Douglas Court Shopping Centre uses Axis network cameras as key management tool.

Progressive Irish retail management group deploys surveillance to cut theft and 'slip and fall' claims.

Organization:
Douglas Court
Shopping Centre
and Shipton Group

Location:
Cork, Ireland

Industry segment:
Retail

Application:
Loss prevention, safety
and security and
optimized operations

Axis partners:
RPC Consultants
and Milestone

AXIS
COMMUNICATIONS

Douglas Court Shopping Centre and Shipton Group

Douglas Court Shopping Centre is one of Cork's premier shopping centers with a total of 59 units and 13.55 acres of space altogether. Existing tenants include the flagship Irish department store – Dunnes Stores; leading names including Next, Mexx, Esprit, New Look, plus many more.

Dunnes Stores brings in over 60% of visitors and as such is core to the success of the center. Center management also work hard to attract and retain a good mix of shops and in doing so ensure that a wide cross section of the local community is catered to. Most tenants make a long-term commitment to staying at Douglas Court Shopping Centre with a waiting list of prospective stores. Douglas Court Shopping Centre is based in a suburb south of Cork called Douglas and is one of three shopping centers in the Cork area run by successful and growing Irish retail management company called the Shipton Group. The Chief Executive Officer of Shipton Group, Mr Clayton Love, sets the tone for early adoption of new technology wherever it can be used to drive down costs and deliver real value to the business.

As such Shipton Group has deployed people counting, Automatic Number Plate Recognition (ANPR) and IP-Surveillance systems in the Douglas Court Shopping Centre and elsewhere. Douglas Court has recently deployed a total of 76 Axis network cameras both covering the car park, as well as the shopping center and service corridors serving all retail outlets within the center. Shipton Group sees surveillance as a management tool to not only cut crime, but also to determine customer habits, help manage peak periods and ensure health and safety regulations are being properly observed.

Defining surveillance requirements at Douglas Court

Prior to deployment of the network system, Douglas Court Shopping Centre had eight analog-based CCTV cameras deployed around the entrances of the shopping center. These were decommissioned during the trial period as the images they were providing were next to useless in terms of identifying individuals caught on cameras.

Mr Ger O'Driscoll, Manager, Construction and Facilities at Shipton Group says, "It was clear that we needed a much more comprehensive and high quality system which could identify suspected wrongdoers with total certainty so that the police could take action against them. We also needed more coverage both inside and outside the center."

Mr O'Driscoll worked closely with Mr Richard Cronin, Managing Director of RPC Consultants, the group's IT consultant, during a sixmonth planning phase to ensure minimum disruption to customers and also minimize construction costs associated with any new surveillance system. It was in these discussions that a decision was taken to deploy wireless infrastructure and Power over Ethernet (PoE) throughout any new surveillance system.

Key requirements for the system were:
> Minimal disruption and loss of business during installation phase
> Provision of a guarantee that Douglas Court Shopping Centre could store, compile, analyze and move high quality images and information quickly and efficiently
> Scope for expansion of the system if the need arose
> Nearly 100% coverage of the 13.55 acre site, inside and out
> Future-proofing of the investment through use of the latest technology which offered easy upgrade paths

Trial and roll out

The pilot ran from October 2005 to September 2006. During this period, RPC Consultants looked at a mixture of analog and network cameras from a number of different vendors in the early stages of the pilot but found that the analog CCTV cameras produced inferior images.

Mr Cronin of RPC Consultants, explained: "Blurring, normally caused by motion, could be so bad it made it impossible to identify individuals on camera. Axis network cameras, by contrast, benefit from being able to deliver progressive scan images which sharpen the viewable image, reduce blurring considerably and eliminating the 'jaggedness' which is common to recorded images delivered by analog cameras."

It was during this phase that the Axis fixed dome and pan/tilt/zoom (PTZ) cameras found favor. The AXIS 232D+ was found to be the best PTZ for external use while a mixture of AXIS 212 PTZ and AXIS 232D+ proved effective internally. For fixed domes the AXIS 225FD Network Camera was selected for external use while the AXIS 216FD was selected for use inside following extensive trials in all locations. A total of 65 Axis network cameras were then written into RPC's system designs.

Plans also included a 360 degree camera inside to cover a large area in the middle of the shopping center. The pilot also tested the use of a wireless network covering the entire car park. AXIS 232D+ network cameras were mounted on three existing 100 foot high light masts and on seven 20 foot light poles.

RPC Consultants chose to set up the cameras to deliver images with little compression to ensure high quality recorded images. All cameras were set to deliver two frames per second on motion detection; remote CCTV access to the site was delivered via a 4 Mbps each way broadband internet connection.

Training up security staff
All full-time in-house security staff and outside contract staff were trained in the use of the system. Contractors are used for overnight and additional cover during very busy periods. All were also provided with training on how to locate appropriate cameras on screen, zoom in on suspects through the PTZ cameras and how to check that cameras are working effectively.

Network saves images for 150 days
Douglas Court Shopping Centre has a CAT6 data network tied to a one Gigabit fibre backbone running through the internal part of the site. All cameras deliver two frames per second on motion. The system collects 150 days of recording.

Mr Cronin explains, "The low frame rate does not impact our ability to pick everything up because of the wide field of view that all cameras are set up to deliver. It is not possible to get into and out of this shopping center without being spotted by more than one camera. Frankly, we are looking for good quality still images which can be used for identification purposes rather than high quality video. For us this would be unnecessary overkill and would mean that we would have to reduce the number of days of recordings we keep."

"The decision to collect images for so long was because of the legislation around slip and fall claims here in Ireland which stipulates that claims of this nature can be filed up to two years after the incident itself. The feeling here was that collected images for five months was realistically going to be long enough in that very few would take longer than this to make a formal claim for compensation following an incident."

"Axis network cameras benefit from being able to deliver progressive scan images which sharpen the viewable image, reducing blurring considerably."

100% coverage inside

During the first six months of 2007 RPC Consultants completed blanket surveillance of all internal public areas. The objective was to be able to track an identifiable individual throughout the shopping center and throughout the car parks.

Mr Cronin explains the benefit of this total coverage, "We recently had a lady who alerted security that she had lost her elderly mother. We used the surveillance system to piece together where and when they had last been together and then used this information to track her mother to the car park where she was waiting patiently next to her daughter's car. In this sort of situation we can provide considerable reassurance to people."

The total coverage also makes it possible to track a shoplifter's movements from the car parks and then into and out of outlets as well as seeing who they pass stolen goods to in the center grounds. This can provide critical intelligence and evidence to police where thefts have occurred.

Ms Orla Lannin, Center Manager of Douglas Court Shopping Centre, explains, "This coverage is also vital for tracking known shoplifters as they move from their cars into and around the building. Prior to the new IP-Surveillance system, I had to deploy more security guards just simply to follow these individuals with the intention of catching them in the act. Today we can simply track them from camera to camera, catch them on video if they do steal something and only then dispatch members of the security team to stop them before they leave."

"As a result of the new system, we have definitely seen a reduction in this sort of crime. In the past they used to target us in quiet periods when retail staff tend not to be as alert...but we don't get targeted anymore either in those quiet periods early in the week or in busier periods at the weekend."

When Ms Lannin arrives each morning she is able to view any incidents which happen during the night from her desktop computer. All incidents are automatically stored by the Milestone system and then emailed to her by security staff.

"This is fantastically helpful because when I come in I can very quickly see things which have gone wrong during the night such as a tenant who has allowed goods to be delivered during the night, but not properly moved these goods away from the service corridors before opening or even view a suspect car that cruised around the loading bays for an extended period late at night... anything that I need to take action on or alert security staff to."

Automatic number plate recognition

RPC Consultants also deployed a total of seven Alpha Vision Design Automatic Number Plate Recognition (ANPR) dedicated cameras. These cameras are located at all entrances to the car park. The system collects images of the number plate (license plate) of all vehicles coming in and then extrapolates the number plates into digital form before sending the data via the wireless network to a server inside the central monitoring room.

RPC also built an alert-driven back-end for the ANPR cameras so that management can be alerted if the cars of suspected wrongdoers have entered the car park. This alert system could be used to track details of when regular shoppers are coming to the center, provide a greeting to users' mobile phones or even offer regulars an incentive to keep coming back.

Mr Cronin explained, "We can now tell how long customers stay. We are able to track a great deal of raw data which can be used to help the center's management team."

People counting

Shipton Group has also deployed a people counting system installed across its shopping centers so that they can provide prospective and actual tenants with detailed information on how many people are going into a specific unit per hour through the year. Shipton Group also analyzes these figures to understand how well tenants are performing. If figures are falling against an overall upward trend this serves as a useful early warning signal and might trigger initiation of a campaign to help the tenant improve. Some 115 people counting devices monitor every customer entrance of every outlet throughout Douglas Court Shopping Centre. Resulting data is collected in the central monitoring room.

Mr Cronin sees the future in terms of integration of these systems, "The real opportunity is in bringing together the intelligence that all these systems provide, ANPR combined with the surveillance cameras and footfall analysis systems. We could even combine all this with weather reports to provide an increasingly comprehensive retail analysis system."

"The coverage is also vital for tracking known shoplifters as they move from their cars into and around the building. Today we can simply track them from camera to camera and catch them on video."

High quality video helps local police

The local police commented that the images which they have been provided with by Douglas Court Shopping Centre since the new system went in, where security incidents have happened, have been of the highest quality they have ever received in the Cork area.

Mr Ted Nolan, Health, Safety and Security Manager at Shipton Group, explains the value of this, "This sort of response from the police does us no harm whatsoever. It means that we know if there are incidents the police will be able to positively identify and hopefully apprehend suspected wrongdoers. Also, as word gets around amongst the criminal fraternity, these cameras act as a stronger deterrent."

Mr Nolan went on to say that the fact that they can provide such high quality surveillance images to the police when incidents occur has definitely led to a more collaborative, symbiotic relationship with them, "They pro-actively provide us with information about known wrongdoers that are operating in areas close to our shopping centers. In addition, if there is a security incident, the police know that the trip down to Douglas Court Shopping Centre is unlikely to be a wasted one, their response is rapid and their reaction highly appreciative. All too often in their line of work the CCTV footage they get is useless material which merely wastes their time."

Mr Nolan added, "The technology is now there to enable automatic alerting in this way and we could back this up with time-stamped surveillance images of vehicle occupants. We would also like to explore use of two-way audio to create a further deterrent to bad behavior or even to warn known wrongdoers that they are being monitored."

Image recording management	Douglas Court Shopping Centre staff use the Milestone XProtect Enterprise 5.6F version system to manage and help locate recordings quickly. The Milestone system is installed on two Dell Power Edge 2950 servers, handling images coming from all 76 network cameras in use across the center. These servers hold 10 days worth of live images (one server takes images from 64 cameras and the second takes images from the remaining 12 cameras).

All images are also collected on the Dell EMC AX 150 five Tera Bit (TB) Storage Area Network (SAN) device. A total of 260 to 280 Giga Bytes (GB) of images are collected from all cameras per day. The SAN device offers ample capacity for the addition of up to 40 more cameras today and should enable upgrades to Axis megapixel network cameras without the need for additional storage infrastructure.

Recordings older than 10 days are transferred onto an Ultrium 3 Tape Library and then deleted off the 2950s to make way for new live images. From the tenth day the tape system automatically archives all new images once per day and once every four weeks RPC manually rotates tapes out of the system and puts new ones in. These are stored separately and new tapes loaded into the library. An additional Dell Power Edge 1950 server handles data coming from the ANPR cameras.

Further work was done by RPC to enable quick access to cameras by security staff. Mr Cronin adds, "We decided to deploy the AXIS 295 Video Surveillance Joystick at the Customer Service desk so that security staff can hop around between cameras very quickly, pan and zoom in and out and get to the views they need fast. Axis' open API for this device enabled us to write a simple software program to give our security staff very good control through the Axis joystick. We are able to use this to access all Axis network cameras." |
| **Power over Ethernet** | All internal static cameras are using Power over Ethernet (PoE), via a total of five Cisco Catalyst Express 500 Series 10/100 Base-T PoE switch devices attached to the fibre backbone, split between the monitoring room itself and two separate server racks. RPC has designed the system so that no camera is more than 95 meters from the nearest rack which travels in overhead ducting through the center of the building. This ensures that PoE works effectively and consistently. |
| **Wireless** | The use of fixed cabling to serve the cameras in the car park would have had significant civil works costs and would have caused massive disruption to customers, ultimately affecting retail revenues for several weeks, if not months. Mr Cronin explains the value of moving to IP-Surveillance for wireless deployment, "What we identified was that if we wanted to use analog CCTV cameras in the car parks this meant we would be tied into proprietary equipment for the entire wireless infrastructure in addition to the cameras. By going with Axis network cameras we knew we could select best of breed wireless networking solutions." Cisco Aironet 1310s were selected to serve the entire car park. |

Richard Cronin,
Managing Director,
RPC Consultants.

Slip and fall claims almost eliminated

Ireland has traditionally had more claims for compensation for personal injuries, or 'slip and fall' claims, than in most other European Union countries because, for some time, the courts in Ireland have been awarding extraordinarily large settlements to this type of claimant. The size of the compensation packages being handed out has led many fraudulent claimants to engineer slips, trips and falls in public places where they know they can make a claim against an identifiable third party.

Shipton Group's management decided to reduce their exposure to these claims through a combination of rigorous cleaning regimes together with surveillance. The system deployed at Douglas Court Shopping Centre involves cleaners that monitor specific designated areas of the center. These cleaners are required to carry out regular checks. They carry Electronic Recorders which they place on top of checkpoints mounted throughout the center. These recorders log when specific identified cleaners have been there and at what time and then pass this information back into a central database.

In addition, if there is a breakage or spillage, they can be contacted by radio to ask them to go to the area in question, mark out the affected area to stop customers walking on it, and then clean it. Mr Cronin highlights, "I would be very surprised if there was a single spillage in this center that has not been spotted, cleaned up and/or marked out within two minutes. This speed, combined with the swipe card and time-stamped surveillance system enables management to put up a very robust defense against personal injury claims on Shipton's premises."

Surveillance is used to provide additional protection to management in cases where claims or complaints are made. If the electronic tagging system indicates that a cleaner was on-site within a specific timeframe after a spillage for example, it is then possible to go to recorded images from the nearest surveillance camera for that period to verify that the appropriate cleaning has been done. This system may even identify the opportunist claimant in action to see if they engineered the fall and what they did immediately after they fell.

"Many claimants simply give themselves away by falling over in areas where we can clearly see there was no obstruction or spillage whatsoever. They then get up and often go off and quite happily do their entire week's shop for well over an hour before bringing the incident to the attention of staff here. If we can show them on camera doing just this it tends to silence the vast majority very rapidly," highlighted Ms Lannin, Center Manager at Douglas Court.

On-site and remote monitoring of growing range of assets

Live monitoring is carried out from the information desk positioned at the heart of the shopping center. All cameras can be easily selected and viewed from a total of three screens at this location. Split screens offer the opportunity to comfortably display images from up to 16 cameras on each screen at any one time.

"Security staff normally have at least one screen dedicated to viewing external cameras, one screen on key internal cameras in the public areas and one covering the service corridors. We can also view cameras from the manager's office and remotely," says Mr Cronin.

Shipton Group also understands the power of remote monitoring of its assets from its headquarters in Carragiline, five miles away from Douglas Court Shopping Centre. From here authorized users and security management staff are able to view outputs from more than 144 CCTV cameras currently operating in its shopping center in Blackpool. These individuals can also now view the 76 Axis network cameras in place across Douglas Court Shopping Centre.

"The cameras provide us with the eyes and ears for the business, wherever we are, so that we can help center managers when and where they need it."

The future

RPC is very keen to deploy new Axis network cameras like the AXIS 233D which offers both privacy masking and a unique Axis feature called 'area zoom' which enables users to quickly mark out an area within a field of view and then zoom into this demarcated area fast.

There is likely to be some sharing of security infrastructure between Douglas Court Shopping Centre and Douglas Village once construction work on Douglas Village's renovation is complete.

"We plan to create a fibre link between the two sites so that the two shopping centers will be able to monitor each other and share storage and monitoring resources if required. With this sharing of resources it becomes possible to have 24-hour proactive monitoring of both sites without imposing a significant additional expense on either shopping center."

"We are also monitoring the application development community to see what new video applications are relevant and helpful in the context of managing shopping centers."

IP-Surveillance offers route to real business benefits

It is clear from the installation of this IP-Surveillance system at Douglas Court Shopping Centre and across Shipton's expanding retail estate that the group's attitude to deploying the latest technology where real business benefits can be gleaned is working well.

The near elimination of slip and fall claims and drop in shoplifting at Douglas Court Shopping Centre together with more effective policing of all relevant areas makes for a safer and ultimately more profitable retail center. It is quite clear that having seen the benefits of moving to IP-Surveillance the group is committed on this path and will derive increased benefits with further integration with other intelligent and retail analytics-based systems.

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About Axis Communications

Axis is an IT company offering network video solutions for professional installations. The company is the global market leader in network video, driving the ongoing shift from analog to digital video surveillance. Axis products and solutions focus on security surveillance and remote monitoring, and are based on innovative, open technology platforms.

Axis is a Swedish-based company, operating worldwide with offices in more than 20 countries and cooperating with partners in more than 70 countries. Founded in 1984, Axis is listed on the OMX Nordic Exchange under the ticker AXIS. For more information about Axis, please visit our website at www.axis.com

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