

Security Electronics & Networks

Security Managers ♦ Integrators ♦ IT Managers ♦ Installers

April 2013 Issue 342

RED SHIFT

- ARA secures Bankstown Sports Club
- Product review: Tecom Challenger10
- Bosch Video Management System 4.0
- Choosing HD Cameras Part 2
- Axis, Milestone & Agent Vi
- MONA displays Honeywell DVM
- Mobotix free Mobile Application
- Avigilon's new HD Bullet cameras
- ADT swoops on Auckland Airport
- Capacitive field effect sensors

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SECURITY MARKET GROWING UP

By John Adams



At all times and all levels we are seeing more and more product that depends on network support. Major trends of simplification include network sniffers that find devices and propagate them into management solutions. And supporting these devices are increasingly stripped down VMS solutions running on tablets and smartphones.

THERE'S increasing IT maturity taking place in the electronic and networked security industry and it's extremely good to see. We need to see more of this maturity.

I think we'd all agree that for a long time there's been a divide between most security integrators and the IT function. It would be a mistake to suggest this division has been industry-wide because the best security integrators are eating IT for breakfast but for many installers handling stuff like IP addresses and port forwards is still a bit much.

The response to this resistance has come from all directions. We've seen some distributors supplying systems that are entirely pre-commissioned (think Pacom and Lan1), and we've seen manufacturers and distributors simplifying IP solutions significantly.

This increasing closeness between manufacturers/distributors and integrators is telling, in my opinion. It extends from training to commissioning, to alliances on installations and new product development. I think it's in great part an evolutionary response to the nature of our live market, which has less money to spend but which requires greater technical support for IP-based solutions.

In the U.S. there's also evidence of consolidation at both vendor level and integrator level. This reflects pressure and a willingness to take real risks to win future opportunity. I do see some evidence of that going on in Australia, though to a far lesser extent than the U.S. In my opinion there are only a handful of organisations here with the fiscal muscle to make worthwhile acquisitions and almost none brave enough to spend big in this slow market. I think when buys do come, we'll see them take place between IT companies and physical security suppliers and integrators.

At all times and all levels we are seeing more and more product that depends on network support.

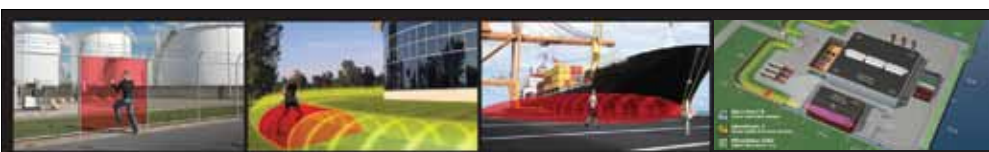
You could be forgiven for thinking it's all about video surveillance but it's not. I was really pleased to read about the new Optex Redwall PoE detector during the month. This sensor is designed to slot into PSIM or VMS applications. I'm looking forward to the release of PoE sensors for business and domestic applications in the mid-term future. Whether these will be hardwired or WiFi, time will tell.

While some may suggest I'm going a bit far with all-IP alarm systems, I'd argue not. With PSIA releasing its new standards for intrusion alarms and access control during the month, it's impossible to deny that there will come a time when alarm systems are going to conform to network standards.

You only have to look at the success of ONVIF to see that once a couple of key companies head in the direction of some gleaming new niche, the rest of the herd forms up close behind them. It only takes one bright spark to create a basic IP-alarm system using readily available technology and the rest will be history. A 50-dollar HD camera-quad PIR with a SIM card? It's not the Ness Security Guard but it could be.

When it comes to larger solutions, will an all-IP alarm system be a network device? Probably yes and partly no. An alarm panel needs to retain the ability to stand alone though there's no reason a PoE device could not manage this just as well as a majority analogue system.

You have to put yourself into the headspace of the people building the systems of the future for the people who will use them. The signs start with market leaders. To my mind, the best new alarm panels are undeniably network-capable platforms upgradeable by firmware. With IP ports, flash drives and USB connectivity onboard they're only a couple of pieces of functionality away from our fully networked future. ▽ ▽ ▽



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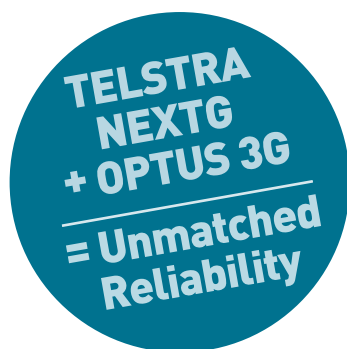
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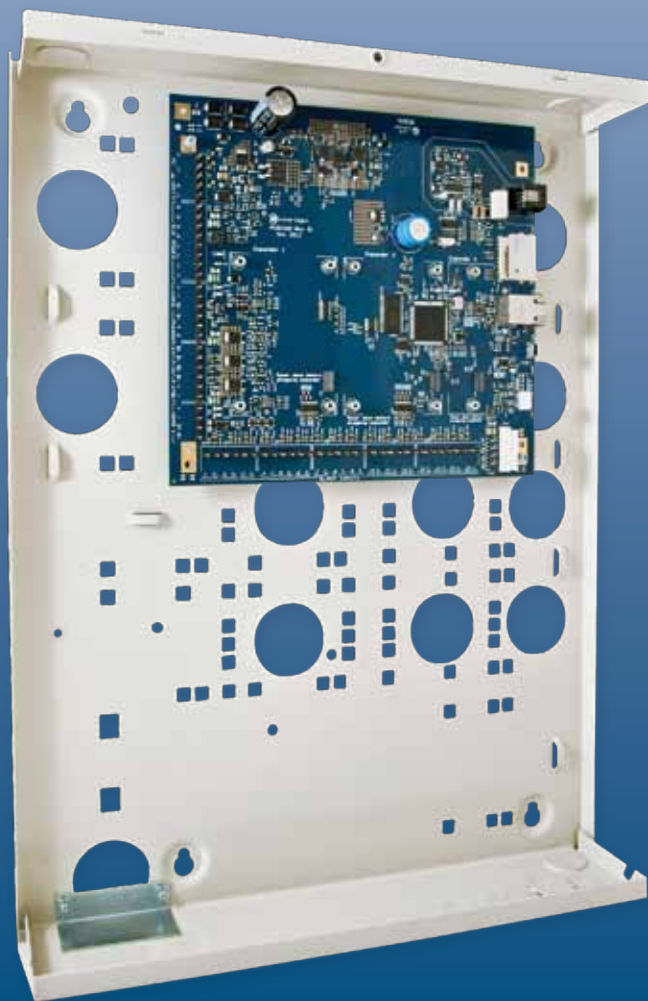
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For more information, or to schedule a product demonstration, please contact Interlogix or your local DAS branch.



68



64



54

INSIDE

APR 13

20: HIGH PERFORMANCE

ARA Security is midway through upgrading a high performance electronic security solution at Bankstown Sports Club comprising more than 800 cameras including Panasonic WV-SP509s, a Geutebruck recording head end and Bosch's Security Escort Mobile Duress System, with CCTV and alarms integrated using ARA's own CLUBLINK GUI.

30: BOSCH VMS 4.0

Bosch has released its latest version of Bosch Video Management System (Bosch VMS) 4.0 featuring an enterprise level distributed multi-site IP architecture, enhanced client and user mobility, new integration possibilities via SDK, as well as ONVIF Profile S support.

34: TECOM CHALLENGER10

Interlogix is putting the finishing touches onto its new Tecom Challenger10 security control panel, a solution that offers vastly expanded performance and full backwards compatibility with Challenger v8.

50



48: HD CAMERAS PART 2

In Part 2 of our HD camera feature we ask just what are the key features and functions installers and end users should be looking for when they choose HD cameras?

54: MONA DISPLAYS HONEYWELL DVM

Honeywell has announced an updated version of its digital closed-circuit television surveillance system, Digital Video Manager (DVM), which has been deployed at the Museum of Old and New Art in Hobart.

56: UPWARDLY MOBILE

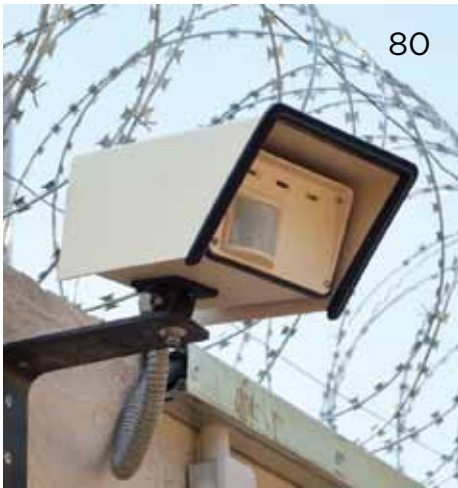
New from Mobotix is the free Mobotix App, a mobile remote station for Mobotix cameras and door stations that allows live viewing, recording search, as well as audio communication in a bandwidth optimised Internet or WiFi environment

60: AXIS, MILESTONE & AGENT VI

Integrator Technology Resource Advisers has installed a networked surveillance system incorporating Axis cameras, Milestone software and Agent Vi video analytics across Brown County's municipal sites in 9 villages, 13 towns and 2 cities.

64: AVIGILON HD BULLET CAMERA

Canadian manufacturer Avigilon has released its new Bullet range of ONVIF HD cameras



with H.264 compression. These IP66-rated outdoor HD cameras feature an IK10-rated metal housing, a polycarbonate sun shroud and a piercing 30-60m adaptive IR gaze - that's long-sighted.

68: ADT SWOOPS IN AUCKLAND

ADT New Zealand has been selected as the integrator in a project that will install CEM Systems AC2000 system at Auckland Airport's domestic and international terminals.

72: TUNING FORKS

Capacitive field effect sensor perimeter solutions operate on the basis of tuned circuits which create resonant frequencies that are broken by intruders to trigger alarm events.



+ regulars

10: NEWS

Latest business, product and technical news from Australia and around the world.

44: MONITORING

As Australia's population ages there's a growing market for monitoring of personal emergency response systems (PERS). However, most personal monitoring solutions while locally capable, are relatively old technology and they don't take advantage of modern 3G cell or GPS technology.

76: EDITOR'S CHOICE

What's new from our manufacturers.

80: HELPDESK

Our team of electronic security experts answers your tough technical questions.



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OPEN PLATFORM SYSTEMS AND BRS LABS ANNOUNCE ALLIANCE

● BEHAVIOURAL Recognition Systems, Inc. (BRS Labs), creator of AISight, the first artificial intelligence system for enhanced video surveillance that delivers real-time alerts for suspicious behavior, has announced an alliance with Open Platform Systems (OPS). Under the terms of the agreement, OPS will market AISight real-time threat recognition and response systems exclusively within Australia and New Zealand, with the potential for future expansion to additional markets. "BRS Labs gives our customers dramatic improvements in real-time situational awareness that no other video surveillance technology can match," said Kobi Ben-Shabat, founder and chief executive officer at OPS. "BRS Labs' AISight system is already certified to work with our current best-of-breed vendors, which greatly accelerates how quickly customers can benefit from this alliance. BRS also shares our unwavering focus on quality and performance. We are very excited to be working together." Meanwhile, Ray Davis, CEO of BRS Labs, says his company has always set a high bar for customer satisfaction.

"So OPS is an ideal partner for us, since we both insist on strict standards for excellence and can deliver the level of sales, service and training that make for a truly exceptional customer experience," Davis says. "Together, we have the opportunity to redefine what the market demands for intelligent video surveillance. We look forward to supporting each other's ongoing growth in Australia and New Zealand." The agreement was signed at the Shangri-La Hotel in Sydney by Davis and Ben-Shabat, in front of company officials and invited media. Opportunity assistance was provided by the U.S. Commercial Service arm of the United States Commerce Department.



Kobi Ben-Shabat (l) with Ray Davis

CAMERAS HIJACKED AT CROWN CASINO MELBOURNE

● MELBOURNE'S Herald Sun has reported a gambler used video from security cameras to see opponents' cards and scam the Crown Towers Casino for around \$A32 million in 8 key hands. According to the report, the gambler was being hosted in one of Crown's high-roller suites.

Apparently during the play, an unauthorised person was given remote access to the casino's surveillance systems and was able to relay information about opponents' hands to the gambler. One imaginable possibility is that a member of the gamblers' own security entourage was allowed to monitor scenes using security cameras that were then used to watch other players but this seems highly irregular, and very unlikely. Victorian Law Reform Commission report states that Crown Casino has "one of the most advanced, complex and comprehensive video surveillance systems currently in use in Victoria".

In the wake of the scam a gambling expert Barron Stringfellow told ABC Melbourne that hacking a casino's security system isn't as hard as one would imagine. "It's very easy to intercept a signal from many casinos that don't take precautions."

However, Robert D. Grossman, a US security consultant who works extensively with casinos, is reported to be surprised by the scam as it's unusual for anyone to gain authorised access to a gaming surveillance system.

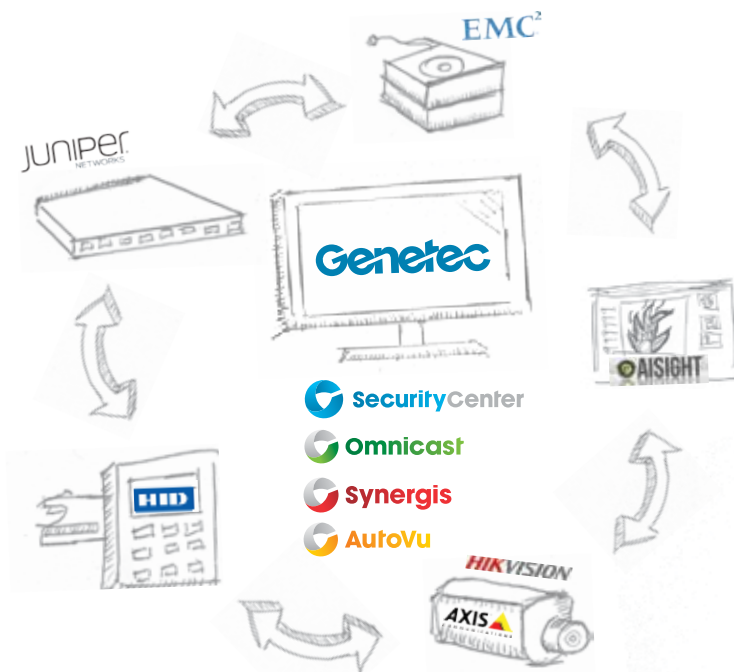
It's hard not to speculate that if a third party obtained remote access to cameras it must have been under very unusual circumstances. Standard casino surveillance procedures are strict, modern digital cameras generally live on secure subnets with little or no remote access, gaming cameras are separated from security cameras and gaming CCTV teams are strictly vetted.

Patching into a security or gaming camera in a well-designed surveillance system and shifting audio around using RF in a reinforced concrete structure with antenna "fine as a strand of hair", as has been reported, is profoundly difficult and would have required significant technical support. It seems there's more to this story than meets the eye.

Meanwhile, a Crown spokesman said the casino was investigating the rort. "Crown's surveillance department recently reported concerns over a sophisticated betting scam," he said. "A Crown investigation is under way and is ongoing."

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“I can honestly say, for all the high profile security projects we deploy solutions for on a daily basis. We are only able to maintain such high standards thanks to the dedicated back-up service OPS provide.”

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AUCKLAND'S EDEN PARK TRIALS DALLMEIER'S PANOMERA



● NEW technology used for the first time at Eden Park enabled a single camera to record an entire grandstand and monitor thousands of faces. The next generation surveillance system acts as a kind of fourth-referee for the crowd, and effectively does away with the need for multiple CCTV cameras. Signs of trouble can be picked out and individual spectators zeroed in on, gathering detailed and full resolution video footage for evidence. A rugby game between the Blues and the Crusaders was used by distributor C.R. Kennedy to show off the technology to interested parties from around New Zealand. Eden Park spokeswoman Tracy Morgan said the ground was considering the technology to “enhance” current security systems. “We are simply a review site...they are using us so that they can show it off to everyone else,” Morgan said. “They are using the park

as a trial, it's not necessarily something that we see a need for at the moment.” Eden Park already had 270 CCTV cameras, which provided full coverage of all stands and other areas such as carparks. C.R. Kennedy New Zealand, the Mt Wellington-based company displaying the new technology, declined to comment last month. It offers Australasian distribution of the technology with its sister company, C.R. Kennedy & Company Australia. The Panomera camera, made by German manufacturer Dallmeier, captures and records the whole crowd constantly in up to 51 megapixels. Importantly, when the operator zooms in on a trouble spot, the wider picture can be viewed and permanently recorded simultaneously. For applications like stadiums and airports Panomera is a powerful monitoring and investigative tool.

PSIA RELEASES ALARMS AND ACCESS PROFILES

● The Physical Security Interoperability Alliance (PSIA) has released 2 new profiles – one for access control and the other for intrusion detection – as well as a tool for testing whether products conform to the profiles. “We’re excited to introduce the first working profiles and test tool to the physical security industry,” PSIA executive director David Bunzel says. “These profiles will enable a very wide range of vendors to quickly and affordably comply with PSIA specifications and expand plug-and-play compatibility across the security ecosystem.” The access control and intrusion detection profiles draw their data elements from the PSIA’s broader Area Control specification. The test tool certifies that a product or system fully complies with either or both of the new profiles to ensure plug-and-play interoperability. It encompasses 2 distinct testers that simulate both host-side systems as well as device-side systems for Profiles compliance. Vendors that have used the Profiles Test Tool to assess conformance with the new profiles include Honeywell, Inovonics and Kastle Systems. “We’re very excited about how the profiles will increase the number of standards-based products in the physical security world,” Bunzel says. “Consultants, integrators and end users will have many more choices for building powerful security solutions with low total cost of ownership.”

INDEPENDENT INSTALLING CYBERKEY AT DARWIN AIRPORT



● INDEPENDENT Locksmiths & Security is installing a Cyberkey wireless access control system throughout Darwin’s international airport. According to Independent Locksmiths & Security’s Ryan McGovern, as part of the installation the company will deploy key authorisers in the field that are powered by solar panels and communicate with the Cyberkey’s main server using 3G modems. The CyberKey is an electronic key that serves as an authorizing credential. A USB port provides a downloadable audit trail and the ability to update the device with new information. The rechargeable key can be programmed to work on any CyberKey equipped locksets.

SHAUN ATTARD JOINS FAST GROWING BGWT

● BGWT reports Shaun Attard has joined the company as business development manager NSW/ACT. With 20 years experience in the electronic security industry, Attard says he’s looking forward to the challenges ahead. “We’re delighted to welcome Shaun to BGWT,” said BGWT’s general manager NSW/ACT/SA, Josh Simmons. “He’ll be bringing the market some brilliant products, including the new Sony Gen 6 HD family of box and dome cameras, as well as the award winning ONSSI Ocularis Management Software.”



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HELL FREEZING'S OVER

● Axis Communications has released video footage from a mast-mounted Q6034-E network camera that joined a recent Arctic expedition, on the 31-foot yacht Belzebug II. Strong winds, salt spray, rain, icy cold and constant movement didn't phase the camera, which was used by crew as a lookout when crossing M'Clure strait in the Canadian Arctic.

The expedition team, consisting of Edvin Buregren, Nicolas Peissel and Morgan Peissel, was the first to sail the route from Greenland to Alaska, a route previously only been broken by an icebreaker.

"When sailing through ice you need someone sitting in the masthead with a bird's eye view. It's the worst place you can be when you sail, weather, wind and movement is much worse up there than down on the deck", said Edvin Buregren, one of the international expedition team members of Belzebug II.

"We had a WIFI network onboard that the camera was connected to. It meant we could control the camera and look around in 360 degrees without even turning our heads. It is an invaluable asset when sailing in difficult waters and harsh weather", said Edvin Buregren.

For Axis the sailing expedition is proof that AXIS Q6034-E withstands very heavy use.

"The expedition through the Northwest Passage in particular shows the camera is capable of being subjected to tremors, vibrations, humidity and temperature changes for several months, which is very satisfying", said Erik Frännlid, director, product management, Axis Communications. The expedition was made to be a visual example of the declining polar ice which has now opened sufficiently to allow a small yacht to get through.

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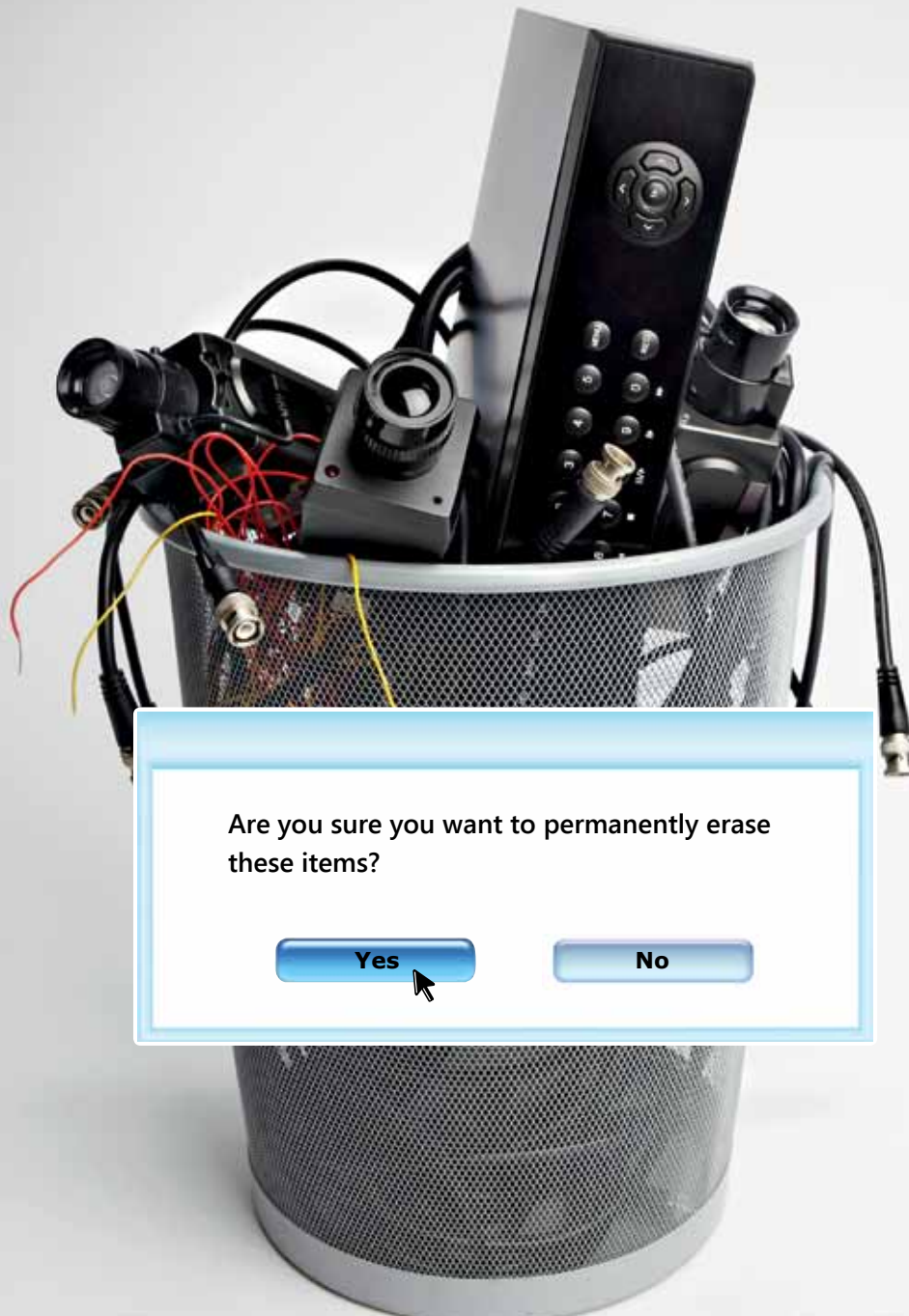
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HDD STORAGE SET FOR 5X INCREASE

● THE storage capacity of HDDs could increase by a factor of 5 thanks to processes developed by chemists and engineers at The University of Texas at Austin. The researchers' technique, which relies on self-organizing substances known as block copolymers, was described in an article in *Science Magazine*.

"In the last few decades there's been a steady, exponential increase in the amount of information that can be stored on memory devices, but things have now reached a point where we're running up against physical limits," said C. Grant Willson, professor of chemistry and biochemistry in the College of Natural Sciences and the Rashid Engineering Regents Chair in the Cockrell School of Engineering. "The industry is now at about a terabit of information per square inch," said Willson, who co-authored the paper with chemical engineering professor Christopher Ellison

and a team of graduate and undergraduate students. "If we moved the (magnetic storage) dots much closer together with the current method, they would begin to flip spontaneously now and then, and the archival properties of hard disk drives would be lost."

There's a quirk in the physics, however. If the dots are isolated from one another, with no magnetic material between them, they can be pushed closer together without destabilization. This is where block copolymers come in. At room temperature, coated on a disk surface, they don't look like much. But if they're designed in the right way, and given the right prod, they'll self-assemble into highly regular patterns of dots or lines. If the surface onto which they're coated already has some guideposts etched into it, the dots or lines will form into precisely the patterns needed for a hard disk drive.

HID GLOBAL'S PROJECTED ACCESS TRENDS

● HID Global has made a set of predictions that span a broad range of market segments including physical access control, logical access control, and mobile access control

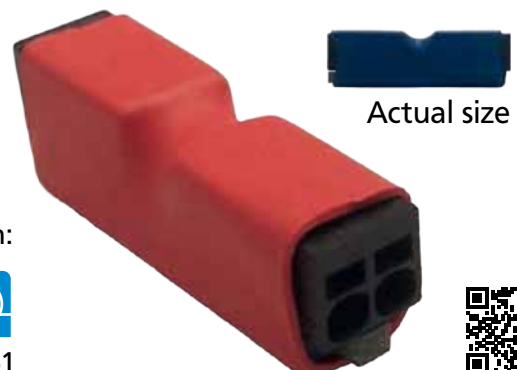


using NFC-enabled smartphones. Other market segments covered in the company's projections include visitor management, secure credential issuance, and RFID tagging for traditional asset tracking applications as well as new uses, such as product and document certification and authentication. "We believe that 2013 will be a watershed year for the secure identity industry, due to important advances in technology that will drive increased security and an unprecedented user experience across both existing and new markets," said Selva Selvaratnam, senior vice president and chief technology officer with HID Global. Predictions include users wanting to move to a more 'frictionless' security experience, mobile access control accelerating and dramatically change the industry and NFC-enabled smartphones co-existing with cards for opening doors and other applications. HID says identity management will move to the cloud, supported by new managed services, secure issuance advancements will make it easier to create and distribute more secure cards and a new category of trusted NFC tags will change how businesses secure assets and protect consumers.

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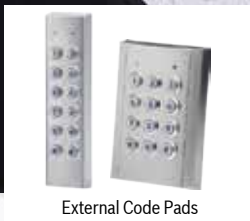


Solution 144

Integrated Access Control & Alarm
for commercial applications



GSM / GPRS Module



External Code Pads



Biometric Reader



Bosch have designed a security and access control system that has the alarm features you've always loved, with the access control capabilities you've always needed. A solution where the important features include:

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- Up to 144 zones & 256 users
- Full text menu display for programming & user control
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BIRDS' EYE VIEW FROM RAYTEC



● RAYTEC Infra-Red lighting has been installed in a specialist surveillance system to monitor osprey nest activity in 'The Friends of Island Beach State Park', Iowa, USA. The whole system is powered exclusively using solar power.

The State Park wanted to commission a high resolution Pan/Tilt/Zoom camera observation system to transmit live footage of the nest back to their visitor centre. One of the desired requirements was being able to clearly observe the birds nesting at night. Mains power was not available, so all equipment needed to be powered by renewable energy.

JES Hardware Solutions based in Florida, USA, was responsible for the design and installation of the system. JES selected RAYMAX low voltage Infra-Red illuminators due to their high performance specification, zero maintenance requirement, long life and reliability (given the remote nature of the site), along with their ability to be battery powered.

Raytec's low voltage IR units are powered directly from 12-24 V and were installed alongside an Axis P5534E camera, while the JES high speed wireless camera bridge delivers 720P video footage at 30fps to the park's visitor centre 24/7 365 days a year.

Solar panels at the base of the column charged two batteries during daylight hours so that the camera and lighting could run at night.

The Raytec lighting produced high quality, powerful IR illumination, enabling the camera to generate excellent black and white CCTV images of the nest in total darkness. The quantity and quality of the illumination needed to be sufficient enough to allow the video surveillance system to produce high quality footage at full frame rate.

"We were challenged with a power constraint as we were running on batteries," said James Sessions, president of JES Hardware Solutions. "But the Raytec IR lighting performed extremely well and the customer is pleased beyond their expectations".

VIVOTEK EXPERT CERTIFICATE PROGRAM



● VIVOTEK has launched its VIVOTEK Expert Certificate Program (VEC), which is available exclusively to official VIVOTEK distributors and system integrators, aiming at cultivating genuine experts in VIVOTEK products, solutions and technology. The program rolled out globally in March. VIVOTEK's program consists of a 2-day or 3-day workshop. Material covered in the workshop includes a comprehensive and detailed introduction of all the features and functions of VIVOTEK cameras, as well as discussion of the technologies, the benefits, and the applications of VIVOTEK cameras. In addition, the VEC program also enables participants to better understand the VIVOTEK brand spirit and company objectives, while also facilitating exchanges of first-hand experience and the latest market intelligence among participants. The VEC program provides such expertise,

enabling VIVOTEK distributors and system integrators to more effectively sell and support VIVOTEK solutions.

"Maintaining a trustworthy and close relationship with our partners is the core philosophy of VIVOTEK," said Steve Ma, VIVOTEK's Executive VP. "Our business success will be achieved together with our partners. The VEC program, especially designed for the cultivation of VIVOTEK experts, is to be the stepping stone for VIVOTEK and our partners worldwide to the next business peak."



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HIGH PERFORMANCE



ARA Security is midway through upgrading a high performance electronic security solution at Bankstown Sports Club comprising more than 800 cameras including Panasonic WV-SP509s, a Geutebruck recording head end and Bosch's Security Escort Mobile Duress System, with CCTV and alarms integrated using ARA's own CLUBLINK GUI.

FOUNDED in 1958 to provide a social outlet for local sports people, the Bankstown Sports Club now has 60,000 members and supports 40 different local sports groups which themselves have a combined membership of 8000. It's a massive operation, employing 500 staff and turning over \$A100 million annually, all of which is ploughed back into the community through general operating costs, direct investment or social initiatives like the ClubGRANTS scheme.

When I arrive at the club it's 10am - early for a licensed club - yet there are already people arriving, mostly groups of older folks and mums with kids in



Tony Murr (I) with BSC's Mark Condi



tow. Signing in at the concierge's desk I get the sense the place is already humming. Looking around the foyer and into the vast adjacent areas it's clear this is a site with a history replete with layers of legacy design and technology. But there's no sense of staleness here. This is a vibrant and impressive operation in the midst of a process of rebirth.

Trying to give readers a sense of the scale of the Bankstown Sports Club isn't easy. Arriving for the first time the site seems to fill an entire block. It has 3 levels, a hotel, restaurants, cafes and a massive kid's club that must be among the parenting world's great wonders. It really is a jaw-dropper. There's a ballroom, grand hall and a multi-level carpark. There's also La

The underlying purpose of the electronic security solution being installed at BSC is security and safety for guests and staff, and protection against insurance fraud.

Piazza precinct, which includes an Italian restaurant, a pizzeria, pasticceria, gelateria and wine bar and plenty more.

And there are the gaming areas, indoor and outdoor, which include hundreds of machines and tables which are a focal point of much of the club's surveillance system. While gaming is an important aspect of revenue generation, walking around the place it distinctly feels that revenue is an adjunct to the more serious commitment of bringing local people together. If this sounds a bit mealy-mouthed, there's this. All club profits go to improving the club and supporting the local community. And when you're inside this club you really do get a sense of that community. It's almost like being inside the heart of Bankstown and that's a surprisingly warm place to be.

Showing me around Bankstown Sports Club is ARA Security's Tony Murr, who exhibits the profound sense of ownership you so often find in quality integrators - there's very little separation of identity between the club and the ARA team as he tells the story. Murr designed and is overseeing the installation of this solution and it's immediately clear he sees Bankstown Sports Club's electronic security solution as an expression of the best of himself.

Sitting in the InTouch cafe cradling my triple-shot morning coffee, I listen to Murr talk about the solution while the tables around us fill up with groups of seniors sharing breakfast along with mums and dads and their kids.

According to Murr, ARA has designed and is in the process of installing and commissioning the entire system, which includes a Geutebruck recording head end, Geutebruck VMD and ARA's own CLUBLINK control room head end. Bosch's Security Escort is also integrated into the overall solution.

The underlying purpose of the electronic security solution being installed at BSC is security and safety for guests and staff, and protection against insurance fraud - it's a typical brief for a system of this type. What's not typical, however, is the underlying nature of the system. It's designed to offer maximum performance on all inputs at all times and this performance is written into the system's DNA.

"Simply, the Bankstown Sports Club wanted to protect its investment and management was prepared to use the best technology to achieve the



Gaming floor cameras

level of safety and security the site requires," explains Murr.

"Management wants the community to have peace of mind when they come here, to know they are in good hands and to know that if an incident occurs, management and the security team will instantly respond.

"BSC management entrusted us to deliver the best possible system delivering maximum performance and being future-proof. The management team comprises intelligent, straight-shooters who embrace technology and who are all about trying to be a step ahead of the market."

According to Murr, the solution he designed for BSC has a strong performance bias in all areas - cameras and lenses, cabling, viewing of live video, viewing of recorded video and presentation of alarm events driven by Geutebruck VMD and the integrated Bosch Security Escort solution.

"We took the time to investigate the best integration solutions for the end user," Murr tells me. "Systems like this are used in casinos around the world. If it's good enough to use in Casino Baden Baden in Switzerland, it's good enough for BSC."

ARA's business relationship with BSC is built around Murr's faith in the quality of the products he selected for the installation, his engineering team of Michael Vais, Xavier Hicks and Jon Deece, as well as the quality of the installation itself.

"No matter what fails it's on us to fix it as part of our contract," he explains. "BSC has a full comprehensive warranty so whether it's a patch lead, a server, a fan, a UPS, an HDD, a motherboard or a monitor we are responsible.

"This puts us on the chopping block but it also says that we believe in this system so much that we are prepared to offer a full comprehensive warranty, not just on parts but on labour."

Something that sets this system apart in my mind is the installation of Bosch's Security Escort Mobile Duress system, which is integrated into the surveillance system. Security Escort is a system of RF receivers that monitor the signals from carried duress/person-down devices and reports real-time mobile alarm events to a control room server. It's a

Simply, the Bankstown Sports Club wanted to protect its investment and management was prepared to use the best technology to achieve the level of safety and security the site requires.

powerful statement of BSC's commitment to staff safety.

"There's no other club in Australia using this technology - we are the first," says Murr.

Before we get started on discussing the system it's worth bearing in mind that the installation of the electronic security system at BSC is phased to fit in with the club's ongoing program of renovation works. Club functions are relocated while a section is screened off and refurbished and then re-opened to guests.

The ARA team is currently in the midst of the second and largest phase of the project, with phase one, the gaming floor with approximately 170 cameras on a fibre backbone. Also completed during this phase was the Security Escort and CLUBLINK installation. What we are going to do in this story is discuss the work completed within the context of the overall solution, which being modular in nature will be a series of extensions of the new IP system.

Importantly, there are other sites associated with Bankstown Sports Club, including Baulkham Hills Sports Club, Birrong Sports Club and Bankstown Bowling and Sports Club. ARA looks after electronic security for all of these sites with cameras already linked back to the BSC's main control room via ADSL or fibre and the BSC solution may be applied to these remote sites over time.

Now, it goes without saying that there's a substantial legacy system at BSC which includes hybrid Geutebruck MultiScope DVRs and a combination of more than 800 analogue, IP and MP cameras. This hardware is driven by a Pacom 9760 switcher, and just for reference, the entire hybrid solution takes up 20 nine-inch ARU racks in the surveillance room with all bays filled from top to bottom. When fully digital the space required will be less than a third of this.

DESIGNING FOR PERFORMANCE

There's one thing that defines the new system at BSC and that's performance, with each element of the system chosen specifically for its ability to handle heavy workloads. This performance-bias isn't just about selecting the best products for the job, it's also about a system design that leverages the best performance from those products.

"This system is based around the idea of putting the best of the best together," Murr tells me. "The best management system, the best cameras and the best cabling so as to create a top full-digital surveillance solution.

"That starts with the Siemon fibre backbone going into Cisco switches, the patch panels and RJ-45 surface mount boxes and the high performance Siemon Cat-6a cable. People might say 'cable is cable, what's the difference?' I can assure them that when you're using high end equipment there's a massive difference.

"The speed this cable can carry data is lightning fast and it allows an image quality I have not seen anywhere else and we use all this power to support



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our high quality cameras. In my opinion, the WV-SP509 camera is out of this world, it really is one of the best value for money cameras on the market.

"I put it up against all the best 1080p and MP cameras during the process of selection. We tested the cameras in 6 different environments including low light, challenged them with rapid movements, in all these environments the WV-SP509 won."

Murr's brief to the ARA engineering team was to take performance to the nth degree to ensure BSC got the best system now and in the future - with the heart of the system being cable infrastructure.

"Purposely we ensure none of the Cat-6a cables go further than 10-15 metres before they get onto fibre - that design is deliberate - it's to maximise image quality," says Murr. "This class of cable can handle 150 metres but we are keeping a lot of headroom in the cable plant for the future and thinking 2 or 3 years down the track.

"And there's a good reason for this. When you put a Panasonic SP509 on the end of a cable and feed it into a Geutebruck recording system at full frame rate, the bit-rate is 10-15 times greater than that of a standard IP camera. So we are maximising the 509's ability by not putting it on a standard Cat-5 cable. There's no point installing high performance cameras if your infrastructure cannot support their performance."

As well as Cisco switches and top notch Siemon cable, Murr's design itself takes no prisoners when it comes to ensuring performance. This is not just about dual pathways - it's about entirely separate data links.

"Within the subnet backbone we have 2 separate setups - a recording setup and a viewing setup that allows us to maximise performance in these 2 key areas. Simply, the recording line-feed and fibre-feed and switches are separate to the viewing side, so when you're viewing live or recorded footage, it is on a separate backbone to the video recording - we are not pushing it all through the one pipe.

"We know from experience that if you want to view recorded footage while a lot of live footage is coming through there are lags, the image starts framing up," Murr explains. "You wouldn't notice that with a cheap

camera or with a basic head end because they don't read that high but when you start using a high end camera you have to make sure the back of house is high end, too."

Handling storage are Geutebruck GeViStore servers each of which has the ability to handle up to 60 inputs.

"There will be about 30 inputs on each server giving room to expand and there will be 50TB of storage per GeViStore - that gives us more than 1TB per camera so retention is increased and we can record 1080p at 25 frames per second on every camera for a month," Murr says.

"In total there's 250TB of storage for the gaming floor alone set up in such a way that each section has its own dedicated server. We don't have cameras over here on a server that cameras over there are on," Murr says, drawing a diagram for me to see the layout.

"Instead each section has separate servers and each server has spare inputs so if there is a problem at the server level we can switch cameras to other servers while problems are rectified. This means that redundancy is built in.

"There's also UPS backup so if the system fails there's enough power to keep it running for 4 hours. In terms of power supplies that's all fully redundant and dedicated to this system. And all our data cables are segregated from power by a minimum of half a metre."

In terms of specific layout, the surveillance network design is a fibre star configuration. In each section of the club there's a comms room with a rack cabinet containing a Cisco switch and alongside this is a patch panel.

"Wherever the switches are, on all sides of them are patch panels linked to cameras," Murr explains. "And each network switch is a separate fibre run that goes back down to the comms room. Going forward anything the club does will follow the same design and eventually you have a full fibre backbone throughout the club."

Siemon Cat-6a cable is run from the local patch panel to each local camera location. Siemon Cat6A patch leads are used at each end.

"We chose this design so there would be no terminations to come apart and to ensure that if we needed to service the camera we could just unplug the RJ45 and take it away. The cameras all connect to RJ45 surface mount boxes so if a camera is removed, the plate remains and can be used again."

As Murr explains, this combination of static yet fluid design is absolutely vital for an application like BSC.

"In an environment like a gaming floor, management is always moving machines or buying new machines and that means we need to move cameras to give consistent coverage," he says. "To illustrate this point, we have staff here Monday to Friday permanently to facilitate changes to camera coverage.

"With this design, if a machine is relocated we can

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unplug the camera that was covering it and move it to a new RJ45 plate covering a new area - this eliminates the requirement of installing further cabling. Techs just go to a RJ45 plate at the new location, patch the camera in and it's ready to run."

According to Murr, the modular design of the system which can facilitate massive expansion also makes trouble shooting very easy.

"If there's a problem with a camera we can quickly isolate the other parts of the system - they are on separate nodes - then simply unplug a camera and plug it into another patch panel and instantly know if a problem is a camera or a node related issue."

People don't usually think this way, I say to Murr - this focus on performance as the key piece of functionality is fantastic but it's uncommon. What's behind it?

"This is due to BSC CEO Mark Condi's mantra for 'cutting edge technology' to ensure both staff and customers have a safe and secure environment," Murr explains. "You've just got to consider performance first in this sort of environment - you can't leave anything to chance."

Murr and his team didn't leave anything to chance. Drawing on their knowledge of the site and the needs of the client was not enough, either. Objective testing of a wide range of product was undertaken over an extended period of time before the design was completed.

"Before we finalised the design we got all the products - including the first demo WV-SP509 in Australia and a Geutebruck recording head end - and brought them to the club. We then ran a Siemon Cat-6a cable and let the test system run for a couple of months. Right next to it we installed other cameras

and other head ends. That's how we got the result we were after and why we chose the solution we chose."

According to Murr, during this testing process the combination of Geutebruck and Panasonic wasn't performing as it should.

"I made some calls and Pacific Communications jumped to attention and came down and the Geutebruck guys came out and helped and during the process they found some issues in the way the system was set up - the pipe was slowing things down - it wasn't a problem with the camera or head end at all," Murr says.

"Those are issues you would never otherwise have discovered until the system was installed and you were commissioning 170 cameras with a cutover deadline of a few hours, so the process of testing contributed a great deal to the success of ARA's design at BSC."

Something that really deserves attention at BSC is Bosch's Security Escort, which incorporates 50 devices and is integrated with the surveillance solution via the overarching ARA CLUBLINK GUI. Having been a security officer when I was a kid I've always liked Security Escort. It projects security procedure at the human level, giving staff peace of mind and sensitizing management's response to threats in real time.

"All the staff that man the gaming floor, safe rooms, the cash handling rooms, security officers and managers carry a Security Escort device," says Murr. "There are 50 devices in this solution but the system has the ability to expand to 1000 devices. We have installed RF receiver nodes throughout the building and these are hardwired back to the control room head end.

"There's also a high level interface between it and our GUI. The way Security Escort is set up and managed, we've mapped the route between the cash dispensing machines and the cash room and incorporated it into our CLUBLINK GUI. This means you click on a cash machine and a camera image comes up. Double click and the system will give you all the cameras from there to the cash room on that monitor.

"So if someone goes to a cash machine and an incident occurs, instantly that alarm is brought up on the GUI - you see exactly where the alarm event is, the scene when it happened and it shows you a looped footage of the event. Then there's the paused image - it's the same alarm structure for Security Escort as it is for a carpark VMD alarm event, VIP or blacklisted vehicle entering the carpark."

Once again, Security Escort went through a careful process of testing before it was installed. This included finding the best locations for wireless receivers.

INSTALLATION

Installing a large electronic security solution like this one, with its layers of development and redevelopment, is always going to be a challenge

and it's no surprise when Murr tells me the site has undergone constant add-ons and improvements for 40 years. In one such instance an entire local street was bought and built over.

"The installation of the new surveillance system is following a process of construction at the club, a 4-stage building process that will include the ongoing installation of a full IP CCTV solution," Murr explains.

"As the building works are going on, the club is continuing to run, which has been part of the difficulty of the installation. We can't have any camera down at any time. In the area we are working on now, they relocated gaming to another section of the club and we relocated cameras to that location overnight so the system was operational by morning and there was no downtime."

While we talk about the installation process, we walk around to the gaming floor which is where Phase One of the system has been installed - it's a busy, sprawling club and the gaming floor has a good crowd. Looking at the flush ceiling design I can see space is tight. Murr points out the cameras around the perimeter of the room.

"Look at those," he says. "A major challenge we had to overcome is that no cameras are allowed to be installed on the floating ceiling in any of the floor areas - the issue is, how can we get images of the gaming machines if we can't put cameras above tables?"

"Instead we had to go right around the perimeter and use good zoom lenses and high camera quality to capture the images we needed. This demand impacted on our choice of camera - we needed a full body camera so as to retain the ability to choose the lenses we needed now and in the future."

That made commissioning of each individual camera an exacting process, surely?

"Yes it did," Murr replies. "Coverage is designed not to miss anything in the scene and the quality of the image and the framing of the scene and selected depth of field is such that if you want to zoom in, the image is not going to pixelate. That's what the SP509 gave us in this environment."

Was it a hard installation? I ask, looking around at the busy gaming floor, packed with tables and machines.

"Yes, it was very hard, the ceiling heights were a special challenge - the cables go from patch panels then up to an even higher point, then across the room, while the bunker is down in the basement," says Murr.

"Throughout the gaming floor you can see that the ceiling design is amazing - it's flat and flush which looks great but it really makes our installation impossible."

"See those hatches in the ceiling near the cameras? Inside every hatch is a patch panel and that's how the cameras installed nearby get onto the Cat-6a cable."

Looking up at the towering ceiling it beats me how the techs managed to install some of the cameras even with the help of hatches. They must have turned their shoulders inside out with some of them.

In an environment like a gaming floor, management is always moving machines or buying new machines and that means we need to move cameras to give consistent coverage

"We had 4-5 guys during the install, working after hours," Murr continues. "Sometimes there was work that could be done during the day but when you are doing cutovers of cameras in the gaming area it has to be after hours."

What about the servers and risers and cable trays - in a legacy site like this they must be overflowing? I ask.

"Yes, they are busy," Murr agrees. "But everything we've got is Velcro-tied to a dedicated catenary cable. It's away from power and never goes over or through it. The cable we use is one colour and it's known as being for security so no one else goes near it."

Part of the installation process included commissioning and ongoing maintenance and to assist this process there is remote access online.

"We do a lot of repairs remotely," Murr says. "We also have a walk&view system where maintenance can be done using a smart phone."

The high quality Panasonic cameras also demanded careful commissioning.

"With a camera like this you need to know your stuff when you set up," Murr says. "You can't just hit the autofocus button and move on. If the environment typically changes throughout the day, you're not done, you're going to have problems."

"The crew attended a comprehensive training session on all the camera settings so when they are in a scenario they need to address, they can. Because our installers are technical and love to play with new products, they are certainly getting the best out of it at BSC."

Something else that needs to be taken into account during the installation/upgrade process is the legacy hybrid solution. This old system is still entirely operational but as the current installation progresses it is being carefully cut over and decommissioned, piece by piece.





IN THE CONTROL ROOM

Next, we head into the control room, which is squeezed into a corner by a mountain range of ARU racks. The working video wall is compact given the high camera numbers, it's narrow and it's tall. In fact this is probably one of the most full-on video walls I have seen in a control room this size.

Often when you look at a video wall like this the quality of the images is inconsistent thanks to the variable quality of the cameras installed but this one is noticeably consistent.

Having recently reviewed the Panasonic WV-SP509 camera in a foyer I pay special attention to the SP509 in the rugged parking station applications at BSC, where it is peering from shade into bright sunlight. The camera does not back down from this demanding brief. It's a strong image front to back, with useable depth of field pushing right out into the street.

"And the Geutebruck system handling the cameras is unbelievable, it's phenomenal," says Murr. "I haven't found a product that beats it. Look at these live scenes - they're HD at 25fps with multiple movements with 170 cameras and there's no visible frame dropping - none at all - that's showing you why we have that dual viewing and recording system offering maximum bit rates."

The club's operator pulls up a camera on the gaming floor and we get a look at what Murr has been talking about all this time. Wow, I say, that's just awesome. The live image is sharp and objects, including faces, are clearly defined, with colours well-rendered and plenty of light nuance. Depth of field is strong. Multiple movements in a single scene don't cause overall latency in the image to my eye. From the patterned carpet to the blinking LED lights on the machines to clothing and faces, this scene is very tight.

Usually when you see a camera of this power it's installed externally and set up high to handle a very large scene like a carpark but here in the more compact internal spaces of BSC with variable but still good light, the SP509 is just killing it. There's a lot of capability to spare, too. I estimate the detailed depth of field here to be about 15 metres, which is a big chunk of floor from a single camera with a relatively wide viewing angle.

Next we view recorded footage. I think I can see a slight difference in the quality of the recorded scene playback - some subtle attenuation that might be a slightly lower frame rate and dropped resolution giving a softer overall scene but it's hard to be sure. A person in the recorded scene waves their hand and their fingers are well defined throughout the movement. We can see stripes on clothing, numbers on machines. We see the colours of buttons and LEDs as the cameras successfully overcome flare.

"I do love the Geutebruck solution. I've never seen a system that can do so well with this volume of cameras," says Murr staring at the monitors. "It's not just handling the gaming floor. Look over there at that scene in the carpark. There we are doing numberplate



Coverage is designed not to miss anything in the scene and the quality of the image and the framing of the scene and selected depth of field is such that if you want to zoom in, the image is not going to pixelate.

recognition - the 509s handle part of this, showing the plate and the vehicle and the overall scene - and we also use a specialised numberplate camera that incorporates IR illumination synchronised with the camera shutter. This camera does nothing but look at the plate - it can do this at 160kmph with no light. It's installed and integrated with the CLUBLINK management system.

"And we also have other interfaces, including Geutebruck video motion detection. The VMD curtain picks up cars arriving at the club automatically and the Panasonic HD PTZ swings around and zooms and focuses. Down in the control room the event appears on the monitor and brings up event footage in a set order.

"Operationally, there's live footage of the vehicle arriving shown first, then the event is looped over and over, showing the operator the incident. Finally the incident is paused and all this happens automatically. The operator does not have to look for an alarm event, it's brought to their attention by the GUI - which is interfaced to the VMD," Murr explains.

Some of the credit for the efficiency of the operation has to go to ARA's own product, CLUBLINK.

"All the alarms happen automatically because of the HLIs between the sub-systems and our own CLUBLINK GUI which sits over everything and brings it all together," Murr says. "3D floor layouts of the club are displayed on the GUI, giving access to each camera without having to remember camera numbers. Predetermined scenes are set up in our alarm GUI during commission and alarms have to be acknowledged by an operator. It's just perfect for this application. We can also interface to Tecom access control, alarms, duress, and VMD to name just a few."

CONCLUSION

Bankstown Sports Club's new full IP solution is a benchmark system. It offers serious performance at multiple levels and looking at its fundamentals you get a clear sense of what the best solutions of the next 5 years will be offering.

They'll have excellent camera performance and super-fast subnet architecture designed to handle the heavy loads of quality HD cameras being viewed live and called up as recordings. They'll also employ the best network components and designs focusing on simplicity of replacement and easy maintenance.

Ease of management is another key aspect of this solution. Geutebruck's GSCView is a popular management system for good reason and its performance bias gives it the edge in an installation like this one.

Finally there's integration. At BSC this includes HLIs supporting alarms and access control, VMD and Bosch Security Escort all managed via ARA's CLUBLINK software. The result is a solution that is impressive now and when completed will offer the club outstanding performance in a package that's as intuitive as it is capable. ▀ ▀ ▀

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BOSCH VMS 4.0

Bosch has released its latest version of Bosch Video Management System (Bosch VMS) 4.0 featuring an enterprise level distributed multi-site IP architecture, enhanced client and user mobility, new integration possibilities via SDK, as well as ONVIF Profile S support.

Developed with simplicity in mind BVMS 4.0 is designed for configuration options ranging from a single standalone system to a multi-site large scale application. Bosch VMS 4.0 is capable of managing more than 10,000 cameras and up to 100 operator client connections. The scalability in managing more channels and clients results in a system that can fulfill increasing demands of different or disperse operational entities while improving user and administrator operational efficiency:

Operator benefits include interconnecting authorized independent sites and entities for collaborative operations and single sign on for authorized users allows connection rights to access other sites and resources beyond their own system.

Authorized users can connect to any and all sites including mobile clients and an operator sees only cameras with permissions and simply selects the desired site within the tree view. Meanwhile, there's mobile client view of live and playback images for iPods and iPads and the system allows for authorized mobile roaming personnel to connect regardless of bandwidth.

Integrated alarm management routes critical events to selected user groups and there's a map that's positioned automatically in accordance with a selected camera.

Bosch VMS 4.0 offers an enterprise class IP video security solution that provides smooth

management of digital video, audio and data across any IP network. Existing BVMS installations can easily implement and leverage the multi-site architecture or be included in a group of sites by simply upgrading to the BVMS enterprise software.

Administrator features include monitoring and management of geographically distributed or different legal entity surveillance systems centrally. There's also the ability to overcome the challenges of integrating several independent surveillance entities into a large scale system that provides monitoring and administration access to the entire system while still allowing for local management and monitoring.

There are flexible user and administrator rights with both global and local access and users and administrators can be granted access to any combination of sites - from a single system to all entities - with the multi-site environment. Live and playback video can be shared between geographically distributed sites within one large entity or between installations belonging to different operational entities.

You get high system availability and reliability because sites are not dependent on each other for clients. In cases where the central server connection is no longer available, the operator client continues to work and live playback and export remains possible

BVMS 4.0 is designed to work with all Bosch surveillance products as well as ONVIF Profile S conformant devices as part of a total video security management system. Bosch VMS 4.0 can support the latest HD or megapixel cameras and Bosch decoders with user controlled monitor wall display capabilities.

Multiple methods of storage and playback are possible with direct attached iSCSI storage or Secure Digital or Compact Flash cards in Bosch encoders and IP cameras—as well as with Bosch Video Recording Manager iSCSI storage devices and appliances, Bosch Recording Station (BRS) and DiBos Digital Video Recorders.

With BVMS 4.0, new framework exists for integrating external systems with a complete set of SDKs. This enables full integration of 3rd party systems, like access control, PSIM, or any other collaborative systems. The new client and server SDK allows integration and bi-directional sharing of information as needed. APIs and sample codes are available for developers to leverage.

Developer features include a consolidated API interface to systems beyond the BVMS, a new cameo SDK providing live, playback and export, a client SDK promoting the development of a custom remote control operator client and a server SDK to receive events and alarms, as well as a remote control system. ▀ ▀ ▀





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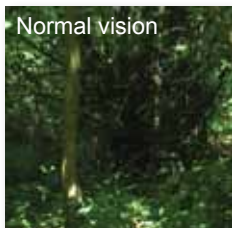
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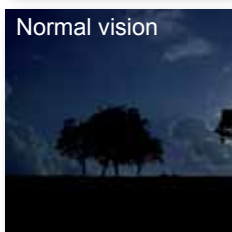
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TX-2810-03 OUTDOOR PIR FROM ARITECH

For demanding security applications, the latest IP65-rated outdoor motion detector from Aritech incorporates 2 independent passive infrared (PIR) sensors, making it ideal for accurate pre-alarm detection of intruders.

ARITECH'S TX-2810-03 Outdoor PIR incorporates a pair of PIR sensors. Both sensors must be triggered for the device to indicate a pre-alarm condition, and it uses quad pyro technology making it a robust and reliable detector, not prone to false alarms.

"This new Aritech outdoor motion sensor is designed for all exterior locations and includes a number of features for easier installation," says Mark Staples, UTC Fire and Security's pre-sales manager.

"For example it features

programmable options including variable pulse count and a choice of three detection ranges (10m, 20m and 30m) and the detection pattern can be aimed more accurately and quickly thanks to the dual-axis tilt sensor allowing up to 180° of pan and 90° of tilt."

The device is fully IP65 rated for dust and humidity resistance and its neat design gives no visible indication of the orientation of the detector head.

There's also a range extension - the 868AM GEN2 wireless outdoor PIR motion sensor TX-2810-03-4. This new wireless outdoor PIR has kept the same family look and quality as the hardwired DI601 and DDI602 series. ▽ ▽ ▽

Features of the TX-2810-03 include:

- RF range: 300 m open field
- Built-in UTCFS 868AM Gen2 transmitter module
- Quad pyro technology with AND logic
- PIR Electronic range setting: 10/20/30m
- Mounting height up to 6m
- 0-70 degree detection angle
- 180 degree pan and 90 tilt tilt for flexible installation
- Sensor module is hidden - no additional external brackets are needed
- Operating temperature: -25 to 65 degrees C
- High dust and humidity resistance (IP65).

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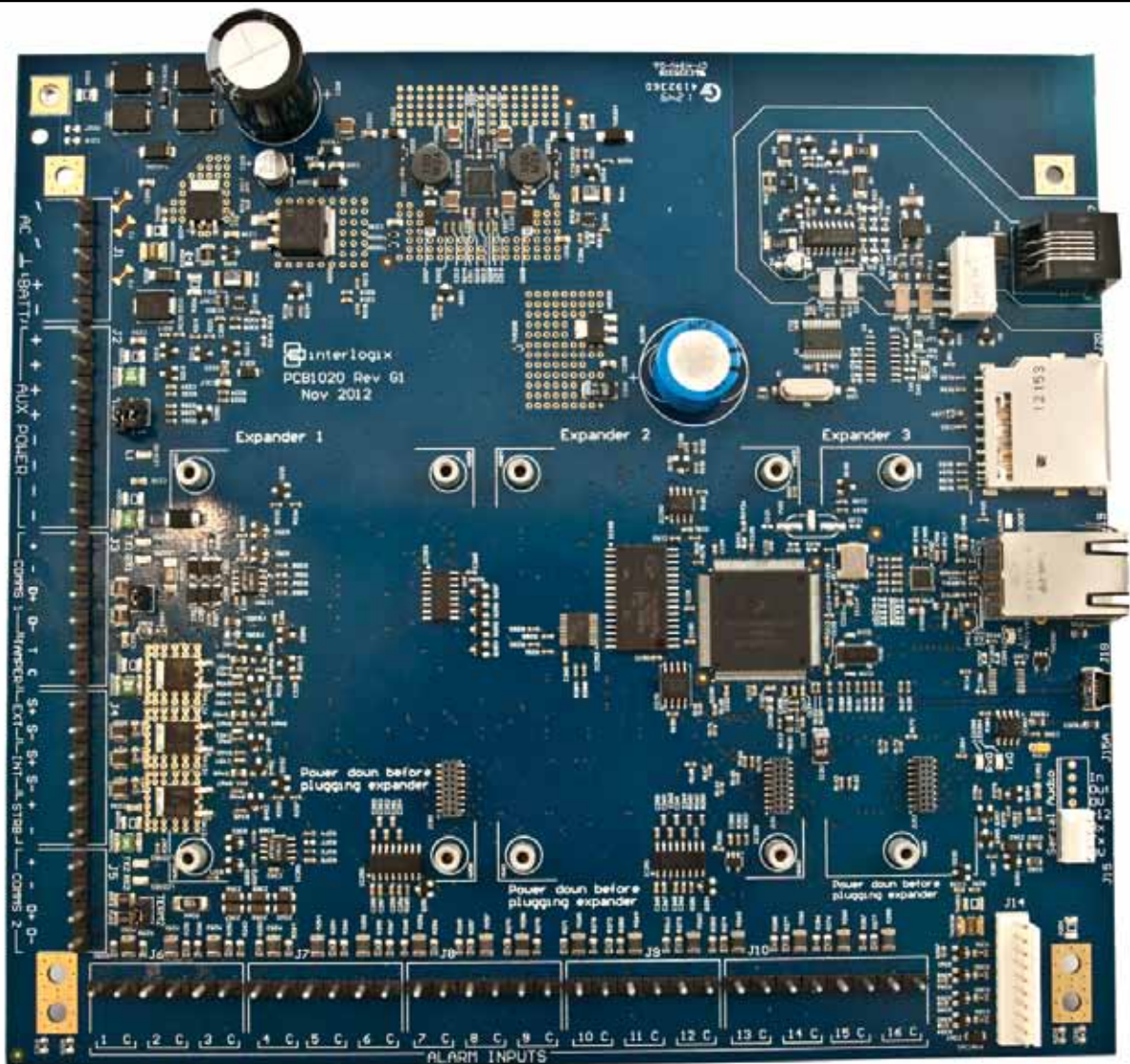
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TECOM CHALLENGER10

Interlogix is putting the finishing touches on its new Tecom Challenger10 security control panel, a solution that offers vastly expanded performance and full backwards compatibility with Challenger v8.

DEVELOPED by Tecom Systems in Melbourne, Tecom's Challenger security management panel is an institution across Australia and New Zealand, handling intrusion alarms and access control at around 150,000 sites. Over decades Challenger has built a reputation for stubborn reliability.

It's a reputation that has maintained this access control and intrusion alarm panel's solid standing

through multiple changes in corporate ownership and a resulting slow rate of upgrade. But while Version 8 of the Challenger panel was a tough monkey, the passage of time made it limiting for larger modern applications.

Challenger v8 also used programming language that had become outdated and difficult to tune on the fly. All this said, it's a testament to the longevity of the design that Challenger v8 is not being

The non-negotiables were firstly that it had to be a Challenger so all those installers out there who know how a Challenger works could install and commission it - we wanted to preserve that skill-set. And secondly, Challenger10 had to be entirely backwards compatible.

retired but now slots in underneath Challenger10, integrating with it seamlessly through the same management software solutions.

The soon to be released Tecom Challenger10 is all new, designed in Australia and built using the latest processors, SMD technology, and programming language to international standards. It's not only powerful but designed to retain all Challenger v8's capabilities requested by installers over many years, while also facilitating ongoing improvements over the course of a long life. Important too, it's not just a single product from the point of view of Interlogix, but a platform designed to be endlessly developed, a first step in a powerful new direction.

I think it's an understatement to say that we've all been looking forward to seeing Tecom Challenger10 for a long time and so it was with a degree of real excitement that I drove down to the DAS office at Riverwood in Sydney to talk with the manufacturer and distributors about the new system. You don't get to see a local security system of serious importance released every day.

PROCESS OF DEVELOPMENT

This new product was developed by UTC's Interlogix but in a key move, the engineers decided to give the product back its original identity by adding Tecom to the name. That's not the only thing that's original about the system. Former Tecom Systems' MD Dean Reilly, has had a significant influence on the team and his input into this new system has been instrumental.

When I arrive at DAS my reception committee consists of Interlogix's Martin Dillon and DAS' George Salman and Troy Payne. Sitting on the table of the training room is a flat blue and white cardboard box with the word 'Tecom' across the top. The boys are all excited and rather than the usual 5 minutes of chat we take no time whatsoever in getting down to the business at hand.

There it is, I say, waving at the box. It's been a long time coming but it's bloody good to see Tecom

Challenger10! While the market has been waiting for this upgrade a while, how long was the actual development process?

"About 15 months from start to finish so pretty rapid, considering we had a locked-down design," Martin Dillon tells me. "There have been few hardware changes - we strengthened the USB port - since October, though the new firmware is continually evolving.

"We made some big decisions last year in relation to what we were doing with the product. We set a firm date for release and we are on schedule - the product is in manufacture now. It's been a little while coming but now it's here."

Dean Reilly was involved with this project wasn't he? There was a lot of buzz in the industry when he signed on.

"Yes, Dean now works with us and has since April last year," says Dillon. "He's the lead guy on the development. I think Dean has the unique capability of building solutions for customers. There's a lot of Dean Reilly in that design."

According to Dillon, the engineering team designed Challenger10 as a future platform.

"The non-negotiables were firstly that it had to be a Challenger so all those installers out there who know how a Challenger works could install and commission it - we wanted to preserve that skill-set. And secondly, Challenger10 had to be entirely backwards compatible," Dillon explains.

"That's right," adds George Salman. "And given it was backwards compatible the other thing we wanted to ensure from the perspective of installers was that they could take the screws off





the Challenger v8 and then install the Challenger10 in the same screw holes with the same screws, with all the connectors in exactly the same places.”

Dillon agrees

“Yes - we really made a big point of incorporating those mechanical similarities. It means all the existing cabling can be used with no patches or messing about for the technicians,” he explains.

“This made the panel much harder to build, I think. If you give engineers a blank sheet of paper off they’ll go but if you ask them to build a product that’s open to development yet can support multiple layers of functionality from another product, then that’s a lot harder and imposes challenges and constraints.

“You are building a totally new product that still has to communicate with this other stuff that was built with a totally different design philosophy. But we think this is really important,” Dillon says.

“We have good customers out there who have a lot of money invested in our product and we want to help them protect their investment. We don’t want to say to a customer - want to upgrade? Ask your boss for a pile of money because the existing system will have to be ripped out.

“And what’s really important for multi-site customers is that this system design allows them to mix and match. If they’ve got 100 Challenger v8s and only 10 sites needing the upgraded features of Challenger10, we can just upgrade those 10 sites and they can keep the Challenger v8s.”

Dillon says at all times the engineers and the rest of the team were intensely conscious the panel had to be a Challenger and to leverage that existing skill set.

“I know with some products training is a big commitment - if an integrator has to train 20 guys for 3 days - that’s a big ask,” he says. “And then you

have a barrier. Installers may not do the course, may not understand the product and then it begins to impact their installations - a system may not function as well as it could function and this impacts on its reputation.

“But that is not an issue with Challenger10. We did training in Melbourne as part of our beta program - we got a bunch of installers in and put them through the bridging training. To be honest the biggest challenge was getting feedback from them because they were so confident with it - they did not need to ring us for help - it was plug-and-play.”

According to Dillon, Challenger V8 will remain as part of the product suite.

“Challenger10 has IP onboard and scalability but if you only want 16 inputs and a dialler then we don’t want to force the customer to pay for something they don’t need,” he explains. “The Challenger v8 will be retained for use in smaller applications.”

Also important to point out here is that Challenger10 has been built with plenty of room to grow and expand in all directions - including firmware.

“We talked about the future a lot during the development process and we have a full roadmap of product that’s going to follow it,” Dillon says. “We are aware that there are going to be changes with comms in the future - the power of the Internet. Products these days are aligning with IT standards. These allow your solution to evolve with technology shifts and individual pieces of functionality. That’s a non negotiable for us.”


According to Troy Payne, this takes integrators along for the ride.

“There are some top notch integrators out there that are up on technology but the majority are scared. They are not overly confident. If you take those guys along for the ride with network-capable systems, then you are educating the industry as well.”

FUNDAMENTALS OF THE BOARD

So - what are the basics of the Challenger10? From an alarm input capability Challenger10 is 4 times larger than Challenger v8. From an output capability, it’s double the size and its access control capability has also doubled. That means 1008 inputs, 512 outputs, 96 doors or intelligent lifts, and 99 areas up from 16 as well as 32 RASs. There are

Challenger10 is 4 times larger than Challenger v8. From an output capability, it’s double the size and its access control capability has also doubled. That means 1008 inputs, 512 outputs, 96 doors or intelligent lifts, and 99 areas up from 16 as well as 32 RASs.



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The Open Platform Company



Martin Dillon (l) Rob Meachem and George Salman



The modern boards are so different, the technology is just incredible. It's more than 10x times the processing power of the board it replaces.

2000 cardholders native in the panel and there are 10,000 offline events - that's a lot of events if comms paths are down.

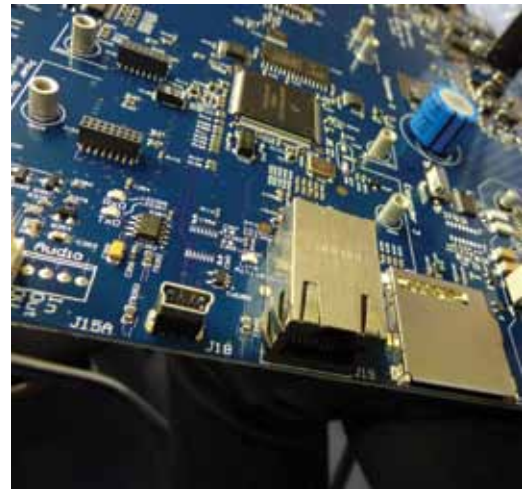
This panel operates completely standalone, as the old one does and you can still program the system from a keypad, same as the old one. There's also a secondary comms bus and there are 3 expansion slots on board. There's also Ethernet on the board, a USB connection for an installer's tool like Titan and an SD card slot for backing the panel's database up for yourself or for customers.

Basically what this means is that if you need to change out a panel you can copy the database to a card, pull the board, put in a new one, put in the card, go to the RAS and load the database and you are going again.

"Clearly it's state-of-the-art technology," says Dillon. "We worked very closely with the chipset manufacturers to make sure we have the best solution. We've also put a lot of effort into upgrading our manufacturing process and you can see that in the quality of the board.

"You can see all the tiny solder points on the back of the board," he explains, handing me the board. "There are about 800 connectors there and there's an automated tester that checks every component on the board in circuit during manufacture to ensure it's the correct value.

"Boards then go through an optical verification that can read board values and check whether the correct IC has been installed in the right location and orientation when that's finished we run a functional test on the board and then upload



the firmware into the board through a single test process and all our boards in the future will follow the same path.

"We are very pleased with the outcome - manufacturing these days is very automated and that means there's less chance of reliability issues. We met international testing standards put boards in ovens and freezers, and TEM cells, it's not what you have to do but we built Challenger10 as a platform for moving forward. And if in 5 years there's an amazing new processor available we will modify the design of the board and just drop it in."

It's nicely done, I say, turning the board over in my hands. Considered in the light of other board work I see this new Tecom panel is a study in modern SMD. There's nothing rough about this product whatever. And that row of ports - RJ-45, SD and USB - keeps drawing my eye. The Challenger v8 board is also on the table in front of me and it's simply a different animal.

It's robust and functional and history has showed it to be very reliable and it will still be available for those who choose to install it, but it's not in the same league as Challenger10. Peering at the top of the new board there are whole suburbs of components that my 46-year-old eyes cannot see and compared to days of yore, even the processors are tiny.

"Looking at that board and remembering the manufacturing that was done when I was at Tecom Systems years ago I was thinking there are hardly any components on the older boards when you consider their contribution to functionality," Salman observes.

"The modern boards are so different, the technology is just incredible. It's more than 10x times the processing power of the board it replaces. It's 2013 technology but it's not going to be obsolete in 2015 - it will be current because it's designed to allow us to keep it current and to keep expanding it - there's heaps of grunt in Challenger10."

Something else that's clear as we play with the hardware is that the case has lashings of shoulder room in it. That means there will be no problems shoe-horning DGP expanders, 8-input expanders,



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batteries and door controllers aboard. And there's room for easy cabling all around the panel.

"One of the key things about this panel's functionality is that we can run 10 concurrent communications paths," Dillon says. "This means Challenger10 can talk to management software in a control room, multiple control rooms and multiple management software packages. Consultants have really latched onto this capability. Some sites want a system that can communicate not redundantly to multiple sites but concurrently."

According to DAS' Troy Payne, in the past to handle maintenance or expand the system you would have to take the main management software offline.

"Now because you have the 10 communication paths what you can do is still have your panel connected live to the management software as well as having the technician online making changes and doing tests. And you can configure the comms paths anyway you want to - it's very powerful," Payne says.

"And as Martin mentioned earlier, you can also

Our guys nationally are just pumped - they've been waiting for this for quite some time and so has our customer base - there's huge anticipation for this release.

have v8's and Challenger10s running on the same management system with the same look and feel," he says. "This means that for end users and technicians there's very little retraining required. The installers bridging course is short - it runs for a full day but we have had guys get through it in 3 hours."

From the point of view of the old system and the new, what was the motivating factor for its development, what fundamental characteristic did the old system lack the new system offers? I ask.

"Scale is one thing - which we have addressed - that was not particularly difficult for us to deal with but I think as much as anything it was moving to a modern platform," Dillon tells me.

"We needed a new platform with plenty of headroom in it - again, this is a beginning, not the end of the product's development. It's like these expansion slots - we are still working on exactly what they are going to be. They'll be communication modules, they'll be lighting modules driven by firmware which takes the risk of software away from the system and increases simplicity."

According to Payne something that's very important when considering future expandability is that Challenger10 has fundamentally moved forward in its core capabilities.

"Consider that where the Challenger v8 uses

an 8-bit processor, the Challenger10 uses a 32-bit processor, which gives you code expansion and it just increases the possibilities moving forward," Payne explains.

"With the new Challenger10, it makes it easier for engineers to make those changes. Challenger10 is designed in a much newer language."

What about the management system? I ask.

"We are doing a lot of work on software," Dillon says. "We have increased our software team 3 or 4-fold. We have about 15 people working on management software. This will talk to all legacy systems including Titan and then Forcefield and Security Commander. We are doing a lot of work on those platforms to bring them forward as well.

"There's been a lot of work done on Titan to make it compatible with Challenger10 so as to handle all the functionality but retain the look and feel you get with v8 so these can be managed together as a single system," Payne explains.

"All the expanded functionality of the new system is available in our software platforms and it's available in a familiar way. Installers and end users will be instantly familiar with managing the new system."

PROCESS OF UPGRADE

Pretty obviously, given the enormous installed base in the market, one of the most common applications is going to be upgrades and that means the process of upgrade needs to be simple. According to Dillon, a lot of work went into ensuring the process was intuitive and not surprisingly, a lot of work on the beta test sides related to confirming this simplicity.

"We did a lot of beta testing in a lot of large sites" Dillon says. "The installer comes along and plugs into the upload pins of the Challenger v8 with a special cable the way they always would and then uploads the database out of the panel, turns off the Challenger V8 then pulls the plugs and terminations off and removes the board.

"They then click a radial button in Titan to change the uploaded database across to Challenger10 - there's a conversion application in the Titan software - this migrates the Challenger v8 database to a Challenger10 database in a couple of minutes.

"Next, installers replace the Challenger v8 panel with a Challenger10 panel, then they re-install the terminations and plugs in exactly the same places, power the board up and then just push the database down into the Challenger10 panel through the onboard USB port. Finally, they go to the RAS and turn the system on and it works. That simplicity is really the key to this."

According to Dillon, one of the beta sites was a large installation with hundreds of inputs and he says the installation team was in and out in about one hour and ten minutes.

"And this is deliberate. We really want to give our customers a migration path with us. They can

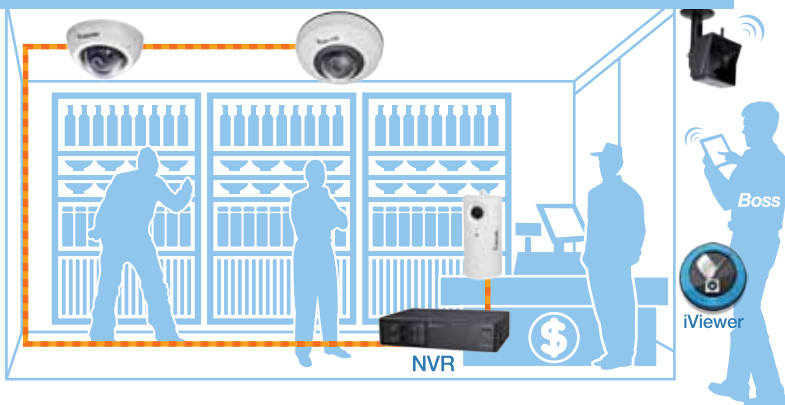


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keep their RAS, keep their door controllers and hardware and there's very minimal retraining."

Something else that was important to get right was the power supply. It's a fundamental thing but reliable power means a reliable system - it's the lifeblood of the entire solution.

"This new power supply is second to none," says Payne. "I know everything has a power supply and it's not flashy to talk about it but this power supply is so smart it can detect limitation of the input current and if it sees the voltage decrease too fast or too far it will shut the board down bar the dialler and dial out and report a power fail.

"Not only that you have individually thermally-fused outputs on everything so when they are pushed over-current they will cut and not cut back in until the problem is rectified. So there are no glass fuses, no replacing fuses, there are really no spare parts to it at all."

Supporting these physical capabilities, there's powerful firmware functionality for monitoring power condition that's accessible via the keypad.

"Built into the Challenger10 firmware you have an intelligent power supply checker so you can check voltages, draw, battery amperage and draw. That diagnostic alone is a huge tool for installers. It can also allow installers to compare diagnostic signatures so as to identify developing problems. It might be cable degradation that will eventually cause faults. Once the problem has been sorted the installer hits refresh on the keypad and the system updates the status."

According to Payne, Challenger10 is designed this way so that if there is a problem on the board - say some one has cut a cable in the field and caused a short circuit on the board somewhere, the system will start shutting the board down in a way that protects the board and retains comms.

"The system will shut down inputs and outputs, whatever it needs to do and it communicates these actions through to management software," says Payne. "The ultimate task of a security panel is to notify someone that there is an event - so it does the right thing and keeps its comms paths open to notify operators or management that there is an issue before closing down."

CONCLUSION

It's an understatement to point out that the design and engineering team at Interlogix and the distributors at DAS are thrilled to bits with the new system. It's rare to find senior management letting real feeling creep into their voices but there's no lack of feeling here.

"Our guys nationally are just pumped - they've been waiting for this for quite some time and so has our customer base - there's huge anticipation for this release," says Salman. "We are already talking about the release - it's exciting and it generates a lot of additional activity. We are so excited, we really are. The scope for us to retrofit is brilliant."



We really want to give our customers a migration path with us. They can keep their RAS, keep their door controllers and hardware and there's very minimal retraining.

It's the same for Troy Payne.

"This is without a doubt the biggest product release within DAS in the 11 years that I have been with the company," he says. "I am literally bouncing off walls every day. I just can't wait for this product to come out. The excitement in the voices of the long term integrated access sales reps within DAS when we talk about this product is ridiculous."

"And we feel the same at Interlogix," says Dillon. "I've been in the industry a long time and I said to our engineering team that this is a once-in-a-career opportunity. It's not just about this piece of hardware either but what is happening with the whole Challenger portfolio - what is going to unfold over the coming years. This is the launchpad. We're all excited about it."

As we've been chatting, Hills Security Group GM, Rob Meachem has walked into the room and like the rest of the team he's eager to get the Challenger10 into the field.

"Yes, we've all been waiting a while and it's going to be awesome, it really is," Meachem says. "What's great with Challenger10 is that everything we have talked about over the years is there - the backwards compatibility, the same board layout, and that's really important. You can come up with all these brilliant new features but if you don't make the installers lives easy then you are in serious trouble.

"How do you get a future-proof platform without taking away the key functionality of the past? That's why I think there was a huge sigh of relief when we saw Challenger10. It was what we needed. It's powerful and expandable and future-proof and installers will not have to re-cable, they will not have to change the box, they do not need to do huge training, they can just get stuck into it. And if you look at the greatest product success stories, these are the things that are so important." ▽ ▽ ▽

Features of the Challenger10 include:

- 99 Areas
- 255 area groups
- 16 inputs onboard (1008 system inputs)
- 96 doors of Access control or lift control
- Onboard SD card, Ethernet, USB RS-232, Dialler
- 2000 users
- Stores 10,000 events
- Programmable via LCD keypad of management software
- Automated arming and disarming time and day
- Simultaneously communicate with up to 10 monitoring stations and software packages
- Multiple holiday types over multiple days repeating annually
- Intelligent onboard power supply checked on keypad
- Multiple internal areas linked to a perimeter area
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BY JOHN ADAMS

PERSONAL EMERGENCY RESPONSE

As Australia's population ages there's a growing market for monitoring of personal emergency response systems (PERS). However, most personal monitoring solutions, while locally capable, are relatively old technology and they don't take advantage of modern 3G cell or GPS technology.



AND something else many PERS solutions do, is limit themselves to supporting the elderly in relatively fixed environments. A typical aged care monitoring solution is generally a number of wrist or necklace pendants that communicate by wireless (around the 900MHz range), with a controller in a central location in the home.

Depending on the system, the pendants can offer wearers local support at ranges of up to several hundred metres but comms is often limited to a call for help with no duplex voice and there's no triangulation or GPS support that might allow responders to quickly find a person near but outside their home.

The PERS controller communicates with a monitoring facility via phone line that's monitored by any one of a number of organisations like Home Alert, Doctor's Safety Line, Priority Call, Safety Call, INS, Safety Link, Constant Companion and many more. While a small number of security monitoring stations get involved in this area, most providers specialise in personal emergency response. This is true of the UK and the USA, as well as Australia.

Something that's interesting is the generally simple nature of these systems - they are old tech. Emergency calls are one-button DTMF at the pendant without a microphone in the pendant - comms is only by duplex telephone at the controller. There's no video surveillance component and as mentioned earlier, there's no ability to provide an exact location in the event of emergency outside the home.

Many systems have Tunstall falls sensor capability but that's about the height of their sophistication in most cases. More expensive GPS-based solutions like Safe2Walk are being marketed to Alzheimer's patients but this seems an extremely small market, given the potential of GPS tracking to bring PERS to a wider customer base.

As part of their static nature, personal emergency response solutions are marketed to customers who don't move much and while this market is growing, it's relatively small when compared to the potential market, which could include children, sportspeople, active adults, workers in high risk industries and emergency workers of all types.

...45 per cent of poll respondents said their companies have added emergency trained operators or given other specialized training in a bid to gain PERS market share.



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Of course, it's unlikely healthcare monitoring solutions are going to appeal to kids, teenagers or active adults but it's a fact that modern technology has reached a point where it facilitates a sort of global man-down/emergency call solution. And it's also true that, given the dominance of healthcare providers in the personal emergency response market segment, monitoring companies need a new pitch if they are to establish themselves there.

Given quality security monitoring centres have a higher level of tech than healthcare monitoring companies, as well as more secure facilities that meet industry standards, it's hard not to feel this is an area our monitoring providers should have a larger slice of this growing market. Yet they don't.

Taking all this into account, it was with interest I recently read the findings of a poll in the US in which security companies themselves pointed out that the big advantage they felt healthcare monitoring companies had over them in this market were databases of future system users. And it was healthcare's strength in this area that led companies to argue that breaking into the PERS market will require lateral applications. Other respondents, however, disagreed, saying price and connections to healthcare providers were the real gateway.

"Much of that outdated PERS technology is still offered today to reach a very narrow market of infirmed that could be captured by professional providers," Lee Jones, owner of Support Services Group told SSN as part of the poll.

The only advantages that a security company has are the protocols and trained people for emergency contact... from a marketing standpoint, home health definitely has the edge. Security monitoring companies need to foster relationships with clinicians in specialties that generate PERS requirements (geriatrics, heart, oncology, etc.). Rather than allow home health to drive the competition, security needs to give up a little margin in exchange for much higher volume.

"We believe other markets for the short-range pendant could include younger stay-at-home families where accidents happen with children."

According to Jones long-range cell pendants offer "threat mitigation for anyone of any age, including schoolchildren ... away from their safe haven."

Meanwhile Blane Comeaux, vice president of Acadian Monitoring Services said that in addition to traditional PERS clientele, his company caters to "an extremely vibrant group of PERS customers [who] are younger, very active, technology-savvy and carry a mobile PERS with a GPS."

Something that was very interesting was that 45 per cent of poll respondents said their companies have added emergency trained operators or given other specialized training in a bid to gain PERS market share.

But conversely, potential customers said security companies needed to show flexibility on pricing if they hoped to compete with their home-health rivals.

"The only advantages that a security company has are the protocols and trained people for emergency contact," one respondent said. "From a marketing standpoint, home health definitely has the edge. Security monitoring companies need to foster relationships with clinicians in specialties that generate PERS requirements (geriatrics, heart, oncology, etc.). Rather than allow home health to drive the competition, security needs to give up a little margin in exchange for much higher volume."

"First, security companies must learn to distinguish between PERS and conventional security systems. They must reconcile with and learn the value of month-to-month contracts versus the 3 or 5-year contracts with which they are familiar, and they must embrace the concept of recyclable equipment."

PERS as a market seems to be one that offers plenty of opportunity for those monitoring companies with the right business model to compete with healthcare providers. At the same time, it seems there's a wider market for PERS solutions based on the latest technology that no one is seriously targeting.



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HD CAMERAS: **PART 2**

In Part 2 of our HD camera feature we ask just what are the key features and functions installers and end users should be looking for when they choose HD cameras?

HD cameras aren't all the same and that makes life challenging for installers and end users. If you opt for higher resolutions, this can impact on low light and network performance. Go for lower resolution and you might wind up missing important detail.

The challenge for techs and end users is identifying just which features and functions will provide the performance demanded for given applications.

According to Adam Storoschenko, surveillance manager Altech, the key things end users should look for in HD cameras include warranty, price, support and simplicity of operation. Meanwhile Storoschenko says that while installers should focus on warranty, price, support and reliability, they have further considerations.

"Installers need ease of installation, video quality and a host of options where they can control all aspects of the camera from image to bandwidth control," explains Storoschenko. "The brand of camera is also important as the major brands are more widely supported within 3rd party software like Aimetis and Milestone, etc."

When it comes to 720p or 1080p, Storoschenko says 1080p would be classed as being better as it has more pixels within the image so your image is sharper overall. But he says 720p will always

consume less bandwidth and the camera pricing is still much cheaper than 1080p and not all environments require the higher resolution.

It's true there are certain weaknesses with some mostly older HD cameras - though quality manufacturers are addressing the issues in current generations.

"Weaknesses are bandwidth and pricing," says Storoschenko. "Years ago HD cameras were well behind the best analogue in low light but they have bridged that gap quite considerably and there are HD cameras which are specifically designed for low light applications.

"Against strong backlight with the feature of WDR (Wide Dynamic Range) they perform very well and challenges like white noise - can be minimized with various options inside the HD cameras so it is not a major concern for impacting on storage volumes.

"It's very important to have the correct HD lens on an HD camera for the quality and image resolution to be as sharp as possible. Optical zoom would be my preference for obvious reasons but the price difference over digital is still substantial."

Something that's new and that will come through over the next few years is the H.265 standard. The standard is likely to reduce the bandwidth demands of MP video streams, allowing higher resolution cameras being adopted.

According to Storoschenko, H.265 will definitely allow larger MP cameras of 5MP or more to be considered for all types of projects although he says there is also the consideration of the added processing power and cooling that will impact on the camera.

Over at Bosch Security Systems, Phil Brewer feels the key features of a quality HD camera for end users are multiple video streams that can be adjusted individually - e.g. one stream at full HD resolution for recording and another stream for live viewing at a reduced bandwidth.

"An HD camera should also be compatible with ONVIF (open network video interface forum) to work on open systems and you also want compliance with the SMPTE standards for HD cameras, i.e. 274-2008 (1080p) and 296M-2001 (720p), and also network standards, e.g. SNMP, QoS," he explains.

"I think end users should also seek a manufacturer or supplier that is willing to provide demonstration samples for on-site evaluation, i.e. camera shoot-outs on the actual site during operational conditions."

When it comes to installers, Brewer says the focus should be ease of installation and servicing built into the products to save on labour time. In his opinion, these include auto back-focus and a local monitor output, as well as HD cameras that support network discovery and UPnP technology.

When it comes to deciding between 720p or

The change of compression formats from Wavelet/JPEG/MPEG-2 to MPEG-4 to H.264 resulted in further reductions of bandwidth requirements and therefore higher resolution cameras being practical; H.265 will lead to higher resolution cameras being adopted.

1080p, Brewer argues both have their place.

"720p and 1080p have their own advantages and disadvantages, so it is important to understand when to use each technology based on the end user's site specific requirements," he says. "Sales of standard definition cameras are still much higher than 720p and 1080p cameras, so it will be some time before 1080p is exclusively used instead of 720p."

And in Brewer's opinion, challenges faced by HD and higher MP cameras are general challenges that are faced by all surveillance cameras.

"Lighting is important for standard definition, high definition and multimegapixel cameras; any efforts to improve the lighting conditions and/or camera placement should always be considered in conjunction with a video systems proposal," he says.





Magnus Ekerot of Mobotix

“Improving the lighting can have other positive effects on the site, such as improved pedestrian visibility or the reduction of areas prone to vandalism. White noise is a problem for any camera and is usually associated with not enough light available on the area of interest - the white noise being caused inside the camera trying to amplify a very dark image.

“If improving the lighting is not possible, then cameras with lower light performance will be needed. All applications can use HD cameras; the application is not the problem, it is the amount and type of lighting available that is important.”

Brewer, too, argues that when you are choosing HD cameras, lens choice should never be far from your mind.

“Lens selection is very important for HD cameras - the lens needs to be of sufficient quality to allow

enough effective resolution through the glass, i.e. lines per mm,” he says. “There is no point paying for a 1080p HD camera with a lens that is effectively only able to pass the resolution suitable for a 720p or standard definition camera.

“Optical zoom is much more effective than digital zoom as shown in an article by IPVM on May 1 2011 (PTZ Versus Megapixel Shootout - comparing optical zoom performance versus digital zoom performance).”

And Brewer has some interesting thoughts in relation to the new H.265 standard. For Brewer there’s an historical precedent that argues H.265 will lead to lower bandwidth demands and the adoption of higher resolution cameras in the future.

“The change of compression formats from Wavelet/JPEG/MPEG-2 to MPEG-4 to H.264 resulted in further reductions of bandwidth requirements and therefore higher resolution cameras being practical; H.265 will lead to higher resolution cameras being adopted,” he explains.

“Is 1080p enough? In some installations, standard definition is more than enough, so to state that 1080p will always be enough, is short sighted when it comes to future technology improvements. For example, black and white images on television were enough to satisfy our demands until colour television was available. Technology is always improving, so 1080p is not the limit,” Brewer says.

Mobotix’ Magnus Ekerot points out that HD and megapixel video has a significant impact on the underlying network which must be taken into account.

“A concept we promote at Mobotix is decentralised processing in the camera, allowing event detection and image processing to happen at the edge of the network ensuring efficient use of the bandwidth available to provide high quality recordings and live streaming,” Ekerot explains.

“Using internal storage in the camera we can eliminate all bandwidth related to storing the images, allowing more cameras to operate on the same network.”

When it comes to the sort of features installers

Does increasing the megapixel count improve the quality and usability of camera images? In theory, yes, however these higher megapixel sensors are crammed into the same physical space as lower megapixel sensors.



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should look for when choosing a quality HD camera Ekerot says he would always recommend installers look for a fully digital solution that removes the need for mechanical parts which are prone to failure.

“A megapixel image sensor should be used to ensure high quality and usable recorded and live video,” he explains. “In addition, a decentralised solution with processing and storage at the camera will provide both a backup against network failure and help alleviate network bandwidth issues.

“And I think 720p, 1080p, and higher megapixel cameras have their appropriate use cases. For example, a tight image of someone’s face at a video entry phone would not require as much resolution as a wide area overview such as a car park.”

Ekerot argues that advances in modern CMOS sensors and exposure controls, combined with the increased usability of a megapixel image, make HD cameras more attractive and technically more competent than analogue equipment in all conditions.

A high megapixel count alone is meaningless when the sensors are not the appropriate size and paired with an appropriate lens.

“In challenging low light situations we offer the opportunity to use a day/night camera with a black and white sensor for increased light sensitivity which surpasses many cameras, digital and analogue.”

Not surprisingly, Ekerot says lens selection is a key issue with HD cameras - both optical and digital.

“Yes - lens selection for HD cameras is an important consideration,” he argues. “The best HD camera will be let down by a low quality lens, providing significantly lower quality images than that camera could otherwise provide.

“Optical and digital zooms suit different applications and system environments. For example, a wide angle or hemispheric (360°) lens with a digital zoom can allow excellent coverage without requiring an operator whereas a mechanical PTZ provides the greatest benefit with a diligent and trained operator.”

When it comes to the new H.265 standard, Ekerot has some interesting thoughts.

“First of all, the question is when and under what circumstances would a camera with 5 or more megapixels even be needed?” he asks. “Does increasing the megapixel count improve the quality and usability of camera images? In theory, yes,

however, these higher megapixel sensors are crammed into the same physical space as lower megapixel sensors.

“The negative consequences include increased image noise and exposure issues especially in low light situations. A high megapixel count alone is meaningless when the sensors are not the appropriate size and paired with an appropriate lens. To this end, what is needed here is an optimal combination to capture high quality, usable images.

“This is already the case with Mobotix cameras with 3.1 megapixel sensors, allowing the cameras to deliver high resolution, high quality images in many light conditions, and keeping the network load to a minimum.

“This is made possible by comprehensive data analysis and compression based on the Mobotix MxPEG codec. MxPEG was designed from the ground up for the unique needs of the security industry in mind and has a freely available and license free SDK. In our view, MxPEG offers an optimal image and a superior combination of image quality and compression.

In terms of megapixel development, the right combination of sensor and lens makes development towards 5 megapixel a logical step. A higher megapixel count is really only necessary for special applications, which are an exception to this. Better image data compression is required for 5 megapixel resolution.

“At Mobotix, we make this possible by using the specially design MxPEG codec. As far as the new H.265 codec is concerned, we plan to keep a close eye on the market and customer requirements and use these observations to decide whether to make out cameras compatible with H.265.”



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MONA INSTALLS DVM R500

Honeywell has announced an updated version of its digital closed-circuit television surveillance system, Digital Video Manager (DVM) which has been deployed at the Museum of Old and New Art in Hobart.



New recording and playback capabilities, combined with the improved interface, can also help security personnel quickly pinpoint potential threats and react before they become incidents. By providing various, time-coordinated views, the same tools can reduce forensic investigation time after an event.

These features include synchronised and instant playback of multiple cameras and motion searching that enhance system interoperability. This enables organizations to use the latest security cameras and equipment while protecting past technology investments.

DVM R500 is also an integral component of Honeywell Enterprise Buildings Integrator (EBI), an award-winning building management system that ties all aspects of a security solution together, including video, access control and intrusion detection. EBI integrates comfort, life safety, energy and other core facility controls as well.

This gives users like MONA a single point of access to all the essential information and resources needed to monitor, manage and protect a facility, campus or multi-site operation. As a result, security directors have optimized visibility and intelligence, and can deploy their staff and resources more efficiently and effectively.

"To stay ahead of the increasing threats impacting businesses and organizations, security personnel need advanced-yet-cost-effective technology to protect their assets and promote safety," said Paul Orzeske, president of Honeywell Building Solutions.

"DVM R500 helps users identify and address would-be issues before they cause problems or damage - all while increasing ease of use and operational efficiency." ▀ ▾ ▹ ▸



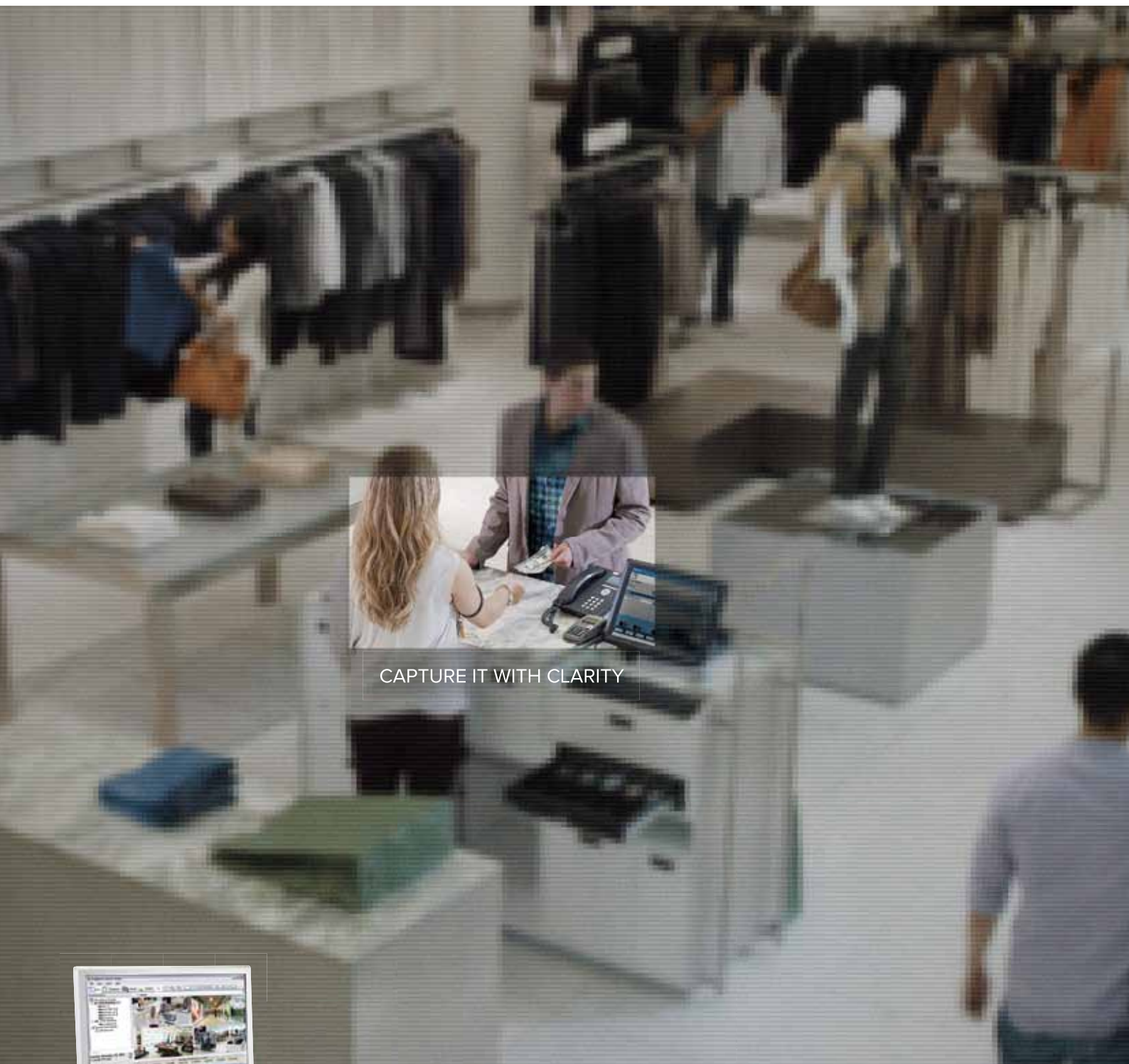
THIS latest DVM R500 enhances operational efficiency, cost effectiveness and performance through a redesigned user interface, smart diagnostics and forensic search capabilities, and improved integration with access control and other security technologies, according to Honeywell.

The user interface is the most visible enhancement to DVM R500. The updated design follows established multimedia interface principles, which creates intuitive, agile navigation, helping boost productivity and reduce security event response times, as well as training costs.

These improvements are augmented by smart diagnostics modules that analyze system operations to help security operators quickly process activity reports, run system diagnostics, and check system performance and status.

"This is one of the most dynamic, user-friendly systems I've seen," said Ken Yildiran, security officer for the Museum of Old and New Art, a DVM customer located in Hobart, Australia. "The analysis and reporting that would normally take 4-5 hours is now measured in minutes, allowing our operators to focus on other critical duties."





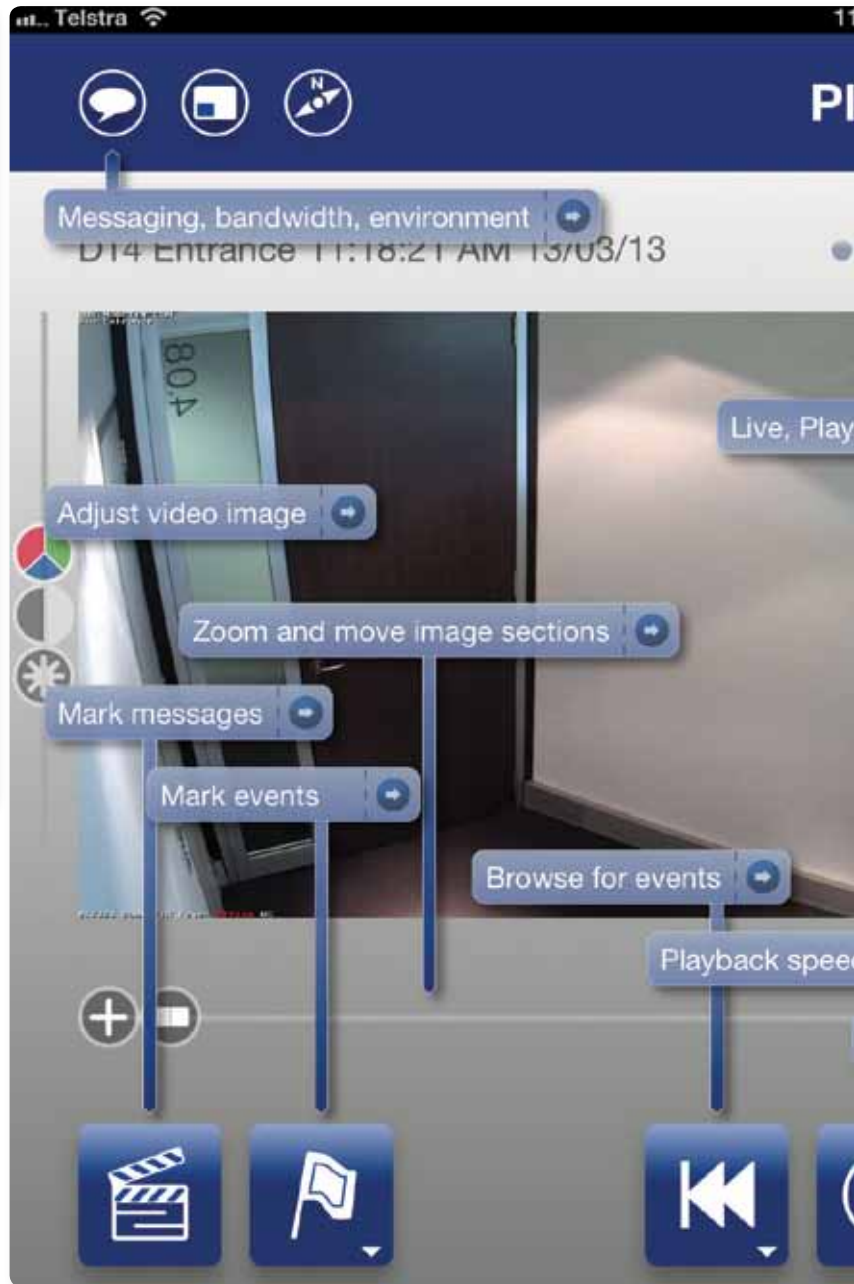
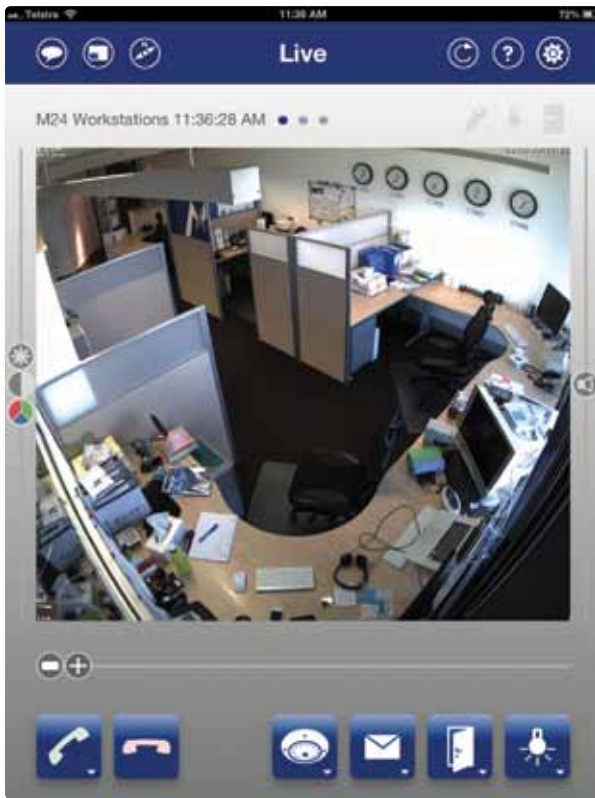
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New from Mobotix is the free Mobitix App, a mobile remote station for Mobotix cameras and door stations that allows live viewing, recording search, as well as audio communication in a bandwidth optimised Internet or WiFi environment.

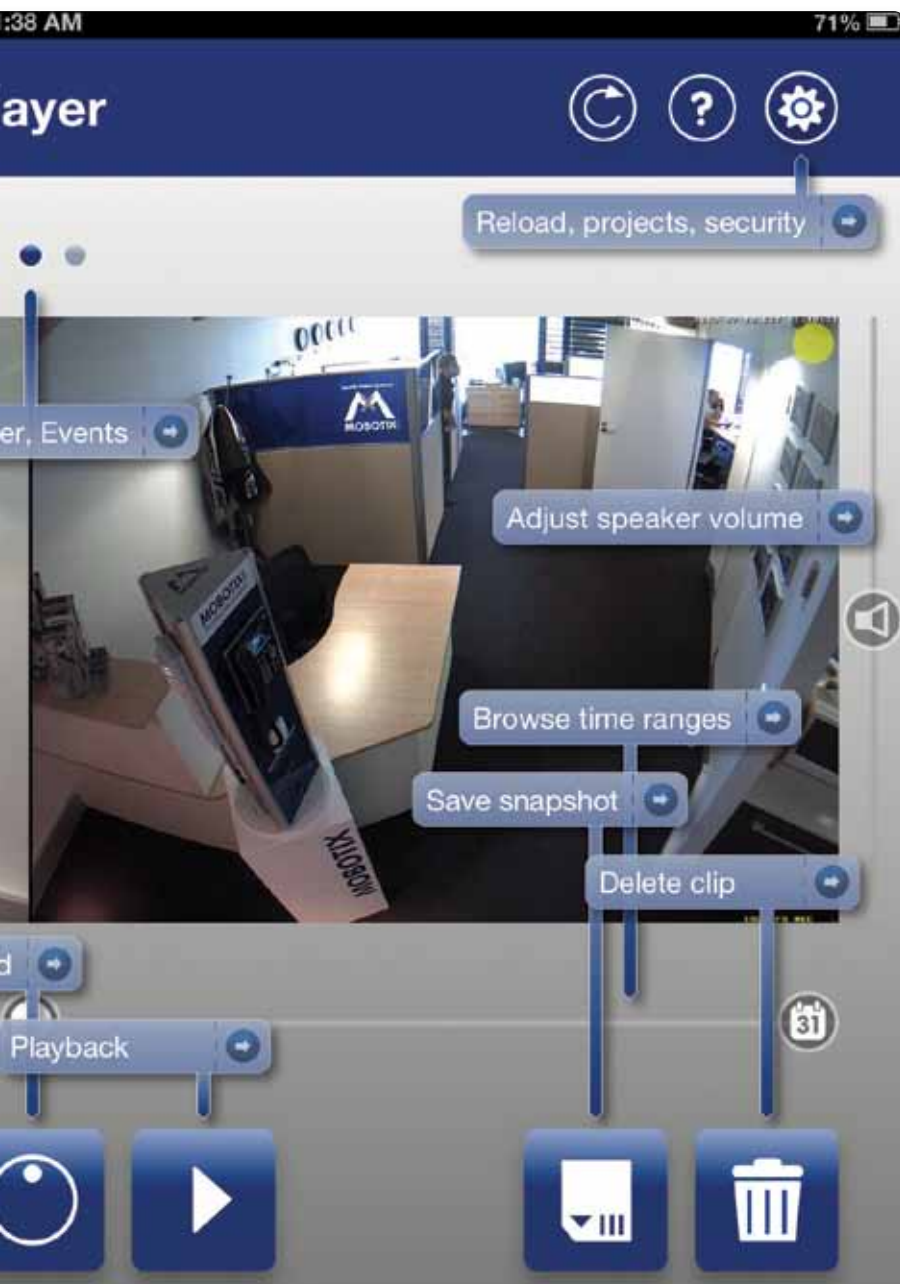
UPWARDLY MOBILE

WE first mentioned the new Mobotix App in SEN after the company's CSO Magnus Ekerot suggested the new interface could become the way end users interface with door stations, cameras and possibly in the future, alarm inputs as well. Given the potential the Mobotix App has to impact on the nature of future solutions it was with a degree of curiosity that I got a demo with Chris Watt down at Pyrmont.

"Here it is," says Watt, powering up his iPad as we sit down. "This is the new Mobotix App. It's a mobile application that allows the management and control

of Mobotix cameras and door stations on any compatible Apple mobile device. We are looking at the first version and I should point out that future versions have massive road maps - so cameras and door stations first and later on, maybe, alarm sensors and access control."

As Watt is talking I'm taking in the system. Like all Mobotix products the App is well - simple. There's nothing overly complex about this product visually, it's simply designed to allow full functionality of Mobotix devices to be accessed by on iPad or iPhone (or iPad mini or iPod Touch) mobile device.



In short, it's an enabler. Because the company knows its customer base, the App's smarts are all dedicated to minimising operator confusion while ensuring full functionality, often with a single touch.

The Mobotix App fits very well with the Apple iPod we're reviewing it on. It's very slick. The high quality cameras and the proprietary compression Mobotix employs are working well in the demo environment, which is WiFi to the local network with storage on the local NAS.

Looking over the screen as Watt shows me the functions I can see there are 3 primary views, being Live, Player and Events. You just select the view you want to employ, whether than be Live monitoring, Player for searches or Events to check out alarms. Data storage, alarming and recording take place directly inside the cameras making all these operations bandwidth-light.

Each of these views is made up of a series of programmable camera scenes with adjacent multi-functional sliders handling stuff like zoom, image settings and audio. There's also a toolbar and a series of function buttons including tap and hold shortcut. Above the camera views - and there are 12 populating the screen in our demo - there are PIN-protected basic functions managing the network, online help and App functions.

When you first install the app it will search the network and look for Mobotix cameras just like other pieces of software do. It also does this when you change location - from one office to another or from work to home. And cameras that are outside of the local network can be connected via DynDNS.

Once set up, the App remembers all the settings and automatically switches to the right configuration as soon as the iPhone/iPad joins a familiar WLAN network. There's also a mask management facility here that allows you to save camera configurations as projects and send them by e-mail to clients or other users. When the mask is opened the App automatically sets mask features on the receiving device.

"I've set this App up with just a few cameras and a door station and it's running on WiFi right now but I can flick it over to the 3G and get very similar quality," Watt explains.

"These cameras are running at 1024 by 768. Performance is very quick with the new firmware running on the new cameras (it's the 41470 version). This firmware includes the event streamer. While the camera is open, it has a fast connection to the App but when the App is closed I have a text only connection open with the cameras. And when there is an alarm event or configured event the device will send a notification."

Now Watt starts driving the cameras, switching between cameras and zooming and panning. Control of functions like pan, tilt and zoom are standard iPad pinch, touch and swipe, there are slider controls that allow things like preset positions. You can call a camera into full screen and then tap to switch to the next camera. That's a nice feature on a 10-inch screen.

"There's playback, fast scan forward and fast scan back by swiping across the page, the player has time search - it's very quick at searches using event streamer. Event search can be one image per 30 minutes going back in time or forward, one image an hour going forward in time. You can also take snapshots and these are saved to camera roll. And there are going to be more search specific features."

The virtual PTZ function available in the App enables remote digital panning, tilting and zooming of the video systems, including recordings. Image quality from the 3.1 megapixel sensor is good - it's sharp and with good colour in this demo application.

"The event player shows a live overview - in this



case it's showing me all 5 of the connected cameras. I can take that down to categories - this might be only the office cameras, only the external cameras or only the remote site categories, or you could make each remote site a category of its own. You tap the storage card to get all the events that have been recorded. You can then request the system only show a particular type of events."

Where are the recordings held prior to access by the app?

"In this case they are on a NAS here in our network room but they could be on a remote camera or any other network storage device," Watt explains.

When used to manage the T24 Door Station, the App automatically provides mobile notifications when someone rings the doorbell, as well as offering options for 2-way communication with the visitor and for remote door opening. The App's video player also plays back any new mailbox messages and when the App is used on the road it adjusts to changing network quality.

If the connection is too slow for hi-res video, the requested live feeds and recordings can be compressed and scaled down inside the camera before being transmitted to the App. If an image area is zoomed in on, the camera transmits not the entire image but only the zoomed section to the App, at the most suitable resolution. It's all very clever and it's also very simple, I say.

"Yes it's not complex - we tried to keep it very simple on the surface and all the power of the application is behind the scenes. There are a lot of functions you can dig down into," says Watt.

"We have the ability to separate out event notification - I might program the door station to notify the app but request video motion not notify the app. I only care if the door station button is pressed. You might not want notifications all the time. We can also change our settings, we might tell the door station not to contact the app, or to play an announcement if the call to the app goes unanswered.

We tried to keep it very simple on the surface and all the power of the application is behind the scenes. There are a lot of functions you can dig down into.

"The other nice thing the app will do is will show me any I/O connected to any of my cameras so if I had multiple door stations I could open any of the cameras connected to them and open a front door lock if it was connected to a camera. I can also turn lights on and off."

So Mobotix engineers are in the process of evolving the app?

"Always - there will be more features as we go along," Watt says. "This particular version focuses on the T24 so there are things like the phone icons that are specific but it lets you comfortably manage your other cameras, view them, single tap to the next camera, see how many events have taken place on that camera. I can also check temperatures and if it's connected, I can control air conditioning."

Now, Magnus Ekerot talked about sensors being incorporated into the system as well as cameras - is that something that is happening in the future?

"That's part of the future MX bus development," Watt explains. "The new devices will be MX bus devices - the door opener, the keypad - and they will offer other ways to bring functionality into the system. Because the cameras otherwise have feature-parity given they are based on the same board, it means you just choose the camera that suits the app and add whatever external sensors give you the added functionality you need.

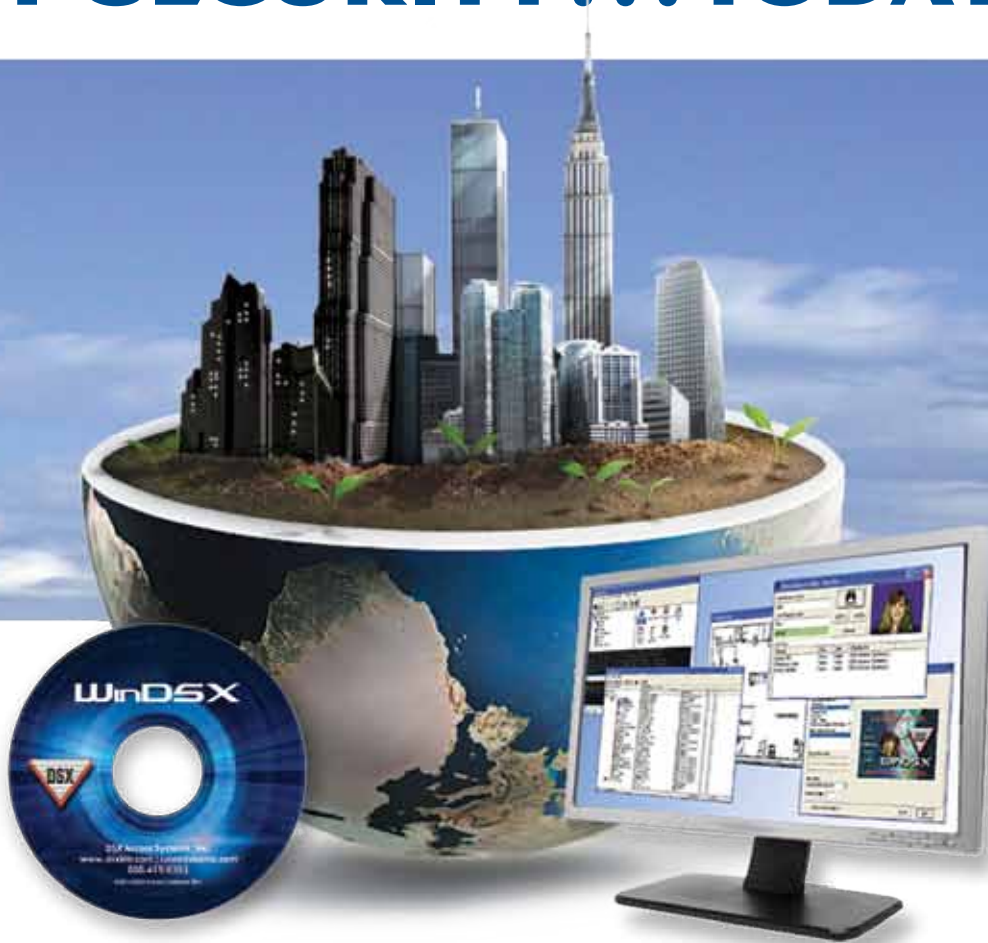
"It's going to be great for retail - and for people who don't need to use the system all the time - they might look at the app on weekend or when they are away and then not look at it for a while." Watt says.

Taking this sporadic use into account there's a neat feature that uses tags as a form of basic instruction - it tells everything about every function on a given page and it's one tap away on every page."

Features of the Mobotix App include:

- Two-way communication, door opening and video mailbox access
- Doorbell and alarm notification, privacy protection
- Convenient search functions, playback of external MxPEG videos
- Automatically find cameras in the local network
- Integrate cameras from outside the local network via DynDNS
- Digital pan, tilt and zoom cameras (virtual PTZ function)
- Adjust image settings (brightness, color, contrast)
- Quick overview of all cameras and recorded events
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AXIS, MILESTONE & AGENT VI

Integrator Technology Resource Advisers has installed a networked surveillance system incorporated Axis cameras, Milestone software and Agent Vi video analytics across Brown County's municipal sites in 9 villages, 13 towns and 2 cities.

WHEN Brown County decided to install a centralized surveillance solution throughout its government facilities sprawling across an 850km wedge of Wisconsin, Milestone XProtect Corporate video management software was deployed over the existing private communications fibre network to manage the system.

Brown County's surveillance system has a singular goal of keeping workers and publicly-owned property safe. The County's previous system was made up of disparate DVR systems, which were time and space consuming and could not be 100 per cent relied upon during or after an event. Faced with a misfiring existing solution, the County

was searching for a centralized video surveillance solution that could be administered by the county's IT department, while also allowing access to individual departments by respective managers.

With public departments scattered throughout such a large area, the ideal solution would allow administration-controlled, restricted access to video from specific areas, enabling all departments to share video, providing fast and efficient views of security related events. A video management system that offered easy integration with value-adding third-party systems and multi-phase scalability for a future-proof investment was required to meet these demands.

The county had installed a fibre communications network connecting government buildings, with a complete digital surveillance system in a significant number of government buildings. This fibre WAN was designed to allow always-on broadband connection between county departments. It was the perfect conduit for a networked video surveillance solution.

When looking to upgrade its video surveillance system, Brown County Information Services searched for a solution that would not only integrate seamlessly with the existing fiber network, but one that would also provide efficient, high-resolution digital surveillance to manage the varied safety needs of the publicly owned facilities.

Technology Resource Advisors, of Milwaukee, Wisconsin, carried out the county-wide installation, deploying Milestone XProtect Corporate IP video management software designed for large-scale, multi-site installations, with support for an unlimited number of cameras and users.

"We were able to develop a solution that combined multiple aspects, including the Milestone Federated Architecture and Agent Vi analytics to fit the broad needs of Brown County," said Tom Reminga, CTO, Technology Resource Advisors.

"The reliable, cost-effective and scalable nature of the Milestone platform allows the County's IT department, along with each department administration, to easily monitor government buildings for the safety of the community."

The end user was impressed with the proposed solution from TRA.

"When the information came through our department from TRA about Milestone's IP open platform allowing analytics integrations and other security systems for access control, we were very impressed," says Kevin Raye, network support manager, Brown County.

"Everything - including the pricing standpoint and the fact that Milestone's technology is compatible with a large variety of cameras - helped us in our final decision to choose this surveillance solution."

The first phase of the networked camera installation implemented the Milestone VMS system in nine of the departments. These included the

The reliable, cost-effective and scalable nature of the Milestone platform allows the County's IT department, along with each department administration, to easily monitor government buildings for the safety of the community.

Austin Straubel International Airport (the third largest in the state), the Community Treatment Center, courthouse, jail, public libraries, Neville Public Museum, the Northern Building, Sheriff's department and the Sophie Beaumont Building all are equipped with Milestone XProtect Corporate and connected through the Milestone Federated Architecture.

Interconnected through Milestone XProtect Corporate video management software (VMS) with Milestone Federated Architecture, Brown County security staff can now efficiently monitor public buildings - including the airport, museum, courthouse, library, Community Treatment Center, gaol and solid waste facilities.

The Milestone open platform allows the value-adding integration of Agent Vi analytics software and this pair combined with Axis network cameras, fosters more efficient staffing, decreasing the need and costs of physical security presence, while keeping a reliable eye on assets.

There are 177 Axis IP cameras running through VMWare's virtual desktop software installed throughout the county these include but are not limited to Axis' P1346-E, P1344-E, P5534, Q1755, Q6032-E, P3344-VE and Q7401.

For both TRA and Brown County, it was very important to know the system could scale up protection and service, whether adding more cameras or additional software with Milestone's future-proof system. They continuously weigh the options of expanding the county's monitoring system, researching which departments can utilize Milestone.





END USER EXPERIENCE

Administration of the system is the responsibility of Brown County's IT department and IT staff say the system is powerful and easy to drive.

"From a user standpoint, the Milestone system is especially great for Brown County," says Carrie Borofka, programmer/analyst for Brown County. "As an administrator of the software, I turn it on and quickly open up to the Milestone XProtect Smart Client and see the entire system, log in and we're good to go."

For users logging in from multiple sites, the central administrators securely and rapidly allow or deny access to views as needed. For example, the Community Treatment Center is a state-licensed psychiatric facility, where surveillance may be used for medical instances - more than just security. Patient privacy concerns are considered, so the assigned roles set up in the system mean that unauthorized users are blocked.

When it came time to roll out the system, Raye, as the head engineer, worked to ensure the cameras were properly installed and calibrated. TRA provided and deployed the Milestone solution, as the 'brains' of the operation, according to Tom Reminga, CTO, Technology Resource Advisors.

The system's storage capabilities give the flexibility to determine video backup on a camera-by-camera basis. For example, the county can utilize license plate video captured in conjunction with the data from the application to verify a customer's bill at the Solid Waste Transfer Station. A minimum of 30 days of full video backup is kept for the entire county, and can be adjusted if archived images are required for longer periods. Video can be pruned to utilize a much lower frame



As an administrator of the software, I turn it on and quickly open up to the Milestone XProtect Smart Client and see the entire system, log in and we're good to go.

Carrie Borofka



rate - similar to a series of digital photographs.

With a system so dispersed, it was imperative for Brown County to have its surveillance needs centralized, but also available for each department to monitor and export video. Having a centralized IP video surveillance solution provides Brown County new levels of security that improve operational processes and protects the investments of the hard-working community.

Training the personnel at Brown County for their new surveillance technology was performed by TRA over numerous one or two hour sessions. "The Milestone platform is very user friendly, so each session went quite smoothly," says Reminga. "Instructing the team on multiple situations, changing views and differences between administrative duties were easily explained and absorbed quickly by all involved."

ANALYTICS

Throughout Austin Straubel International Airport, the county has implemented an analytics system from Milestone Solutions Partner Agent Vi, integrated with the Milestone system. A previous brand of analytics had multiple issues caused by failing hardware and inefficient software.

Rather than stationing TSA agents or security guards at additional checkpoints in the airport, Vi-System, Agent Vi's real-time detection and alert software, monitors the video footage for predefined security and safety events and scenarios. When an event is detected an alert is sent to the Milestone system, which triggers various actions including live video pop up of the relevant camera.

Agent Vi's analytics are used in various applications at Austin Straubel airport, including sterile zone monitoring whereby Vi-System detects movement by people in restricted areas and alerts security personnel of such events. With polygons being drawn in certain regions in the video images, the security operator is immediately notified if anyone passes through a restricted area. This enables an immediate response in line with the level of threat associated with the event.

The runways also use Axis thermal IP cameras to monitor the movement of airplanes, service vehicles and personnel. Vi-System analyzes the images provided by the thermal cameras to differentiate between people, vehicles and static objects.

In this case, Vi-System has been predefined to detect and alert when there are people present in a vehicle-only lane, while disregarding the movement of vehicles in that area. This eliminates the need for a physical presence by the security team in the area of interest. The corresponding notifications are sent in real-time to the Milestone system, allowing an appropriate response as the event unfolds. ▽ ▽ ▽



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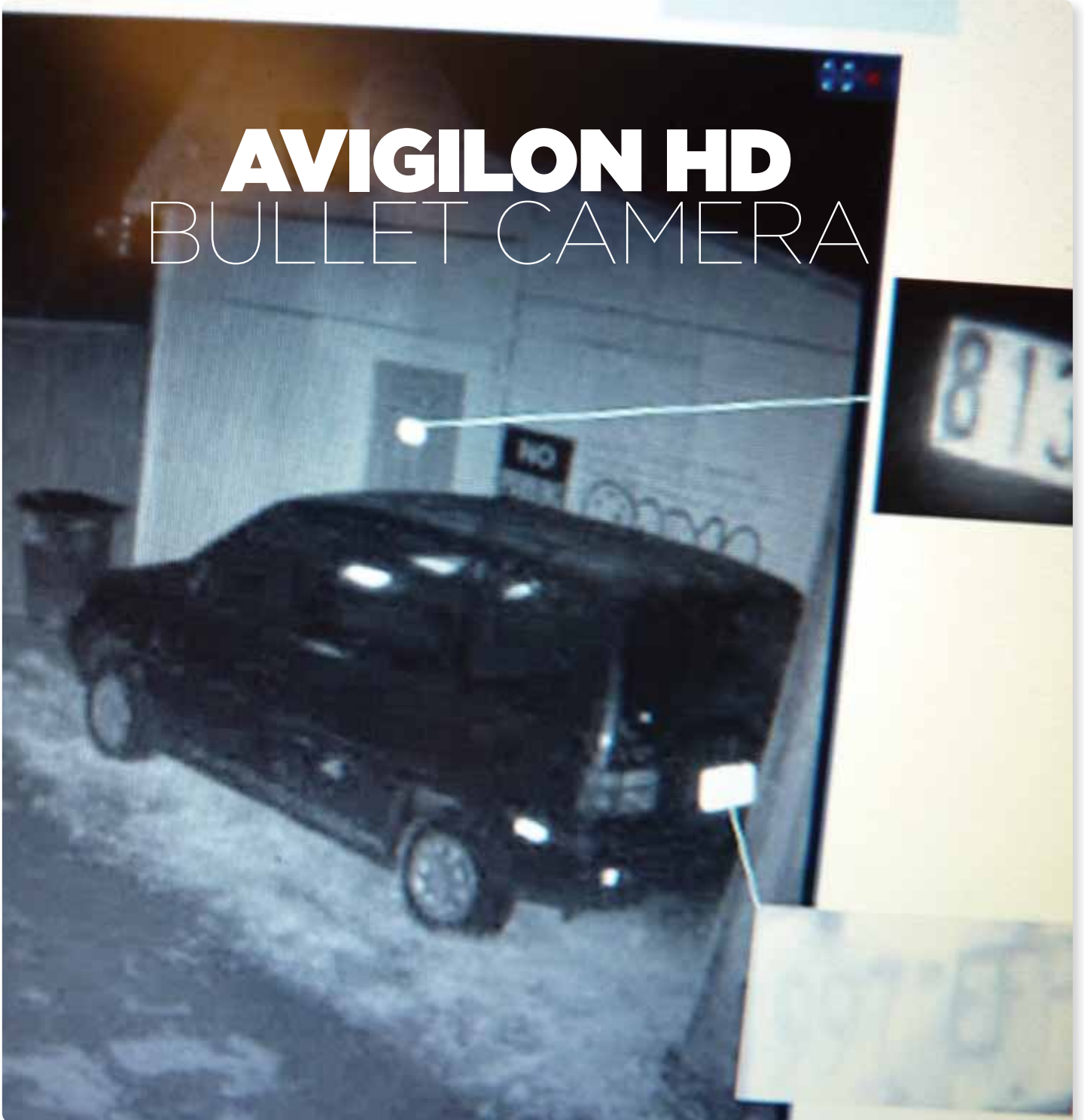
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AVIGILON HD BULLET CAMERA



Canadian manufacturer Avigilon has released its new Bullet range of ONVIF HD cameras with H.264 compression. These IP66-rated outdoor HD cameras feature an IK10-rated metal housing, a polycarbonate sun shroud and a piercing 30-60m adaptive IR gaze - that's long-sighted.

AVIGILON makes some really lovely cameras and this is another family of them. The Avigilon HD Bullet Camera comes in 4 models, 4 resolutions (1, 2, 3, 5MP) and 2 lens options - 3-9mm and 9-22mm. The 1 and 2MP models run at 30fps, the 3MP runs at 20fps, while the 5MP runs at 13fps - that's still pretty close to live to the human eye.

Walking me through the new HD Bullet range at the *SEN* office is Avigilon's Sean Borg and while I rip into unpacking the box, Borg powers up his laptop for a demo of some pre-recorded applications in low light, an area this IR-adaptive camera really excels.

As we work on our jobs Borg tells me that prices to the end user are variously \$A1017 for the 720p version, \$1166 for the 1080p, about \$1300 for the 3MP and \$1500 for the 5MP.

"Those are good prices, given the technology you're getting. You'd pay similar prices for a camera alone at this quality point, discounting everything that's inside the integrated housing," he says.

By now I've got the HD Bullet out of its box. This is certainly an impressive bit of kit. It's actually extremely compact for a 60m IR camera - no doubt - and while it has a solid feel the weight of its aluminium body is not extravagant - a bit over 1kg.

Today we're looking at the 3MP WDR HD Bullet with a 1/3-inch CMOS sensor, motorised P-iris lens, and 2048 x 1536 active pixels. In the flesh, this is a sweet, tool-like design, with a great feel and the heft to handle serious knocks. You can generally judge the overall quality of a product by the effort that has gone into getting the simple things right.

I can't see inside the housing but it's likely the quality of the interior is high, too. The base plate of the camera bracket is a real giveaway from this point of view. Coming out of an already heavily sealed cableway on the sole of the base plate are flying leads including pre-terminated RJ-45, 7-strand data, as well as power. The base plate is chunky and the seals are thick.

Borg pulls the mounting bracket off the housing in a few deft moves to show me the connectors and ports.

"It's always been the case that installers are seldom thought about in the design process but that's not the case with Avigilon," he says.

"The mount itself is clever. It swings through 3-axes so you can install the HD Bullet camera on walls, hang it from ceilings or mount it on poles. It's aesthetically pleasing - it's a nice product - it's something you'd have no problem hanging on a wall.

"The motorised zoom allows for remote focus and zoom and there's also a cable entry notch on the side of the arm enabling installers to mount the camera on surfaces without through-wall access."

Cool, too, there is a separate configuration panel at the bottom of the camera opened with a special tool. This allows installers to see status lights and access the reset button as well as get to that secondary configuration Ethernet port. This port



Sean Borg with the HD Bullet

Adaptive IR gives both long range and wide angle IR illumination and does so automatically as you zoom in and out of a scene. The result is a consistent illumination through the image at every zoom position.

allows installers to view the image locally while aiming and configuring the camera. Important for security, this feature can be disabled and enabled through the web interface.

FEATURES AND FUNCTIONS

Like other cameras in the range, this 3MP WDR HD Bullet weighs in at 1.15kg, is powder coated in cool gray, offers 4 privacy zones, a minimum scene illumination of 0.2 lux in colour with the 3-9mm lens or 0.4 lux with the 9-22mm lens. Not surprisingly the unit operates at 0 lux in monochrome with its IR activated. Other features include motion detection with selectable sensitivity and threshold, operating temp of -40C to +50C and a 3-year warranty.

"One of the neat features of the Avigilon HD Bullet camera range is adaptive IR," Borg tells me. "Adaptive IR gives both long range and wide angle IR illumination and does so automatically as you zoom in and out of a scene using the motorised lens. The result is a consistent illumination through the image at every zoom position as well as effective illumination based on scene content.

"The adaptive IR works by using different sets of 850nm IR beams to focus the IR illumination based on the image area," Borg explains. "So if the lens is zoomed out the IR spreads the beam out evenly across the image. Then, as you zoom into



...thanks to the Bullet HD's content adaptive IR, no matter how close the object gets to the camera it will never saturate the image, the camera will adapt."

the image from 3-9-22mm, the IR beam maintains the illumination area in line with the focal length to provide deeper illumination while maintaining consistent illumination over the entire scene."

This is a great feature and something I've never seen before in an integrated IR camera. With traditional IR cameras there's not the ability to change the IR illumination dynamically in sync with the camera's zoom position. What this means is that other manufacturers pick a static area - typically the half way point of the focal range of the camera. As a result, if the field of view is wider than the static IR position, the edges of the image will be dark.

Also, when you zoom past the static IR position, a significant portion of the IR power is actually being used to illuminate areas you are not viewing - this reduces power and decreases range. Adaptive IR focuses IR light where you are looking and that allows you to see further in complete darkness. The 3-9mm models give 30m and the 9-22mm models

offer 60m of illumination - that's great range in this compact form factor.

"This combination of wide angle and long range gives images good lighting across the entire frame, there's not the typical tunnel-vision you get with many IR equipped cameras in external applications," Borg says. "And the 1, 2 and 3MP models all have WDR allowing for advanced performance in challenging backlit conditions.

"Better still, the IR also adapts to the changing conditions in a scene. When an object approaches a typical IR camera it will become saturated and this gets worse the closer the object gets. But thanks to the Bullet HD's content adaptive IR, no matter how close the object gets to the camera it will never saturate the image, the camera will adapt."

As part of the demo we look at some night-time scenes. The depth of field is probably 15-20m deep and 8-10m wide - it's not a challenging scene for this camera in terms of distance but there's plenty of information in the scene that the camera is digging out for us. The unit is running in monochrome and we can clearly see a cyclist in the lane about 5m from the camera.

Across the lane there's a car parked outside a garage and we can make out the tiny street number on the door - that's very good performance. We're also getting the car's number plate, even at an oblique angle. The camera's view stretches off along a fence line down the lane with complete clarity. What's most impressive is side-to-side coverage, it's very good. There's no dark circle around the scene caused by the usual static focus IR lens punching a hole in the centre of the scene.

Something else that's of interest to me is that I'm convinced you could positively identify the face of the cyclist in the foreground, even in monochrome, the image is that contrasty. I look again and yes, if you knew this person or had their photo in front of you, you could recognise nose, cheekbones, line of jaw. That's really very good. It means that instead of IR flaring off a face at 4-5m and rendering that data useless, the camera is giving images with real value to investigators from the front of the scene to the back. ▀▀▀

Features include:

- 1-5MP camera resolutions
- 3-9mm F1.2 or 9-22mm F1.6 P-Iris lenses with remote focus
- 20 images per second at full resolution
- 100dB of dynamic range
- Integrated IR LEDs with 60m range
- Zoom adaptive IR adjusts to zoom position
- Content adaptive IR prevents image saturation
- Auto day/Night removable IR cut filter
- Additional Ethernet port for local config
- IK10 vandal resistant, IP66 weather resistant.



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ADT SWOOPS IN AUCKLAND

ADT New Zealand has been selected as the integrator in a project that will install CEM Systems AC2000 system at Auckland Airport's domestic and international terminals.

AUSTRALASIA'S second busiest international airport, Auckland Airport is served by more than 20 international airlines and has been voted as one of the 10 best airports in the world 3 years in a row. A major driver of the economy, 70 per cent of visitors enter or leave New Zealand via Auckland Airport, which handles over 14 million passengers a year and contributes \$NZ17 billion to the local economy.

"Security is a crucial part of airport management and the CEM Systems solution offered by ADT Security will provide an outstanding level of security for staff, passengers and the public," said Anil Varma from Auckland Airport.



"The CEM AC2000 AE is a proven security management system and is in use in major airports throughout the world. With the upgrade to this new system, careful planning and preparation is vital so as not to compromise airport security at any time. We are confident that the ADT Security team has the experience and technical expertise to achieve this," Varma said.

The sophisticated AC2000 AE is the industry's only airport-specific access control system and is considered one of the most reliable and resilient airport security solutions. Its flexibility means that the system can be customised to meet the specific needs of each airport and integrated with external security systems such as network video systems.

The AC2000 AE incorporates a host of aviation-specific features including check-in desk enabling, passenger mode and air-bridge monitoring. The access card technology has one of the highest levels of encryption technology, protecting the airport against cloning and illegal copying.



Security is a crucial part of airport management and the CEM Systems solution offered by ADT Security will provide an outstanding level of security for staff, passengers and the public.



The use of CEM portable card readers was central to the security upgrade at Auckland Airport. These readers enable on-site airport security staff to validate cards at remote sites or areas with no mains power supply and they can also be used as mobile devices for random checks in emergency evacuations. The readers offer the flexibility of setting up controlled access points instantly, without having to physically commission a fixed access controlled door.

The system at Auckland Airport will utilize powerful AC2000 software modules including CEM's AC2000 VIPPS (Visual Imaging and Pass Production System), which allows security personnel to produce passes and access rights for staff and visitors. Auckland Airport will also use AC2000 WEB Visitors which will enable system users to request and manage temporary cardholders (visitors) via a standard web browser.

AC2000 T&A (Time and Attendance module) will also be installed, offering easy to read reports of employee In and Out times. Auckland Airport will also use AC2000 Failover to create a system with a high level of redundancy. AC2000 Failover provides



the ability to create and maintain a copy of the main AC2000 server. In the event that the main server fails, the AC2000 failover server will immediately take over until such times as the main server is restored.

The use of CEM S3030 portable card readers was key to the security upgrade at Auckland Airport. These readers enable on-site airport security staff to validate cards at remote sites or areas with no mains power supply and they can also be used as mobile devices for random checks in emergency evacuations.

"Our team will work to complete the installation of the CEM AC2000 system at Auckland Airport with minimum disruption to airport operations" said David Tombs, national manager - commercial, ADT Security New Zealand.

"The CEM portable readers will enable us to manage the system switchover without any loss of access integrity. We will also be using existing cabling at the airport to complete the installation, keeping the project cost effective and delivered on time."

Andrew Fulton, senior director global sales at CEM Systems is also pleased with the win.

"Being awarded the contract to secure Auckland Airport is another significant win for CEM," Fulton said. "CEM has a proven history of understanding the dynamics and needs of airports and the industry-leading CEM AC2000 system has been used to secure airports around the world for over 20 years; Auckland Airport joins some of the world's most prestigious airports in selecting CEM Systems." ▽ ▽ ▽

The readers offer the flexibility of setting up controlled access points instantly, without having to physically commission a fixed access controlled door.

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TUNING FORKS

Capacitive field effect sensor perimeter solutions operate on the basis of tuned circuits which create resonant frequencies that are broken by intruders to trigger alarm events.

CAPACITIVE field effect electronic perimeter intrusion systems function on the basis of a property called electrical resonance. If a capacitor and an inductor wired in parallel have a voltage applied then current will flow through the circuit.

The current will be the sum of the current flowing through both capacitor and inductor and if the current's frequency in the circuit is raised, the current in the inductor will fall until, at a particular frequency, they will be identical. This is the resonant frequency and when it's attained you get waves of

current surging between inductor and capacitor in a process of storing and discharging with very little additional current coming from the supply.

Now, such an oscillating current in such a circuit can be larger than the current such a circuit would ordinarily draw from its power supply and this means that it's possible to sense a change in inductance or capacitance in the circuit which causes a loss of this resonance balance and leads to an immediate draw of current from the circuit's supply.

A capacitive field effect sensor will detect this current draw change when an intruder moves in a capacitive field or touches part of the circuit's wiring.

Typically in a capacitive perimeter security solution, the capacitor will be the conductive structure of what is being protected - like a chain link fence - or it might be a layer of air between a pair of electrodes. Meanwhile, the inductor forms part of the analyser circuit wired to the protected structure. The 3 types of capacitive sensors include capacitive relays, capacitive effect cables and capacitive field effect sensors.

The first of these and the least commonly

used are capacitive relays. These depend on the property of an object being protected to conduct electricity and become part of the circuit. Typically these highly sensitive capacitive relays are applied to safes, cabinets and metal doors. Such circuits face challenges, including the fact they are prone to all manner of interference from their surrounds, including static, EMI and changing internal resistance. All these issues can make poorly designed capacitive relays highly unstable.

Meanwhile, capacitive effect cables are very basic capacitive static electricity creating cables that are generally installed in strands on top of chain link fences or masonry walls. Each wire has a low voltage AC signal with a frequency of around 3kHz. This signal is not strong enough to generate an air field capacitor but it does propagate a measurable capacitance into the air between wires and grounded struts on which the wires are strung. Total capacitance of this circuit is the combination of a pair of capacitive cables of the same length and the air capacitance with the cable being dominant. Any intruder touching the cable alters capacitance and trips an alarm circuit.

Then there are capacitive field effect sensors - E-field sensors - which employ the ability of air to become a capacitor by storing a charge. In this case the field is a pattern of static electricity distribution created when a capacitor is formed using air as the dielectric between 2 electrodes.

The way an E-field sensor is set up, a fence is fitted with horizontal wires (there will be 3 wires in higher quality systems) on struts that form continuous electrodes if supplied with small currents. In simple systems single wires can be used to form a positive electrode and the grounded fence structure can be used to create a potential difference across the air gap that separates them. When 3 wires are used, one strand is positive, one ground and one is the sensing wire. It's also possible for 4 wires to be used in a system to offer a higher level of protection.

In E-field sensors, the positive wire carries an alternative current around 10kHz that's supplied by an oscillator. This current creates a capacitive electrostatic field around the positive wire and this field is cut by a sensor wire located near the ground which has a current induced into it by the field. As a result, a current flows in closed loop through the field wire, the air capacitor and the sensing wire and its inductor.

When tuned properly, there's virtually no mains current draw and when the air capacitor field is disturbed by a moving intruder, it stops resonating and a larger than normal current will be drawn. Depending on value and time thresholds of this current draw, the controller will decide what sort of an intrusion the system is experiencing.

A good system that's well tuned for a site can establish whether or not an intrusion-based change took place all in the one direction, it can work out the speed of the change and the size of the intruder - a

A capacitive field effect sensor will detect this current draw change when an intruder moves in a capacitive field or touches part of the circuit's wiring.

bird, a bilby or a human being.

Good systems use 3 or more band pass filters - a lower frequency filter to ignore blown leaves or rubbish, a higher frequency filter to take out wind vibration in wires and a third filter to take care of lightning strikes. Typically, a system will alarm if frequencies detected at the controller have an amplitude typical of a human being-sized object, shows a frequency consistent with an object loitering or moving around or crawling in the detection zone, or a signal change that continues over a long period of time.

Quality E-field solutions are not only reliable but they have excellent detection rates between 98-100 per cent and can be installed in zones. E-field is considered by some to be among the best sensors available for higher security fence applications and it excels from an economy point of view on larger sites.

Integrators considering E-field applications should ensure fences supporting them are of sufficient height and that these fences cannot be easily dug or crawled under. That means anchoring, burying or embedding footings and fixings in concrete.

Important, too, is that the fence be taut and not flex due to wind or the opening of gates. You'll also need a clear area on both sides of the fence of about half a metre, which is more than achievable on most sites. This clear ground should be devoid of plant growth which will cause false alarms. ▽ ▽ ▽





RED SHIFT

Volumetric detection devices are not always an ideal electronic security solution. The characteristics of their signal patterns make it difficult to contain their detection zones sufficiently to handle some detection tasks. If you need to defence large, long and narrow internal spaces, then PE beams may be your best bet.

THE beauty of gallium arsenide LED-based PE beams is they've got a long life span. An LED array will last 10 years or more and is rugged enough by design to handle the toughest environments. Good PE beams can handle both indoor and outdoor applications without fuss. In this feature we'll take a look at the fundamentals of PE beams and considerations of installation.

For a start, a PE beam's LED array will transmit light in the 0.9 to 1 micrometre range (9-10 x 10 to the power of 3 angstroms). The carrier frequency is around 500Hz and there will be frequency modulation of 20kHz. This frequency will be modulated to make it hard for the more enterprising intruder to trick

the system using an introduced light source. This modulation also increases resistance to false alarms caused by strong light sources.

Modulation is essentially pulsing of the light source at a given frequency (the higher it is the better up to 100kHz). This pulsing can occur up to 1000 times per second and the receiver's signal processing electronics will only recognise light from the correctly modulated transmitter. An alarm is generated when 90 per cent of the beam is cut for 75 milliseconds - that's about the length of time it'll take for an intruder to run through the 30-70mm diameter beam.

APPLICATION OF INTERNAL BEAMS

It goes without saying that using active infrared beams internally requires that traffic through the protected area be completely eliminated. The most likely applications for AIRs systems are across hinged doors, windows, glass walls, skylights, trapdoors, storage racks and shelving, roller doors and gates. Should beams be used to protect access to sensitive locations there must be no legitimate traffic present.

Internal active infrared sensors are invariably single beam units with the most common types being relatively short range (5-10m). They also tend to be surface mount or surface bracket mount and this means they are visible to the educated criminal, making them possible to avoid. Better installation teams will disguise receivers and transmitters or build a facade to flush mount transmitter and receiver, making casual observation difficult. This isn't as hard as it sounds - single beam AIRs units aren't much larger than some of the dual technology sensors that were sold a few years ago.

Some less expensive beam types have a single transceiver, with the light signal reflected from a wall opposite the transceiver's mounting point, making them significantly easier to hide. But there are negatives to the use of transceivers and you should only employ them to handle short distances.

A particular issue is that transceivers don't receive all their transmitted light back from a mirror surface - even the world's most perfect mirrored surface will only reflect around 90 per cent of the light that strikes it. A mass-produced plastic reflector will probably only return 60-70 per cent of light received, the rest refracts and is lost. Obviously the more mirrors directing the passage of a beam, the greater the loss will be.

Other issues relating to the use of mirrors include the effect of dust, as well as alignment. Should mirrors get out of alignment, the system's performance will be compromised, the beams broken and a false alarm generated. Such problems will be exacerbated if beams are used over longer distances, especially if their mounting points are subject to vibration.

Bear in mind that sensors mounted internally to protect against intrusion from outside need not be hidden so carefully. Intrusion through a door or window will break the beams and activate an alarm long before the intruder gets wind of sensor layout.

Something to be extremely careful of when using AIRs beams indoors is the possibility of stock or machinery being moved into positions that blind the system to activity in protected areas.

Moving a pallet of boxes or parking a forklift in front of either transmitter or receiver will render the beam zone useless so make sure your system alerts you to signal loss from internal AIRs sensors. Every big warehouse will have a bond store or valuable stock cage - depending on the layout of the site an AIRs beam can protect the mesh front wall

A particular issue is that transceivers don't receive all their transmitted light back from a mirror surface - even the world's most perfect mirrored surface will only reflect around 90 per cent of the light that strikes it.

of the cage while at the same time covering the gate. During the day the beam zone can drive a video camera and an audible alarm, while at night it offers additional support to the warehouse's volumetric sensors.

In particularly severe internal environments you could employ external sensors inside. You'd do this if you were likely to experience problems with birds or nocturnal wildlife, or you needed long-range performance.

FEATURES YOU WANT

When choosing an internal AIRs product, you want tough adjustable brackets, as well as a rugged polycarbonate case. Because they're likely to be installed just below waist-height, these beams are vulnerable to being knocked by traffic, trolleys, pallet-jacks and passers-by. A lexan lens cover is vital, and be sure to get a receiver test kit. This should come standard with every set of sensors, so look out for it. You'll also want sensitivity adjustment, beam locking, anti-tamper, anti-masking and that pulsed signal we talked about earlier. The higher the signal modulation the better, remember to favour units with modulation up towards the 100kHz level.

While some internal sensors won't offer these features you should also pay special attention to units with environmentally protected enclosures designed to keep out water, dust and insects. Fittings including brackets and metal attachments to the polycarb casing of sensors should be built of material resistant to corrosion. Other features of benefit include battery backup at the sensor, low beam dispersal and signal processing that allows the sensor to ignore sources of false alarm.

Internal AIRs beams are useful electronic security devices ideal for protection of doorways, corridors, glass walls and the internal perimeters of very large buildings, like warehouses. AIRs beams also have a superior range to volumetric sensors yet draw just 20-70mA and they're largely immune to many of the environmental disturbances that cause false alarms in PIRs and microwave detectors. Don't discount them from your next internal installation. ▀ ▀ ▀



EDITOR'S CHOICE

WHAT'S NEW IN THE INDUSTRY

AXIS RELEASES M2014-E BULLET CAMERA

AXIS M2014-E Network Camera is a compact, bullet-style HDTV camera, designed with a focus on full flexibility and easy placement. It is adapted for an easy-to-install video surveillance solution ideal for indoor and semi-outdoor environments where the camera may be exposed to rain or water.

The camera's functional and compact form factor makes it particularly suitable for installations such as in retail stores, boutiques, hotels or small offices that need easy-to-use and future-proof video surveillance at a very attractive price.

AXIS M2014-E provides HDTV 720p image quality at full frame rate. The camera delivers multiple, individually configurable video streams in H.264 compression, greatly optimising bandwidth and storage without compromising image quality. Motion JPEG is also supported for increased flexibility.

The camera, with its built-in memory card slot for edge storage and support for AXIS Camera Companion, provides a convenient, small-scale video management solution. Remote management is via AXIS Camera Companion software.

- **Distributor: Axis Communications**
- **Contact: +613 9982 1111**



OPTEX REDWALL IP DETECTORS

OPTEX has showcased a new series of Redwall IP detectors, an advanced range of high-performance detectors designed specifically for professional IP CCTV systems like Genetec and Axxonsoft. Harnessing a variety of proven infrared, laser and fibre optic technologies, the new Redwall IP detector range can offer a complete detection solution for a variety of external perimeter security applications especially where those applications need to be integrated with either existing or new IP CCTV, or physical security information management (PSIM) systems. Redwall IP detectors exchange alarm signal information generated by an intruder's movement or any specific type of object and other critical information relating to detection via IP protocol. The event triggered can then be used to control IP cameras for automatic tracking of intruders' or objects' movement through the detection zones, or for alarm management on video management software. To ease the deployment and cut down on the wiring, all Redwall IP detectors can be powered over Ethernet (PoE).

- **Distributor: DAS**
- **Contact: +612 9897 7722**



EXACQVISION VERSION 5.4 VMS

THE latest version of the exacqVision Video Management System (VMS), Version 5.4 is now available. Version 5.4 makes significant additions and improvements to the exacqVision VMS with the addition of significant IP camera models and IP camera functionality, the first phase of video archiving, simplified software updates, a new web service and more. Version 5.4 also introduces the first of 3 phases to archiving; the search feature of exacqVision retrieves video from both the local video server and a separate Search Archive drive seamlessly, with the results displayed as if all of the video was originating from the same server.

- **Distributor: Central Security Distribution**
- **Contact: 1300 319 499**

24 CAMERAS, ONE VSW7242 POE SWITCH

IT'S not just about having PoE, it's about how many PoE ports you can use for your CCTV cameras. The Vidipac VSW7242 Gigabit full management switch with 500W PoE is designed to provide continuous power up to 24 cameras or other security devices not exceeding 500W total consumption.

Key features of the 24-port VSW7242 POE switch include VLAN, SNMP v1/v2c/v3, IPv6 and IPv4 Dual Protocol, Authentication TACACS+, SSH version 2.0, IGMP v1/v2/v3 and Jumbo Frames 9Kbps.

■ **Distributor: Pacific Communications**

■ **Contact: +613 9676 0222**



NEW GEUTEBRUCK G-CAM/E CAMERAS

GEUTEBRUCK'S new G-Cam/E range of HD cameras are designed for quicker, cheaper, safer installation and adjustment. There are box, bullet, fixed dome and PTZ dome models for all types of professional monitoring applications, for indoors or out, with or without one-click AF. All have 1/2.7" CMOS image sensors, support H.264 and MJPEG, offer HD1080P resolution and day/night operation with removable cut filters for optimum light sensitivity and colour reproduction.

Not only are these cameras simple to install, but you can set them up without taking your laptop up the ladder. After drilling holes and mounting a G-Cam/E series camera, you just plug a tiny pocket-sized service screen into its analogue output and set the viewing angle. Then you can close the housing and remotely assign the IP address, adjust of the remote-controlled motorized lens and run the CamCheck feature.

■ **Distributor: Geutebruck Australia**

■ **Contact: 1300 855 291**



MILESTONE ARCUS MULTI-PLATFORM VMS



MILESTONE Systems' Arcus is an embedded video surveillance platform for low-complexity, low-cost security installations. Milestone Arcus runs on Linux, Mac OSX and Windows related operating systems, within network storage and cameras or other devices on the edge. Arcus is a multi-platform VMS solution for hardware vendors to embed in their products. According to Milestone, Arcus is the leanest high-performance product in the Milestone portfolio, which up to now has been Milestone XProtect VMS offerings that run on Windows and are sold by the worldwide Milestone Systems network of channel partners.

Milestone Arcus is a brand-new VMS product with new development code in its core that takes advantage of the company's 15 years of experience in video surveillance technology. It is the first delivery from Milestone's new Incubation & Ventures business unit that was created in 2012.

■ **Distributor: Milestone Systems**

■ **Contact: +613 9004 3792**

DALLMEIER RELEASES DDF4820HDV-DN DOME HD CAMERA

DALLMEIER'S DDF4820HDV-DN is an HD network camera built into a vandal-resistant (IK10) dome enclosure. It provides real-time Full HD video (1080p/30) using the H.264 codec, currently, the most advanced standard for high-efficiency video compression, and supports resolutions up to 3-megapixel.

Besides a comprehensive set of automatic and manual image optimization functions and many other setting options, it features automatic Day/Night operation supported by integrated ambient light sensing and a removable IR cut filter (ICR).

In addition, the camera is equipped with a fast (large maximum aperture) and motor-driven P-Iris megapixel varifocal lens (F1.2 - F2.3 / 3 - 9 mm) which allows for the convenient adjustment/ configuration of the zoom, focus and iris via the web browser.

■ **Distributor: C.R. Kennedy**
 ■ **Contact: +612 9552 8300**





EDITOR'S CHOICE

WHAT'S NEW IN THE INDUSTRY

HIKVISION INTRODUCES NEW EFFIO-E CAMERA SERIES

HIKVISION recently released a new series of IP66 vandal-proof analogue dome cameras. This new Effio-E series is comprised of the DS-2CC5281P(N)-VP 600TVL CCD dome camera, DS-2CC5281P(N)-AVPIR2 600TVL CCD IR dome camera, DS-2CC52A1P(N)-VP 700TVL CCD dome camera, and DS-2CC52A1P(N)-AVPIR2 700TVL CCD IR dome camera. Those cameras are based on Sony's Effio series DSP, boasting advanced features such as high horizontal resolutions, enhanced low-light capability, digital wide dynamic range, and digital noise reduction. Each of the above models performs superbly in low-light environments with a minimum illumination of 0.001Lux@F1.2 with AGC ON. Additionally, the DS-2CC5281P(N)-AVPIR2 600TVL CCD IR dome camera and DS-2CC52A1P(N)-AVPIR2 700TVL CCD IR dome camera incorporate a switchable IR cut filter for full day/night operability, as well as a built-in IR LED.

■ **Distributor:**
Security Merchants
■ **Contact:** 1800 635 122



DYNAMIC TRANSCODING TECHNOLOGY FROM BOSCH

WITH the addition of Dynamic Transcoding Technology to its IP and HD range, Bosch is extending the possibilities for low-bandwidth remote monitoring. Dynamic Transcoding Technology from Bosch is a behind-the-scenes process that changes a video file to a different format or bitrate without compromising on the original image quality when the image is paused. The technology enables viewing in HD quality from any location at any time, as long as there is an internet connection available.

Bosch Security Systems is introducing this technology to its portfolio as standalone units for large systems and as an integral part of upcoming IP video storage appliances for small and medium systems. The Dynamic Transcoding Technology offers all Bosch customers using IP and HD cameras remote monitoring at low bandwidths. The addition of this functionality allows instant replay without buffering.

■ **Distributor:** Bosch Security Systems
■ **Contact:** +61 2 9672 1777



ARECONT MEGADOME, MEGABALL, MEGAVIDEO

ARECONT Vision's true Wide Dynamic Range (WDR) technology is now available in MegaDome 2 WDR, MegaBall WDR and MegaVideo Compact WDR cameras. The cameras are available in resolutions of 1080p and 3-megapixels. The company's WDR technology delivers a dynamic range of up to 100dB at full resolution and without lowering the frame rates. By combining long and short exposures in the same field-of-view, WDR maximizes the amount of detail in both bright and dark areas of a scene. The WDR performance of Arecont Vision cameras represents an up to 50dB improvement (300x) in dynamic range compared to non-WDR cameras.

■ **Distributor:**
Arecont
■ **Contact:** mespenschied@arecontvision.com



RAYTEC LAUNCH NEW NETWORK ILLUMINATORS

VARIO IP is available in both Infra-Red and White-Light and provides dedicated IP lighting allowing for remote set up, commissioning, operation and maintenance.

VARIO IP can be accessed and controlled via an integrated web interface at anytime from anywhere on the network. VARIO IP is provided as standard with discovery software for easy location and connection on your network.

VARIO IP allows users to have full control over their lighting at all times, to alter settings and instantly respond to operational changes or live events in real time, for the best CCTV images and safety 24/7.

VARIO IP web interface provides quick access screen for manual adjustment and instant response to live events, instant control of individual or group of lights, basic settings: power on/off, boost and deterrent lighting, user defined advanced settings, diagnostics for instant feedback on the status each light and password protection.

■ **Distributor:** Pacific Communications
■ **Contact:** +61 3 9676 0222



NEW PELCO SPECTRA HD 1080 HIGH SPEED DOME

PELCO Spectra HD 1080, built on the Sarix technology platform, is an all-digital system that delivers 2.0 megapixel resolution, high-profile H.264 compression and built-in analytics.

Key features of the new Spectra HD 1080 system include a 1/2.8-inch Exmor CMOS imager with an integrated 20x optical zoom lens, delivering 2.0 megapixel resolution (1920x1080 at 30FPS). There's a dual-processor design for guaranteed streams and high-profile H.264, which is 10 per cent more efficient than base-profile H.264, for the more efficient compression. Sharing a common browser with all Sarix-based cameras means easy configuration, and allows users to have advanced pan/tilt management features through a browser.

■ **Distributor: Pelco**
 ■ **Contact: +61 2 9125 8000**



ARECENT VISION 12-MEGAPIXEL PANORAMIC WDR CAMERA

ARECENT Vision has released the world's first 12-megapixel 180-degree panoramic dome camera with true Wide Dynamic Range (WDR). In addition to its superior performance under challenging lighting conditions, Arecont Vision's new 12-megapixel IP66 WDR 180° panoramic camera is 25 per cent smaller than previous SurroundVideo models. Arecont Vision's WDR technology delivers a dynamic range of up to 100dB at full resolution and without lowering the frame rates.

By combining long and short exposures in the same field-of-view, WDR maximizes the amount of detail in both bright and dark areas of a scene. The WDR performance of Arecont Vision cameras represents an up to 50dB improvement (300X) in dynamic range compared to non-WDR cameras.

■ **Distributor: Arecont**
 ■ **Contact: mepschied@arecontvision.com**



NEW IPELA ENGINE EX FROM SONY

SONY has released its first range of IP cameras based on the IPELA ENGINE advanced signal processing platform and offering superior performance. The 6 new IPELA ENGINE EX cameras include the varifocal SNC-VB600 and SNC-VB630 full body cameras, the SNC-VM600 and SNC-VM630 mini-dome cameras, and the SNC-VM601 and SNC-VM631 vandal-proof indoor mini-dome cameras.

Noise reduction is significantly enhanced and low light sensitivity is increased to more than twice that of Sony's previous cameras, including the impressive CH140. Maximum frame rates are doubled from 30 fps to 60 fps at both HD and Full HD resolution.

The IPELA ENGINE EX cameras combine powerful signal processing and video analytics technologies to enhance the performance of IP video security systems.

■ **Distributor: BGWT**
 ■ **Contact: +61 2 9333 0829**



FLIR FLIR A310 F FIXED AND PTZ CAMERAS

THE A310 f is a fixed mounted camera ideal for monitoring critical installations and to protect the perimeter at the same time. Meantime, the FLIR A310 pt pan/tilt has all the necessary features and functions to build single- or multi-camera solutions. The FLIR A310 pt can pan +/- 360° continuously and tilt +/- 45°. It is ideal to cover large areas. Typical application examples are coal pile, waste bunker and sub-station monitoring. The FLIR A310 pt is a multi-sensor and includes a lowlight 36x zoom colour CCD camera.

FLIR A310 f and FLIR A310 pt can detect temperature differences as small as 0.05°C and contain extensive analysis and built-in alarm functions. MPEG-4 video output can be

streamed over Ethernet to show live images on a PC. Composite video output, PAL and NTSC, is available. net (PoE).

■ **Distributor: FLIR**
 ■ **Contact: +61 3 9550 2800**





HELPDESK

OUR PANEL OF EXPERTS ANSWERS YOUR QUESTIONS.



Q: Is there any particular secret to installing PIR sensors or can they be installed anywhere that works with room layout or decor? And what sort of features suggest a quality PIR sensor? Most sensors just seem to trade on price these days - there's no thought of considering basic functionality to ensure performance and reliability.

A: When installing PIR sensors take a good look at the plan of their detection zones and take into account the fact that these sensors work best when their zones are broken at right angles. That means taking into account foot traffic pathways through an area while planning the physical installation of sensors.

Try to install sensors adjacent to walking paths through an area rather than directly above routes used by foot traffic. Such an installation will also minimise an intruder's ability to approach a sensor through a dead zone created by the sensor's lens configuration. As anyone who has ever walk or crawl tested a sensor can tell you, it's far easier to creep up head on than it is to sneak across detection zones.

Yes, it's true many installers use very basic PIR sensors but for not very much more money - say \$30 or so - you can buy a good quality PIR with dual or quad pyroelectric sensing elements (these reduce false alarms). There are other features worth having including creep zones, a good-sized sensor window, not just

a slot or a small hole; and RFI (tantallum capacitor circuits for EMI/RFI rejection), surge and low-voltage protection.

You also want zone adjustment that allows range to be changed or particular zones to be ignored, latching (with LED indicator), walk test capability (and LED indicator). You want a high signal-to-noise ratio, anti-masking, trouble log, silent alarm relay, enhanced processing, temperature gain compensation and a tamper switch. Other beneficial features include site adjustable sensitivity, first-to-alarm memory, low voltage signal and auto self test. Some of the best modern units feature multiple detection technologies and the ability to handle external environments. Look for dust and insect resistance at the very least. The last thing you want is for a family of cockroaches to set up home in your sensor through barn-door-sized wire knockouts.

Q: What's the correct method for terminating RG-59 coaxial cable?

A: Make a 90-degree cut straight across the cable. Use your 2-step coaxial cable wire stripper and set it to the RG-59 setting using your hex allen key. What you want to do here is expose about 1cm of the cable's conductor and 1cm of its insulation. When your settings are right, insert the cable into the stripper and close it around the cable. Rotate the stripper so the blades strip the coax in the usual 2-stage manner. You need

to rotate the stripper 3-5 times always in the same direction. We've seen some installers go back the other way using a 180-degree swing in each direction with most unappealing results. Vital here is not to go all the way through the jacket and into the shield - this is the most common error with coax installs. Go nearly all the way through and then pull the jacket to and fro till it separates along the line of the cut

Now, seat the centre pin of the BNC onto the stripped conductor. When you're happy that you've got all the conductor into the centre pin for a good contact and that there are no whiskers peeking around the BNC pin's hole, crimp the centre pin to the conductor with the pin crimp on your ratchet crimper - you'll use the small pin die. Use firm but not too much pressure and turn the pin to get even crimping.

Now fit the sleeve ferrule over the pin and the still exposed insulation. What you want to do is slide the ferrule down over the pin and then put the BNC connector body onto the end of the cable. Doing this will force the braid to spread and you want to press the connector all the way down the braided shield without applying ridiculous force. All the time this process is going on make absolutely sure no stray whiskers are being bent back outside the connector body by its



downward passage. Also vital is to ensure that the pin flange sits on the exposed insulation and that the pin top is flush with the top of the BNC body.

Finally, slip the crimp ferrule sleeve up till it covers the exposed shield braid all the way to the shoulder of the connector body and then get your ratchet crimper and set it to the right diameter using that allen key. Put the crimper over the ferrule sleeve and put firm and even pressure on the crimper handles till the ferrule is perfectly crimped to the connector body.

Q: Installing an access control door controller recently in a new building with synthetic carpet, I touched the termination blocks and whack - static! That was the end of the controller. Is it possible for carpet static like this to wreck a brand new door controller?

A: Yes - it sure is. A normal static snap from the tip of your finger might reach voltages of 10kV, while the highest recorded ESD voltages are around 30kV (30,000 volts). What does the damage with ESD is the fast high current waveforms and fast magnetic (H-field) or electrostatic (E-field) disturbances. These can induce voltages or currents in nearby sensitive circuitry, and corrupt data or cause spurious failures.

What you should get into the habit of doing whenever you are around controllers is wearing a grounded anti-static wrist strap connected to the panel housing. Any static electrical charge that builds up on your body is then immediately transferred to ground through the case of the controller.



Depending on how you are working, experienced technicians can also use a few tricks for controlling static electricity around controllers and control modules. One trick is to leave the circuit board laying on top of an antistatic bag or antistatic foam whenever possible. Another is to leave an ungrounded device plugged into an AC outlet with the power switch turned off. This places ground on the metal case. The technician then works with one hand always touching a metal part of the case. Any electrical charge that builds up on your body is then immediately transferred to ground the same as with an anti-static wrist strap.

Q: We've been working on an old system that has the voltages supplied but we're having trouble figuring out to what some of the numbers relate - and working out what sort of equipment was used to measure voltage. It's something for other techs to consider, we think. It really helps to know the instruments the original installers used during commissioning.

A: Agreed. Some technicians are going to find that test voltages have been included with the circuit diagram by professional installers from 20 years ago or

more. When you're troubleshooting, this information is like gold. If commissioning voltages are written into the panel schematic then it's just a matter of comparing these figures to the results of your testing and bingo, you can see the results of cable degradation right there in front of you.

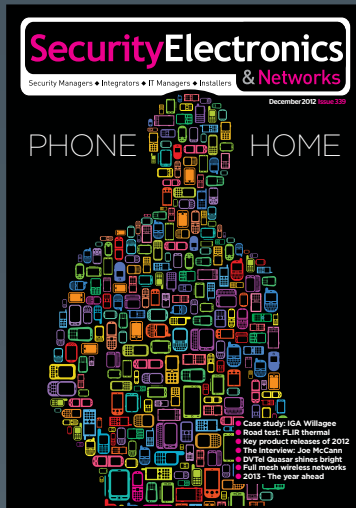
Bear in mind, however, that test voltages should always be given as potentials measured relative to the earth rail but sometimes they are not. Good figures will be established for common negative earth equipment when the negative test probe is connected to the earth rail and the positive probe is connected to the relevant test points. But with older positive earth equipment, positive is connected to the earth rail. The confusion may not end there. Even if test voltages are supplied, it's still going to be beneficial to know if these were *real* voltages or if they were potentials measured with a multimeter and whether or not this was a 20k/volt instrument or a digital unit with a high input resistance. The point is that the loading levels of the 2 meter types differ and this will impact on your results, especially when testing low current circuits.

Q: A client with zero budget has a couple of external cameras that it wants to use to view the far side of its carpark. Is there a way to double depth of field without buying expensive new lenses?

A: Sure - it's possible to turn a 16mm CCTV lens into a 32mm lens by using what's known as a 2x teleconverter. The teleconverter is fitted to the camera between the lens and camera body and once installed it will multiply the focal length of the lens by 2. You can also turn an 8-80 zoom lens into a 16-160 unit. There are

some issues to consider when using teleconverters, chiefly that their use will increase the F-stop value of a lens by one. In addition, you should never add a teleconverter and then attempt to backfocus the modified camera. It's far simpler to backfocus the camera and then install the teleconverter afterwards.





DAILY, WEEKLY, MONTHLY.



events

APRIL 2013 - AUGUST 2013



ISC West 2013

Date: 10-12 April 2013

Venue: Sands Convention Center, Las Vegas, NV, U.S.

Contact: 203-840-5602 Website: <http://www.iscwest.com>
Product categories include access control, alarms and monitoring, biometrics, fire control, networked security products, public security and safety, remote monitoring, systems integration, video surveillance, wireless applications and more.



Secutech Taipei, Taiwan

Date: April 24-26, 2013

Location: Taipei Nangang Exhibition Center, Taiwan

Contact: <http://www.secutech.com/13/en/>

SecuTech Expo offers an organized presence and underlines dynamic fields of the Asian security industry. The show represents not only the Asian manufacturer powerbase, but its multinational participation makes it a true international exhibition in Asia.



IFSEC International

Date: May 13 -16, 2013

Venue: National Exhibition Center, Birmingham, United Kingdom

Tel: +44-20-7921-8057

Taking place on the 13-16 May 2013 at the NEC Birmingham, IFSEC International is the largest event for the security industry, bringing together the entire security buying chain in one place. Celebrating our 40th year, we've been at the centre of the security industry, ensuring excellence and innovation at each ground breaking event.



Security 2013

Date: July 24 - 26, 2013

Venue: Sydney Convention & Exhibition Centre

Contact: 03 9261 4504, ahaughton@divexhibitions.com.au

Security 2013 will showcase products such as access control, alarms, barrier protection, biometrics, CCTV, clothing and accessories, computer and communication security, critical infrastructure, detection and control devices, entry/exit systems, fencing/ perimeter security/grills, fire/safety, home automation, ID systems/supplies, IP technology and IT security.



Security in Government Conference 2013

Date: August 12-14, 2013

Location: National Convention Centre, Canberra

Contact: Fallon Smith 61 2 9254 5000

The SIG Conference targets senior executives responsible for managing security in agencies, officers from all levels of government who contribute to the development of security capability and response and security practitioners from the public and private sectors who provide services to government and critical infrastructure providers.

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December 2012 Issue 339

PHONE HOME

- Case study: IGA Willagee
- Road test: FLIR thermal
- Key product releases of 2012
- The interview: Joe McCann
- DVTel Quasar shines bright
- Full mesh wireless networks
- 2013 - The year ahead



MAGAZINE



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