

Getting the best out of your IP surveillance system

By Roy Alves, country manager, Axis Communications South Africa

The Network or Internet Protocol (IP) surveillance market has grown tremendously in the past couple of years with more people opting for IP over analog systems.

Taking into consideration all the advantages offered by IP systems such as clearer camera images, remote accessibility, whilst not excluding cheaper and more reliable storage, it comes as no surprise that IP surveillance is fast becoming the preferred security option amongst business and home owners.

IP systems traditionally out perform their analog counterparts, making migrating to IP the next logical step for anyone still using an analog system. However, there are several points that need to be taken into consideration before installing an IP system or upgrading an existing analog system.

Choosing the right camera

IP cameras come in different shapes and sizes, all designed to perform in a particular environment, so it is important to choose one that will suit your needs.

There are four main categories in which IP cameras may be grouped.

- *Fixed network cameras* are ideal in situations where the camera and the direction in which it's pointing needs to be clearly visible to act as a deterrent. These cameras do not move, but offer interchangeable lenses for varying angles of coverage. Even though fixed network cameras are fairly standard in their features, most come with motion detection technology, ensuring that only important events are recorded, saving precious storage space.
- *Fixed dome network cameras*, commonly known as mini domes, consist of a fixed camera installed in a small dome housing. Ideal for ceiling mounting, fixed dome cameras are discreet and it is almost impossible to tell in which direction they point.
- Normally used indoors, *Pan-Tilt-Zoom (PTZ)* network cameras offer the added advantage of pan, tilt and zoom functionality, delivered either automatically or

manually. They are often referred to as “guard tours” as they can follow an individual’s movement in a certain area and zoom in on them as desired. The disadvantage with this type of camera is that the pan action is less than 360 degrees and they are not suitable for continuous guard tour use.

- *Network dome cameras* offer all the advantages of a fixed dome camera while improving on the PTZ camera’s abilities by also offering a full 360 degree pan action. Unlike the PTZ, the network dome camera is also robust enough to be used continuously in guard tour mode.

Over and above this, the leading models in each category have additional advantages such as built-in web servers for standard browsing, built-in microphones for synchronized audio, as well as connection modules for two-way audio. There are also models with powerful zoom functions, automatic night vision capabilities and wireless connectivity, all of which need to be taken into account before making the purchasing decision.

Installation and placement

Once the perfect camera has been chosen, it is important to install the camera in the right location and at the right settings to get the most out of it. One of the most important issues to consider is light. For clear images, there needs to be sufficient light entering the lens of the camera.

Without enough light around the camera, captured images become blurred and dull. For best results the camera needs to be placed in a well-lit area, with enough light entering the lens.

Not all light is good though. Backlight, from a window behind an object for instance, can result in overexposure.

Image clarity can also be affected by undesirable contrast. Often when a camera captures an image that’s in front of a white or bright background, the image appears darker than what it is in reality. To remedy this, it is advisable to switch the background to a darker shade like grey instead of white.

Like the human eye, too much sunlight can damage the image sensor on an outdoor camera. Using auto iris lenses can help solve this problem. Auto iris lenses automatically adjust the amount of light that reaches the image sensor, thereby protecting it.

For cameras placed behind glass, reflections can be a major problem. To keep reflections at a minimum, the camera needs to be placed as close to the glass as possible.

Compression

Saving and transmitting images and audio recordings brings into the picture another factor that needs to be considered, and that's compression. Compression reduces hard disk consumption and bandwidth demand, and enables recorded information to be stored and transmitted efficiently.

There are several video image compression techniques available on the market today, the most common of which is the industry standard MJPEG. This technique is most useful for achieving high quality video images and transmitting them when high bandwidth cannot be guaranteed.

Another well known standard is MPEG, which also provides high quality images, but requires a guaranteed high bandwidth.

Video management software

The backbone of any IP surveillance system is the video management software on which it runs as it enables users to monitor, analyse and store the images captured on the cameras. There are essentially two video management software packages available to choose from, i.e. PC Server platforms and Network Video Recorders (NVR). These are both PC based, but the NVR comes standard with video management functionality, whereas the PC Server allows users to use their preferred choice of hardware and maintenance services.

Using existing infrastructure

Migrating to an IP system does not necessarily mean discarding all analog infrastructure that was already in use. Thanks to the introduction of video servers, it

is now possible to migrate to a network system and still continue using the analog cameras that are still operational. By integrating a video server into the current system, it becomes possible to convert analog images into a digital format and start reaping the benefits of an IP system.

Video servers also allow for the addition of IP cameras onto a system that currently runs analog cameras. This is referred to as a hybrid system, and brings IP camera advantages to an analog system, while maintaining the use of existing analog cameras.

Growth

As the popular saying goes “change is the only constant.” Surveillance needs do change with time. Bigger premises mean more surveillance ground to cover. Technological advances such as wireless connectivity and Power-over-Ethernet, a technology that integrates power into standard LAN (Local Area Network) infrastructure and enables devices to be powered through the cable by which it is connected to the network.

This is what makes IP cameras ideal for growing organisations, because they can be mounted anywhere within the network and cover vast areas, and can be powered from virtually anywhere. IP systems are also very easy to upscale. Depending on the size of the area that needs to be covered, more than a thousand cameras can be added to the system, making for a highly scalable solution, able to grow with any organisation.

These are simple considerations but can mean the difference between a good IP system and a great IP system.

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