CCTV
Siemens protects Airbus A380 Super Jumbo assembly

The long awaited Airbus A380, which made its first commercial flight on 25 October 2007 from Singapore's Changi International Airport to Sydney, is the world's largest ever passenger airliner, with a maximum capacity of 853 passengers. The final assembly of the 'Super Jumbos', as they have been dubbed, takes place at the Airbus Industries HQ in Toulouse, France. Given the scale of the €12 billion development programme, the new technology being employed and the potential for terrorist attack of such a high profile target, security in the final assembly hangars of Airbus was paramount.

Video surveillance was identified as the preferred method of protection, with several criteria built into the specification. The requirement from Airbus was for an efficient, IP-based high security video surveillance system which was 100 percent compatible with their existing IP infrastructure. Part of the specification was for video motion detection to operate on one standardized platform, offering high quality live viewing, recording and outdoor video motion detection. Airbus also asked that the system design allowed for the possibility of extending the approach to protect multiple sites worldwide, with technical support and a design concept tailored to Airbus' specific requirements.

SISTORE CX EDS intelligent video detection from Siemens Building Technologies was selected and is protecting the final assembly process of what is set to become one of the world's iconic passenger aircraft. The system features initially some 100 speed dome and fixed dome cameras (rising to 250 cameras by the beginning of 2008) plus 20 SISTORE CX EDS systems. SISTORE CX

EDS is an intelligent embedded codec performing streaming, recording and operating as a professional outdoor video motion detection system with object tracking. It is based on the highly successful SISTORE CX platform – the first software module to do so – providing additional functionality for SISTORE CX with the EDS software available as a retro-fit upgrade.

SISTORE CX EDS minimizes false alarms while maximizing detection rates through a sophisticated detection algorithm. Highest detection rates are achieved through a combination of trip wires, the setting of target object direction, speed and size with tracking, and perspective compensation, all of which ensures that objects are detected and tracked, with the initiation of an alarm only if the specific criteria are met. False alarms are greatly minimized through the algorithm which filters out environmental factors such as snow, wind, rain, animals, etc. - the common causes of false alarms. It features built-in compensation for variations in lighting and weather conditions and its high sensitivity also enables detection of obscured objects. Viewing object tracking on a security monitor is clear and simple, with objects tracked in green to show the source direction, turning red and putting the system into alarm if the alarm criteria are met.
Given the requirement for a single operating platform, Siemens also supplied their IVM Interactive Video Management system which runs on local workstations and can be operated via a web interface.

IT Convergence and extensive service support

The need for the system to be backward integrated with the existing IT environment at Airbus demonstrates the ever increasing role of IT convergence in the security equation. The project also highlights the 'value added' element that customers are increasingly seeking when selecting partners for security. For manufacturers of security products, it is no longer a case of simply supplying the product, however suited it might be, to a given application. Guaranteed product support on an international level was identified as a critical factor in the Airbus project, along with intense product specification activities, including product demonstrations, test installations and site analysis. The quality of the available training to ensure the client can maximize the potential of the products is also becoming a feature in the selection process. In the case of Airbus, this training was not only for the security personnel who would ultimately be using the products, but also the installation and maintenance companies identified by Airbus as their agreed service partners.
The Interactive Video Management system employed at Airbus allows for installations of any size, leading to the signing of an agreement between Airbus and Siemens to use the solution supplied in Toulouse as a reference for all Airbus production sites worldwide. Work is already underway on providing security at Airbus sites in the UK, China and India, with the second, third and fourth planes due for delivery in January, February and April 2008 respectively.

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CCTV
Siemens Video-over-IP in the Gotschna Tunnel

To monitor traffic conditions and maintain safety at distant locations, transfer of video images of exceptional quality is crucial. A SISTORE CX video-over-IP solution from Siemens integrates analogue cameras with an intelligent digital video codec, providing outstanding image quality of the Gotschna Tunnel at a superior cost/performance ratio.

The Gotschna Tunnel, opened in Switzerland at the end of 2005 with a length of 4.2 km, and is part of the Klosters by-pass and the federal highway A28 extension between Landquart and Davos. The tunnel reduces travel time to tourist destinations and the traffic burden of local communities. Safety technology is state-of-the-art; fire alarm systems, emergency lights, a hydrant pipeline, measuring equipment for CO_2 concentration, visibility regulation, traffic control, video monitoring facilities, SOS telephones, fire extinguishers, and tunnel radio technology for police and maintenance services.

Video monitoring as a challenge
Video monitoring of the Gotschna Tunnel is part of traffic safety for the Cantonal Police of Grisons; images reach the police force's control room in Chur - more than 30 kilometres away. Emergency situation analysis and adequate response depend on outstanding images. The canton's Civil Engineering Office faced the challenge of selecting video monitoring and data transmission equipment for the 29 analogue cameras distributed through the length of the Gotschna Tunnel. A Gigabit Ethernet connected to an ATM network, standard upon installation five years ago, would be used to transfer image data and control signals.

Analogue-digital-analogue
Video-over-IP offered a viable solution for data transmission, with the most important criteria being image quality and cost/performance ratio, followed by the possibility to eventually replace analogue equipment with digital. The resulting solution was a virtual video matrix, which could digitalise analogue camera signals using an encoder, transfer them via the Ethernet network and subsequently convert digital signals to analogue using a decoder.

Best in test: the SISTORE CX video codec
"The Civil Engineering Office of Grisons subjected four systems to tests under simulated conditions. The intelligent digital video codec SISTORE CX was the clear winner," explains Sandro Mura, responsible for information technology at the Grisons Civil Engineering Office. He continues, *"The decisive factors were the excellent image quality and a convincing cost/performance ratio."*

Flexibly scalable and versatile
SISTORE CX is an encoder and decoder, providing video motion detector, streaming and recording on a digital platform. Its flexible scalability and versatile implementation provide advantageous options. Web-based access across the entire network is simple via LAN/WAN. Image data is compressed using MPEG4, enabling real-time recording and optimum transmission in DVD quality.

In each of the two sub-stations in Selfranga and Drostobel, three SISTORE CX units extract image data to be encoded from a single matrix. At the Cantonal Police Headquarters in Chur, the same number of SISTORE CX units scan the data from the WAN, decode and transfer it to the ATM network (and therefore to the control room) using a codec.

SISTORE CX4 / CX8
SISTORE CX is an intelligent digital video codec, capable of carrying out various functions simultaneously: transmission, recording and analysis. MPEG4 technology enables rapid transmission and excellent image quality. SISTORE CX from Siemens provides users with various realtime modes. It can be operated as an up to a fourcamera receiver (decoding) and eight-camera transmitter (encoding). A combination mode allows for simultaneous operation with four inputs and two outputs (transceiver). SISTORE CX is available with various hard disk sizes for local video recording. Web-based operating software makes SISTORE CX especially user-friendly. It can be conveniently installed and configured via the SISTORE CX home page. This not only shortens the installation time, but also simplifies subsequent configuration and maintenance. SISTORE CX integrates existing analogue cameras into a variety of system and communication infrastructures. The ergonomic user interface is designed as a "virtual matrix" and allows intuitive drag-and-drop operation.

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CCTV
Sicilian supermarket chain “Max Supermercati” invest in Hybrid Security solution

Introduction
Over the last few years, digital video technology has been changing at an increasingly rapid pace. The digital products currently available are more efficient, easier to use and more intelligent than ever before. Nevertheless, replacement of analogue technology with digital technology is sometimes still regarded with a certain amount of scepticism. However, modern migration plans show that this scepticism can now be overcome.

The initial video security technology (CCTV) development phase relied heavily on the experience gained and the processes used in television studio technology. It has been the increasing demand for CCTV in the past few years which has spurred its development into a sector of its own. Whereas the first devices were very large and bulky, a wide variety of products are now available to meet industry-specific requirements.

CCTV today
Purely analogue systems are being installed less and less. This type of system would only be viable in small retail shops for example. Current systems usually consist of a mixture of analogue and digital components. Until recently, components were combined in this way because neither the digital components nor the network technology had been developed sufficiently for fail-safe implementation. This has changed: video technology can now be securely and conveniently integrated in network environments due to the proliferation of Intranet technology based on the TCP/IP networking protocol.

Situation/conditions
Sicily, with its 25,700 km², is the largest island in the Mediterranean Sea and houses around 5 million inhabitants. Created in 1953 by Umberto Romano as a small “bottega alimentare”, the Sicilian “Max Supermercati” has grown from a single corner shop to a supermarket chain with more than 40 stores all over the island.

Loss prevention is one of the most vital parts of any retail enterprise. Shoplifting or internal shrinkage often prove to be a large threat to the balance sheets. This causes Europe’s merchants an estimated damage of 29 billion euros. Shrinkage and liability can be reduced by installing a scalable, centralized digital video security system. This not only provides a fully automated video asset management system but also eliminates problems such as video degradation, misplaced tapes and content availability. Digital video systems not only offer fast access to and retrieval of video content, but also provide high-quality images with digital signature that are acceptable as evidence in court. The implementation of a digital video system can save significant time in a store incident investigation.

The Max Supermercati supermarket chain was working with traditional analogue CCTV components for several years. As the numbers of security-related issues, like theft, vandalism, internal shrinkage due to high employee fluctuation etc., continued to rise, the company’s forty supermarkets and warehouses, including car parks, needed to be monitored more professionally to avoid further theft and vandalism.

Challenges faced with upgrade:
The Max Supermercati security team faced several challenges when the upgrade of their analogue system was decided. An ageing analogue video surveillance system was still in use, so where to find the investment to start a completely digital video system was a big issue. Would the infrastructure have a bandwidth large enough to transmit video streams? Could anything be done to minimise the upgrade cost?

Hybrid solutions
The combination of digital recorders and analogue cameras represents an ideal initial step towards converting to digital technology and replacing analogue recording devices.

So-called "hybrid systems" will have a big role in the security market until all-digital video systems have established themselves. One reason for this is the price, because digital CCTV systems are still more expensive than traditional analogue systems, yet they provide numerous improvements when it comes to data storage, transmission, event recognition, etc.

Of the many digital products available today, one of the latest products offering "Hybrid technology" is the SISTORE MX – the hybrid video recording system from Siemens which was also chosen for the Max Supermercati supermarket chain in Sicily.

SISTORE MX digitally records, displays, and stores the video images from the various analogue and IP security cameras. Periodical checks or tape-changing are a matter of the past. Research within the video material is event-based and takes only a few minutes, also due to the highly advanced search functionalities. Amongst other criteria, video footage can be retrieved for a specified time and date within seconds, saving an immense amount of time that would otherwise be needed sifting through the database.

Solution
With this hybrid system, it was possible to reuse the previously installed analogue cameras and connect them to SISTORE MX as it has 32 analogue BNC inputs available. Moreover, up to 32 IP cameras could be connected – this resulted in utilising existing cameras and allowed the supermarket chain to expand using digital IP cameras. Many of the stores already had structured Ethernet cables in their buildings (as most modern buildings today do), so the possibility was there to create a dedicated IP network just for security. Also, as IP cameras can be added to a system very swiftly, this greatly reduces installation time and costs as they are connected directly to an already installed Ethernet network.

But not only the Ethernet network could be reused. Several of the existing standard and vandal-protected dome cameras in the installation, often used in retail installations due to their discreet appearance, could be upgraded using the IP modules CVVA-IP and CFVA-IP. These are specifically designed to transform analogue dome camera into a hybrid-dome from the 10 existing fixed domes in the current Siemens product range. This resulted in an enormous cost saving for Max Supermercati's 40 locations.

Added to the system was also a new product the hybrid camera CCIS1337. This device can be installed as a standard analogue camera in the first place. Once the network installation with Power-Over-Ethernet is ready it can be used as a high performance IP camera.

How it works...
The shop and cash register are monitored and recorded using several cameras depending on the size. This allows for observing all transactions. The payment transactions as well as withdrawals from the cash register by personnel are also recorded and monitored.

SISTORE MX devices are connected to the central control and administration centre in Caltanissetta, thus ensuring the control of stores all over Sicily.

A SISTORE MX system is placed into each of the 40 locations such as warehouses and supermarkets in Sicily. From the RemoteView Software in the central control centre in Caltanissetta, it is possible to display the live images of several cameras, either analogue or IP, on one screen. The RemoteView Software also allows cameras to be selected from a graphical map, in this case with an overview of the stores on Sicily, then upon selecting a specific store, the map changes to a local floor plan showing camera locations. And, of course cameras from different locations can be displayed at the same time.

Alarms from the warehouse locations, for example caused by motion in the warehouse at night or from doors that have been opened will be sent from each SISTORE MX individually to the central RemoteView and are displayed as an alarm window. In parallel the system itself can send an SMS or email to the security office or even to the owner of the supermarket chain. An auto-backup feature ensures that the most important recordings are saved and therefore available whenever needed.

Conclusion
The status quo of video technology, which is to use a mixture of analogue and digital components, has proven effective for the time being. Digital technology has more valuable functions, simple scalability and easier access options. Time-tested analogue technology, on the other hand, is distinguished by its image quality and especially fail-safe connections. An effective video system combines both of these technologies. True 24-hour surveillance by day and by night, indoors and outdoors.

Max Supermercati now has a future proof system that is using the already installed equipment and is thus protecting the original investment.

Even if companies are ready to move over from traditional analogue CCTV equipment to digital IP solutions, there are many questions to be answered in the first step. There are many benefits using digital technology, but in most cases, there is a lot of analogue equipment installed and a complete new investment would cost too much money. The best solution offered right now is a hybrid one. Using the best of both technologies, analogue and digital, and offering a modular architecture that allows the introduction of new technologies as they become available.

The video technology market has been on the move over the past few years. Max Supermercati is moving with it.

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