveillance normally moves from one camera coverage area to another. For the viewer this is confusing because the subject usually disappears or is indeed doubled when crossing between these areas of view. Hemispheric cameras eliminate this problem with a coverage area that ensures the viewer maintains a seamless overview of the complete scene.

Everything is Recorded

Relative to a typical PTZ, which is always focused on and recording only one specific segment of the room or space in which it is installed, the virtual PTZ provides the user the option to retrospectively pan and zoom to different areas of the installation space, because the camera has recorded the complete room scene.

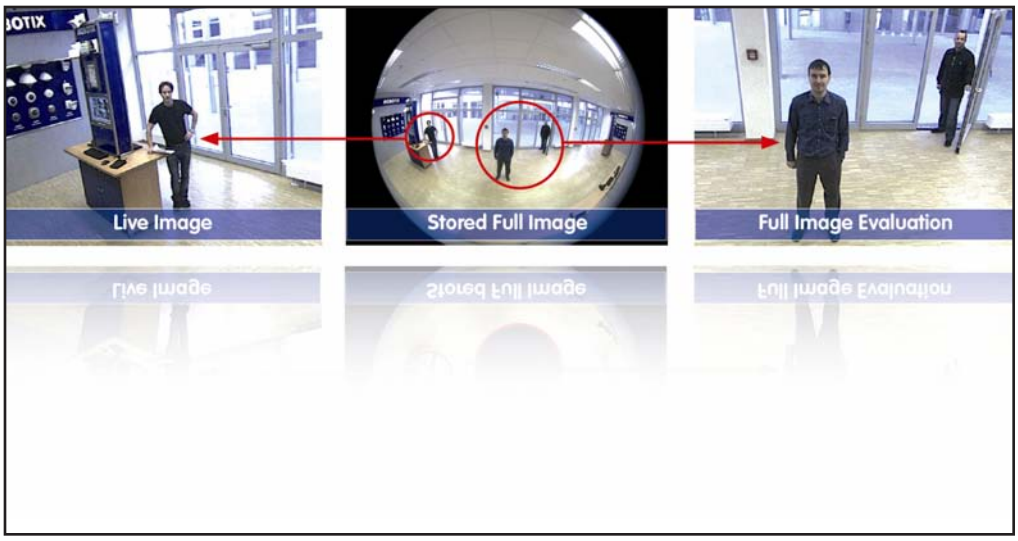
The Significant Advantages of Hemispherical Camera Systems:

Hemispheric Camera technology with its extreme wide angle capability offers a considerably better overview of a scene than conventional camera technology and dramatically reduces the number of cameras required for an application.

Within just one 180° Panoramic display mode it is possible to generate a seamless wall to wall room overview and due to the high resolution image processing taking place in the camera itself, simultaneously provide a detailed view of every area in the image.

In comparison to a solution using multiple individual cameras, where the object under surveillance is constantly moving from one camera view to another, the hemispheric panorama camera has the advantage that the object is in the field of view the entire time with no blind spots, and does not distort or present a double image when moving from one overlapping camera viewing area to another.

A wide screen panorama image displays twice the resolution of a standard video image using the same number of lines. In contrast to a normal PTZ camera that is always restricted to focusing on one area within a room, virtual PTZ provides the capability to pan, tilt, zoom and analyse all areas of a scene in live and recorded images, since the entire room is being recorded in this complete hemispherical scene image:



Conclusion

It is by developing such unique leading-edge technology that MOBOTIX has steadily evolved to become the recognised market leader in high resolution video systems globally. The company is also playing a pivotal role in the transition of the whole CCTV industry from outdated analogue systems to high resolution digital surveillance systems.

In our opinion, the availability on the market of highly effective hemispheric camera technology is the most significant advance CCTV has witnessed in its history, the results of which will drive the success of the video surveillance industry for decades to come.

APPENDIX

Company History

Founded in 1999, Mobotix initially introduced cameras designed primarily for outdoor and industrial applications. Since their earliest days - and long before VOIP standards were established - its cameras have incorporated lip-synchronous audio and intercom features.

In 2001 Mobotix turned to a decentralised system architecture approach with an eye on the future of high resolution video surveillance systems. The secret behind its success has been its ability to position itself uniquely as a network-based solution provider, focused on the specific hardware and software needs of the different individual sectors of the security industry and other diverse markets. This targeted thinking has given Mobotix the competitive edge necessary to maintain its leadership of the megapixel camera market.

Snapshot Case Studies

HOSPITALITY SECTOR: Meeting the Urgent Security Needs of International Hotels following the Mumbai Terrorist Tragedy in November 2008

Hotels are not designed with a high level of security in mind. They are built to accommodate the travelling public, and high-end resorts and facilities around the world have typically focused on comfort rather than safety. At the same time, as diplomatic embassies and missions around the world have gradually become armed fortresses, and as airports and other transport hubs have deployed state-of-the-art security measures, terrorists are looking for alternative targets. Hotels have become one of the softer options.

Following the recent attacks in Mumbai, a growing number of corporations with significant numbers of travelling executives are demanding evidence of higher levels of security from international hotel chains. With security features becoming as important to frequent travellers as comfort features, hotel chains are increasingly considering them as marketing tools in the battle to attract customers. However each hotel faces a unique set of security-related factors depending on its geographic location, external environment, design features, etc.

For example, a major security challenge for large hotels and resorts is the maze of interior corridors, floors, and multiple exits. While traditional CCTV systems can provide "after-action" video images of events, recording these images is of little use for real-time tracking of intruders or hostage-takers if they move around the building, as happened in the Mumbai tragedy.

Using high resolution digital cameras equipped with hemispheric technology, a traditional "event recording" physical security system can be transformed into a real-time security application, enabling the seamless and discreet live tracking of images from command and control centres. Counter-terrorism teams can access these images directly from different cameras on an individually addressable basis, and they can be streamed to mobile response units via portable devices like PDAs, so that the security teams know exactly where the intruders are and where they are going.

This technology also supports many other key day-to-day applications that are essential to hotel security officers, such as access control, perimeter protection and employee tagging, all of which can significantly enhance guest and staff security and smoothly integrate with various identity verification procedures throughout the hotel.

In this context, Mobotix has a well-established record of success in the hospitality sector. In the middle of the hectic Frankfurt banking district, tranquillity can be found at the traditional Le Méridien Parkhotel Frankfurt (www.lemeridien.com). A reliable security system, which remains discreetly in the background, is indispensable for making guests feel at ease in the three-hundred room building. High-performance camera surveillance in sensitive areas creates safety and trust, forming an essential basis for comfort and relaxation.

When Le Meridien recently decided to update its video surveillance system, the task fell to Chief Engineer Zlatko Hizman, who is responsible for building services at the hotel. After investigating the market in detail, Mr. Hizman recommended an IP camera system from Mobotix to hotel management.

Previously, 21 analogue cameras were in use, yet several factors hastened the replacement of this antiquated solution: The high degree of maintenance required, the low resolution of the cameras, the large memory requirement and the complex evaluation procedure for recordings, to name but a few.

Zlatko Hizman believed the time was right for the introduction of an IP-based alternative, capable of fulfilling both immediate and also future requirements. Not only did the Mobotix solution impress with its technical superiority, but it also demonstrated many cost benefits in terms of procurement and operation.

After the complete installation of 29 indoor cameras and 6 external cameras was put into operation, the verdict of the users was unanimous: "We have never seen such clear pictures on the surveillance monitors here at Le Méridien Parkhotel Frankfurt!"

Significant Cost Savings

A special feature of Mobotix cameras is their low power consumption of just 3 watts. Thanks to the extremely wide operating temperature range of -30°C to + 60°C, there is no need for the camera case to be heated, cooled or ventilated, even in difficult environmental conditions. Given that up to 12 conventional cameras are required to record the same variety of detail as one Mobotix IP camera, the potential for making savings becomes even more obvious.

Last but not least, the power feed via the Ethernet cable (PoE: Power over Ethernet) for up to 20 cameras from one network power rack provides significantly more performance than using individual power supplies. Compared with conventional solutions offering a comparable resolution, a system such as the one used at Le Méridien Parkhotel Frankfurt delivers savings of several thousand euros over its lifetime, while making an important contribution towards the environment.

Software Included

Mobotix provides its camera users with a free sophisticated software package for professional video and alarm management - the MxControlCenter. Up to 30 camera images in CIF format can be displayed simultaneously on a 1920x1200 pixel screen at an image rate of 30 Hz simultaneously. An integrated layout editor allows the user to adjust the settings to their individual display preferences. Camera symbols, for example, can be inserted into a building plan, which significantly increases ease of orientation.

Reliable and Future-Compatible

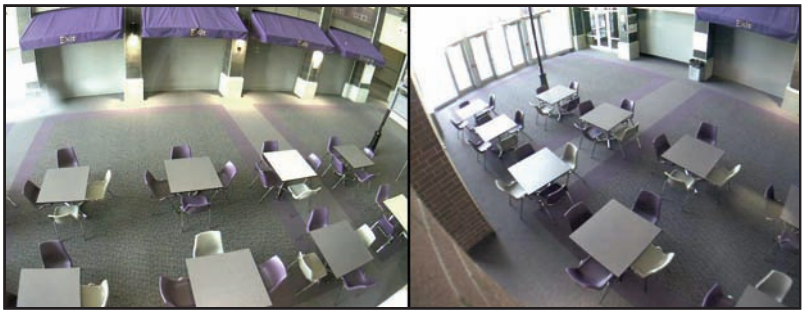
As chief engineer Hizman explained:

The network-based video surveillance and recording solution from Mobotix is much more user-friendly and offers significantly better live and stored image quality than conventional analogue alternatives. We also expect a significantly higher degree of reliability and therefore lower maintenance costs. The fact that the software in the cameras and the MxControlCenter can be updated free of charge at any time also ensures the value of our investment in the future. These are convincing reasons for installing the concept used in Le Méridien Parkhotel Frankfurt in other buildings of our hotel group as well.

This combination of reliability and cost-efficiency, coupled with advanced camera features such as individual addressability and discreet design would seem to make Mobotix video surveillance solutions an ideal choice for the hospitality sector.

EDUCATION SECTOR: Answering the Call from Parents, Teachers and Local Authorities for Safer School Environments

Security and safety in schools is a highly emotive subject and never far from the thoughts of the teacher, the school's governing body and the local education authority, all of whom have a role to play in the implementation of an effective security strategy.



Blatant and violent breaches of security have had catastrophic effects. Over the past ten years, incidents in Colorado, Virginia, Pennsylvania, Finland, Scotland - and the recent atrocity in Winniden, Germany - have resulted in the death and serious injuries of scores of students, teachers and school administrators. These occurrences, coupled with the need for tight budgetary controls, necessarily mean that security provision in the education sector has to be more integrated and demonstrate a forward-thinking approach.

The threat to student safety in schools is driven by a complex mix of cultural, socio-economic and other factors - including intense media attention on each instance of deadly violence on school grounds. Whatever the causal factors, however, the consequent need for effective security in schools is indisputable.

The question is: What measures will give school administrators and security officers the greatest chance at prevention and effective incident management?

Rapid advances in security technology and management theory mean the choices available to specifiers of equipment are vast. However no two schools are the same, so determining what's right for each institution in terms of systems, guarding and management style is absolutely critical.

The security of schools, colleges and universities and the safety of staff and students is one of the most important aspects of educational life. However, it is nearly impossible to deliver the necessary proactive approach within a limited budget. Through initiatives such as the 'Building Schools for the Future' campaign in the UK, funding may be available for schools where security measures fail to deliver the required "duty of care" commensurate with the school / pupil relationship.

A Safer and Cleaner High School

Jackson High School is located in Jackson Township, Ohio and is part of the Jackson Local Schools district. In 2005, Jackson High School was included in Newsweek's list of the top 1,000 schools in the country.

In the spring of 2005 the high school began a multi-year $50,000,000 renovation completed in the 2007-2008 school year. The renovation transformed the school into an eco-friendly, high-tech learning centre, providing an additional 150,000 sq/ft of space.

Upgrade Across the Board

Prior to the renovation, the Jackson High School had an old, analog surveillance system in place, recording to digital video recorders (DVRs). However, a modernised school facility requires up-to-date technology, and Jackson High School decided to upgrade to Mobotix digital IP cameras. With a new school being built, staff and faculty wanted to step up prevention of typical incidents that occur when students are unoccupied in between structured activities. The main focal points were on vandalism, general student safety and improved access control of facilities.

ProTech Security in Jackson Township, Ohio designed and installed Jackson's new security system, which is comprised by a mix of 55 Mobotix IP cameras. The cameras were installed in common areas, hallways, cafeterias and around the schoolyard. Three cameras provide additional coverage of the school bus garage, which had been subject to vandalism and loitering. As a result, authorised school administrators and security staff were now able to monitor and provide access control from any PC in the facility.

A Flexible Solution, Better Image Quality

According to Doug Winkler, Business Manager at Jackson High School,

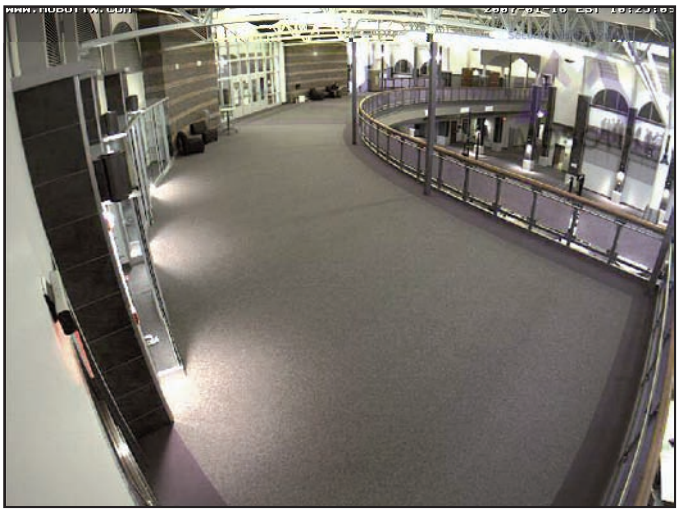
We had major difficulties identifying individual students and events with our old surveillance system. The new Mobotix IP cameras provide clips that are extremely detailed. There is a huge improvement in image clarity. When students know that we can see precisely when, where and what is going on around the school facilities, they simply behave much better. Storage and accessibility of video clips is significantly improved as well. This used to be an issue with the old DVR's. The video took up a lot of drive space and finding specific events could be a daunting task.

An Essential Part of the School Environment

Winkler continued:

The more we can monitor and control our school the better we can protect our kids and staff. We have received very positive reactions from parents. They appreciate the fact that we can offer their kids a safer school environment.

There is no doubt that we will continue to expand our Mobotix IP surveillance system as we grow our school. The cameras have become an important part of our IT infrastructure and it would be hard to live without them.



The new intelligent surveillance system from Mobotix is already demonstrating that the cost of the upgrade is less than continuing to suffer losses with the former antiquated system. In addition, remote access to images, audio and integrated access control means that in the case of security incidents, first responders are not left to rely on guesswork.

Because Mobotix cameras are IP-based, specific cameras can be addressed by other IP-based devices such as mobile laptops and digital phones, so that security, police and fire officials can see what's happening in any particular camera location. Mobotix cameras also support two-way audio, which means that first responders can use IP devices to address a specific camera, hear what's going on in a room and if appropriate speak through the camera to a room's occupants.

These sophisticated features were not available in the previous generation of video surveillance systems, and constitute a very significant advance in enabling safer school environments around the world.

BANKING SECTOR: Discreet and Effective Security at Cash Handling Centers, Financial Locations and ATMs

As the banking industry has responded to pressure from the public for wider and more convenient access to cash, the associated security requirements have risen accordingly. This has required a more sophisticated approach to protecting all parts of the cash handling chain, and Mobotix systems are providing the reliability, flexibility, low operating costs and simple maintenance procedures to enable this procedure to function effectively.

Complete Cash Handling Solutions

TTT Moneycorp Limited is a leading foreign exchange and international payment specialist, tailoring solutions for both private and corporate customers for over thirty years.

Understandably, security is of paramount importance to Moneycorp. All of its locations throughout Central London and at major UK airports are linked to a live, round-the-clock CCTV system.

In particular, Moneycorp has deployed an advanced surveillance system in its high-security cash centre, comprising over 100 Mobotix cameras. These feature-rich, IP-addressable cameras allow Moneycorp to control each surveillance point independently and remotely, and to set the most appropriate parameters on a camera-by-camera basis.

Moneycorp selected Mobotix for its cash centre operation in part because the Mobotix system offers more than simple passive surveillance. In addition to the basic surveillance function, the system is also utilised for staff auditing and compliance monitoring. The system provides not only high-definition recordings and images, which can reveal details not usually available in more traditional CCTV equipment, but also two-way audio communications, event-based recording and onboard storage, all of which allow Moneycorp to maintain much tighter control and communications with its cash centre staff in real-time, as well as providing high-quality forensic images and footage to be studied after an incident, or as a live feed directly to police from an emerging event. The Mobotix installation for Moneycorp thus constitutes a complete security solution.

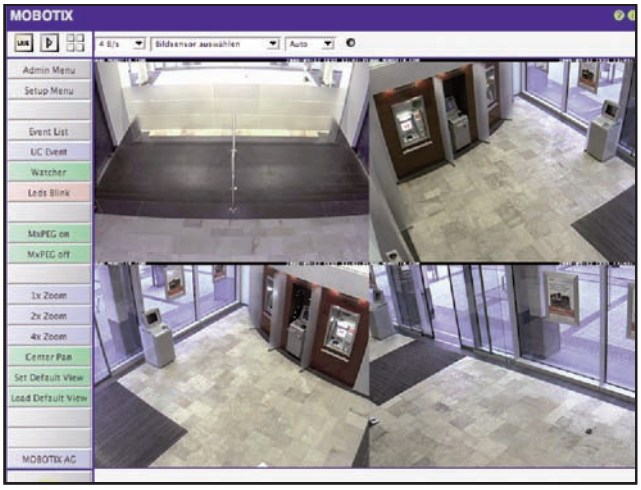
Protecting ATMs, the Backbone of the Retail Banking System

Service terminals such as ATMs are part of our every day lives. Banks have found them to be the ideal solution for taking the burden of routine tasks off their customer service staff, and customers benefit as cash is available where and when they need it.

As the use of ATMs has increased steadily, security risks have risen proportionately. Vault security and vandal proofing are as important as the secure transfer of customer data or the evaluation of biometric data for secure identification. To enhance security, a portrait image is often recorded of customers at the moment they retrieve money.

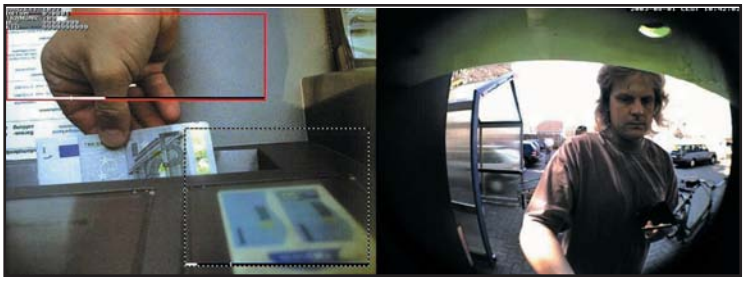
Ideal Solutions

When it comes to protecting automated teller machines, it is also very important to record what happens at the machines themselves. To obtain data that can be used in court, it is necessary to record a front portrait of the bank customer and show the main transaction data at the same time. This becomes problematic if the images are rendered unusable through direct sunlight. This was the situation at a savings bank in northern Germany that installed an off-premise automated teller machine on the south side of a supermarket.



The bank's managers got in touch with the MOBOTIX partner Conect: "The savings bank wanted to increase security and in particular document the moment in which the customer removes the cash from the machine," recalls Karl Heinrich Spiering, managing director of Conect. "In the process, the design of the ATM could not be changed and the PIN pad could not be visible."

The MOBOTIX DevKit proved to be the ideal solution to the problem. The two separate camera lenses allow a dual image to be created with which all relevant times in the transaction can be recorded optimally despite backlight. Specially developed software was integrated in the automated teller machines so that bank data could be read and inserted in the recordings. The bank now has three pieces of information for each transaction: a portrait of the customer, an image of the cash removal event and the corresponding transaction data.



Lower Operating Costs, Higher Security

For the savings bank, the transfer of these three important pieces of information was an enormous step forward. Moreover, since nobody needs to retrieve videotapes from DVRs situated in each bank branch or ATM location, the Mobotix system also reduces operating costs and increases security. The camera data can be accessed directly from the control centre and extremely expensive video printers are no longer needed since the images can be printed with standard workstation printers. The existing IT infrastructure can be used to access the cameras, and since standard browsers and the Linux operating system work with the camera, there are no license fees to pay.

Overall, an Outstanding Success

No wonder the savings bank manager in charge is happy with the solution:

The system is simple and good. I've never seen anything better than this. Compared to this, all other systems were unusable - especially when we compared image quality and user-friendliness.

This prototype's success has encouraged Conect - together with other Mobotix security partners - to develop customised applications for the different ATM systems on the market, as well as other global banking-specific solutions. It's a great result all round!

CONTACT US

Beijing

Bengaluru

Bogotá

Buenos Aires

Cape Town

Chennai

Delhi

Dubai

Frankfurt

Kolkata

Kuala Lumpur

London

Melbourne

Mexico City

Milan

Mumbai

New York

Oxford

Paris

San Antonio

São Paulo

Seoul

Shanghai

Silicon Valley

Singapore

Sydney

Tel Aviv

Tokyo

Toronto

Warsaw

London
4, Grosvenor Gardens,
London SWIW ODH,UK
Tel 44(0)20 7730 3438
Fax 44(0)1865 389515

Silicon Valley
331 E. Evelyn Ave.
Suite 100 Mountain View, CA 94041
Tel 650.475.4500
Fax 650.475.1570

San Antonio
7550 West Interstate 10, Suite 400,
San Antonio, Texas 78229-5616
Tel 210.348.1000
Fax 210.348.1003

enquiries@frost.com
http://www.frost.com

ABOUT FROST & SULLIVAN

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best in class positions in growth, innovation, and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team™ with disciplined research and best practice models to drive the generation, evaluation, and implementation of powerful growth strategies. Frost & Sullivan leverages over 45 years of experience in partnering with Global 1000 companies, emerging businesses, and the investment community from more than 35 offices on six continents. To join our Growth Partnership, please visit http://www.frost.com.