

The Votes Are In...

PELCO ENDURA for SYDNEY COUNCIL

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It may not be the biggest video security system in Australia but the Pelco Endura-based hybrid solution ECS Services has delivered for City of Sydney's Security and Emergency Services Unit is a real gem. There are so many things to like about this glittering new installation it's hard to know where to start.

It's an end-to-end solution – starting at fiber patch panels behind recently upgraded cameras and running through all the twists and turns of the classic hybrid solution.

The application includes an upgrade to the Sydney Council's 10-year-old Street Safe program as well as the physical construction and fit-out of a Grade C1 video security control room, a dedicated data centre and the installation of dozens of support systems – communications, fire control, VESDA, hydraulics, access control, UPS – the lot.

In simple terms, City of Sydney's hybrid video security system sets a new benchmark. From the product selection to the intuitive layout of the big control room, from the construction ethics of the dedicated data centre to the swooping looms of its sweetly built Pelco 9700 matrix switcher and everywhere in between, this is Australia's premier video security installation.

THE SYSTEM AND ITS GOALS

At the frontline is a network of Pelco Spectra III and IV speed dome cameras installed across Sydney's Central Business District as part of City of Sydney's Street Safe camera program. These are linked by coax tails to an extensive fiber LAN with analog video streams arriving at City of Sydney's control room passing through fiber patch panels.

There the signals are split, with one going over coax to a bank of Pelco single-channel Endura encoders into Gigabit Ethernet for storage onto a massive 106TB DVR Array and the second set of signals goes via coax to a Pelco 9700 switcher where signals can be accessed from the control room in real time by a direct analog connection with inputs at the switcher matched to outputs linked to monster monitors. The combination of the digital and analog interface coupled with the Pelco (matrix digital decoder) digital to analog decoders provide instant access to both live and playback footage which can also be transferred in real time to the New South Wales (NSW) Police monitoring teams at various precincts.

It's not just Council's Street Safe cameras that come into the data centre, either. There are more than 100 cameras installed in and around council properties that are also monitored by the control room. And capability is vastly increased by an interface to more than 2000 Roads and Traffic Authority (RTA) street cameras spread across intersections and roadways, from Gosford to Wollongong. City of Sydney's street safe camera program is at the core of this application – and its heart is the protection of people and property. Hand in hand with these

priorities is a governing imperative that demands protection of public privacy while delivering crowd control.

Council achieves this balancing act through rigorous public standards and a commitment to transparency. When it unveiled the Street Safe program nearly 10 years ago, Council voluntarily entered into an agreement with the public to uphold privacy and to establish and adhere to a clear code of ethics.

David Cornett, City of Sydney's Manager, Security and Emergency Management, says that while the original system was capable, the development of new technology over the past decade meant that a change to digital recording and retrieval as well as authorized remote access, would significantly increase the system's operational power.

"Essentially this new system is designed to bring together all the security and emergency functions that City of Sydney already had – one of those being video security," Cornett explains.

The new control room is used as an emergency management center as well as for event management during large events like Chinese New Year.

"In terms of product selection we chose Pelco Endura because it met our digital recording requirements – that's 4CIF, 25IPS on all inputs. This system also had the capability to support full analog joystick control," Cornett says. "This is the sort of immediate control our operators are familiar with. We wanted both digital and analog capabilities with this system and with Pelco Endura we got what we wanted."

SYSTEM CHOICE AND DESIGN

It's tempting to describe Pelco Endura as being a concept as much as it is a product suite. Sure, there's a swag of gear – encoders, decoders, workstations, console displays, network video recorders, storage expansion boxes, keyboards, power supplies, as well as the software management tools that drive them. But just how big Endura grows as part of a given solution and in which directions it grows – all this is up to the user. Endura can be the tight network gateway, storage solution and remote management package it is for City of Sydney, or it can be a globally networked monster.

The analog element is central to this installation. At City of Sydney it's supported by a new Pelco 9700 matrix switcher delivering latency-free analog video to banks of monitors in the control room from camera inputs.

"During the evaluation we went through an expression of interest looking for a hybrid system so we could retain the analog front end with an integral digital recording platform," Council's System and Business Development Manager, Greg Martin, explains.

"As it turned out we only had two major systems proposed to us and in the end Pelco Endura was the only system that was tendered because it was the only system that could actually meet our analog/digital requirements without the necessity of writing independent coding."

Martin says that despite the widespread push to digital solutions, not every application suits a fully networked environment and this fundamental underpins the decision to go hybrid.





“From the point of view of this system and the way we use it here, hybrid is best. We’re doing active real time monitoring and with hybrid we get all the benefits of digital recording along with the benefits of old style real time and latent free monitoring,” he explains.

Martin says that image streams reach the control room in real time across Energy Australia’s fiber network, with coax drop cables connecting Spectra domes to fiber modems inside each camera’s mounting pole. Once on the Energy Australia fiber WAN, the signals travel to fiber patch panels in the new purpose built video security data center.

“With the last expansion we’ve gone to the new Spectra IV – we’ve replaced 40 of our Spectra IIs with Spectra IIIs and the remaining 42 PTZ domes have been replaced with Spectra IVs,” explains Martin.

Martin says the Spectra domes have always provided excellent performance – the original cameras managed seven or eight years of heavy duty use before being replaced and he says the low light performance of the new cameras even with the standard ambient street lighting, allows vision on all streets in the Central Business District and even the most challenging low light environment – Hyde Park – can now be more effectively monitored at night using the new Pelco Spectra IV cameras.

“Something that was really important to us was system operation,” says Martin. “During the construction and installation process we were continually reviewing the way in which we wanted to be operating the system and we were talking with our integrators as to how we were going to be able to achieve that. “By the time we opened we had 90 percent of the additional operational wish list up and running,” Martin explains. “Now we have full operation up there including playback and the ability to look at and manage 10 screens at Police Operations centre – the operations centre here also sees what the police are looking at in the Police Operations centre,” he says. “It’s greatly increased the functionality. These are the sorts of things we talked about having before the upgrade and now we have them up and running – best of all it took operators only about four hours to learn the system thanks to the additional training we had with Pelco.”

INSTALLING THE SOLUTION

Raj Masson’s Sydney-based integration outfit ECS Services was the integrator and contractor for all works related to the City of Sydney CCTV installation. It was a big job with a fierce deadline that against the odds ECS Services managed to meet.

“I think in all fairness you could say this was a turnkey solution and our scope of works not only changed but was expanded on as Council requirements grew during the installation process,” says Masson.

Once the job was underway, the team discovered that the space allotted in the old data center was not sufficient. The Council investigated the issue and decided to upgrade the facility, sending out a tender with the additional requirements.

“The end result of all this was that we were successful in the bid for the building tender as well. That meant not only were we going to be installing the video surveillance system but we would be building the control room and the data centre at the same time – all within the same three month deadline!”

A key element of the system’s design and installation, according to Masson, was the fact this was the first pure CCTV monitoring station that is currently under the process of being graded to the Australian Standards Grade C1 control room standard.



“A challenging part of this grading decision was that we needed to build a fully graded monitoring station even though the grading as it stands today applies exclusively to the commercial sector,” says Masson. “This meant we had to work out ways to reinterpret the requirements of commercial monitoring stations and apply them to this control room while meeting or exceeding the standard.

Masson says that getting all the diversity of systems and infrastructure into place within the time frame meant ECS Services developed a partnership relationship with COS.

“There were lots of fast decisions and provisions that had to be made – we could not have delivered this job in this time frame without having the close working relationship developed with Council staff.

THE NETWORK

An integral part of the overall system was the design and construction of a dedicated network.

“Our experience suggests a lot of problems with digital solutions occur because of a lack of understanding of what network requirements are for video – there’s little comprehension of just how hungry for bandwidth and storage live video security can be.” Masson explains. “And if you look at the system as a whole, the operation of the analog front end – the ability to undertake monitoring and playback of multiple live, 4CIF, video streams simultaneously – there’s a lot going on here in terms of processing.

“Taking this into account, using analog for the front end and digital for the back end gives us the advantage of getting the best out of both technologies,” Masson said.

ECS Services Major Projects Manager, Jason Haugh, who took care of the day-to-day management of the installation, said, “This system is completely future-proof – the infrastructure that’s in place will easily support new technologies as they come out – there’s the space, the air conditioning, the battery backup – all those things required are there.”

INSTALLATION CHALLENGES

According to Masson, the biggest technical challenge ECS Services faced was keeping track of the numerous systems the team was building. “There was also the challenge of getting the final integration of all different components operating seamlessly in one uniform environment,” says Masson. “With the time frame we had we did not have the flexibility to build and test each system but had to plan extremely well to ensure that all facets of the program which essentially represented the client’s expectations etc were maintained.

Masson says that another drama from ECS Services’ point of view was the fact that there was a period of time during the installation where the system was unavailable for monitoring – and to emergency services and police who rely on it. In that time a huge amount of work had to be done.

“The system was systematically relocated over a period of ten days and in that ten days we had to literally transfer the entire operations into the new operations centre,” Masson says. “At the same time because we had to upgrade all the modems to new digital modems for every camera and we had to make sure that every single camera interface was upgraded and worked as expected.”

Masson says that during the building phase ECS Services had multiple groups of trainees down at Pelco’s office in Pymont

undertaking training programs pre-launch – a week after they finished their training they had hands-on training with the system – this made it easier for operators.

OPERATIONAL TEAMWORK

As SoC's Security Operations Manager, Alex Kennedy explains, teamwork between Council's security operators and the NSW Police is a vital element of Council's new solution.

"Operators at the Council's Operations Centre are monitoring selected video feeds 24 hours a day – if they see an incident, the operators contact the NSW Police on a dedicated phone line to the Police Local Area Duty Supervisor and operators in this operations centre can transfer video feeds down to the Police supervisors office where they can be viewed on the police monitors.

"With the integration of the new digital systems our operators can play back incidents to police immediately. So instead of taking third-hand information they are able to look at the original footage and respond based on that – they know exactly what they are going to be walking into," Kennedy explains.

Kennedy says that the way the Council operation centre works is that operators at workstations canvas the city using the Pelco

PTZ cameras. He says there are 3 operators in the room at any one time, as well as a Security Operations Coordinator who monitors the overall security operation.

"When they identify an incident they transfer the video from here to police command and then police coordinate a response. This means that police know what they're walking into," Kennedy says. The digital upgrade has made a huge difference to the control room's day-to-day operations.

"With VHS we had to wait for tapes to finish and then go through them looking for incidents," Kennedy explains. "With the system we've got now, police can see in real time what we see and we can rewind an incident and send the whole event including its lead-up to the police. It means what used to take 2 or 3 hours can now be done in a few seconds – it's that big a deal."

Kennedy commends ECS Services installation team and its contractors for delivering a critical solution on time with minimal interruption to operations.

"The changeover was very smooth – taken as a whole and considering everything involved. The products, the technology, the training handled by Pelco's people in Australia and the U.S., as well as the work of

ECS and ECS staff – from a control room point of view it's all been excellent," he says. Meanwhile, Pelco Australia's Terry Yallouris is delighted with the new system. He says the fact Council and ECS Services pushed the envelope with this application served to highlight the capabilities of Endura and the other Pelco products involved. Yallouris is also pleased that the decision to go Pelco was based on Council's experience with Pelco product in real world applications over a long period of time.

"This is a longstanding Pelco site – we're up to our fourth generation of Spectra domes here and the same applies to the matrix switcher – the Council switcher was originally a Pelco 9760 and now it's a new 9700 with forwards and backwards compatibility," Yallouris explains.

"Because Pelco is the sole supplier for this solution, Council and ECS Services know they've got one door to knock on for everything from the front end all the way through to the back," says Yallouris. "Putting it simply, Pelco stands behind City of Sydney's surveillance system, as we always have done."

