ARTICLE

10 reasons to switch to IP-based video

AXIS COMMUNICATIONS

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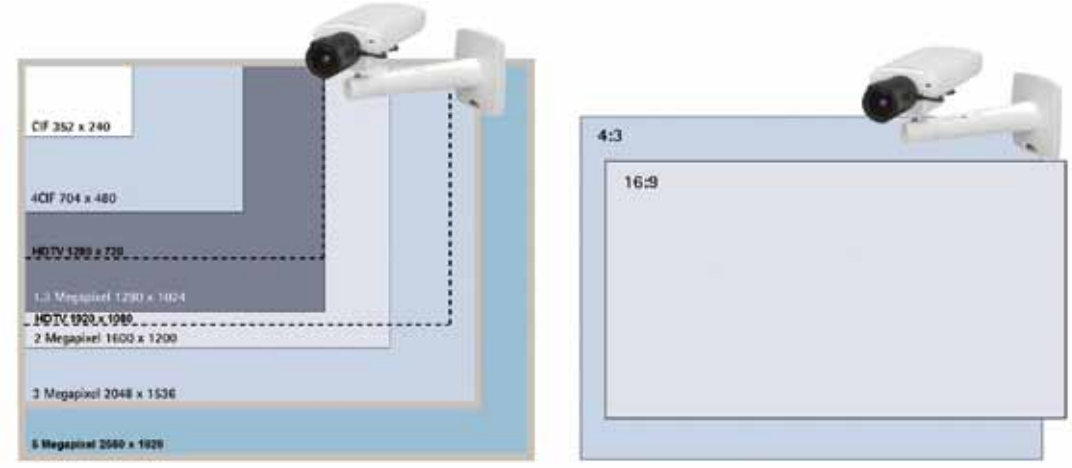
In the following pages we'll take a look at ten key motivators for switching from analog to IP-based cameras. Obtain a more reliable security system, reduce costs, and create value for your business.

1. High resolution

IP-based cameras are not restricted to the low resolution of analog cameras. With a 5-megapixel IP camera, you get ten times more detail in your images than with an analog 4CIF.

Analog cameras have a maximum resolution of 704 x 480 pixels (4CIF). With an IP camera you can get increased resolution, including HDTV (720p/1080p) and even as high as 5 megapixels (2560 x 1920). This means you can either cover a much larger area in your scene, or get a highly detailed image to meet more demanding identification requirements.



Resolution comparisons and aspect ratios

With IP-based cameras you also have the choice of various aspect ratios. This makes it easier to capture wide scenes and enables you to focus your coverage where it is most needed.

With a high resolution camera you can select what you want to see; for example, you can choose large coverage in a store or extremely detailed information in a face.

2. Easy to install

IP cameras connect easily into your existing data network. One cable per camera provides power, video and data, making it easy to install with minimum effort.

By using your existing computer network you don't need to invest in a new cabling infrastructure. With power over Ethernet (PoE) you don't even need a power outlet in close proximity to your camera. And if your network switches are connected to redundant power, your cameras are too.

Axis IP cameras have a number of tools to assist you during setup. Remote focus lets you adjust the focus point from any location. The pixel counter helps you verify that the resolution fulfills your requirements for a given scene. With remote zoom you can change your viewing angle to fit the coverage area.

Remote zoom
Ensures that the viewing angle and resolution are optimized for the scene

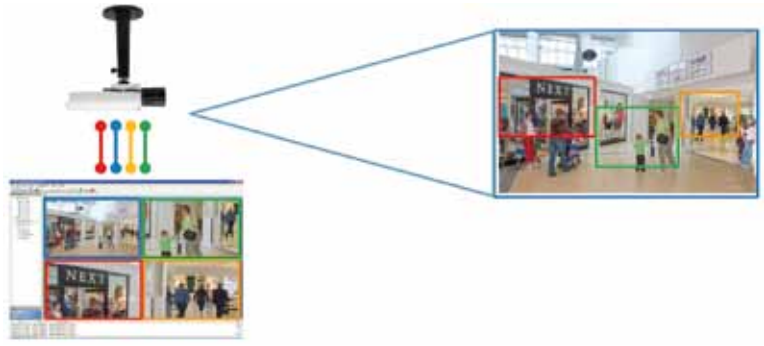
Remote focus
Eliminates the need for manual focusing at the camera position

Pixel counter
Verifies that the resolution fulfills regulatory/customer requirements

3. Truly digital

Unlike an analog video feed, the image from an IP camera won't degrade in quality when transported long distances or when converted between different formats. One IP camera can provide many simultaneous streams for viewing or storing in multiple locations.

An analog signal will lose quality when it is transmitted over a distance and when it is converted. The digital signal will remain true – you will always have 100% quality. A single IP camera can also stream different parts of the image to different recipients at the same time, minimizing the need for bandwidth and storage.



Installing one instead of multiple cameras minimizes installation and maintenance cost. Streaming of only selected areas minimizes bandwidth and storage need.

4. Camera intelligence

IP cameras can do a lot more than just produce a video feed. Built-in intelligence enables cameras to perform a number of tasks to reduce pressure on operators, deliver vital business data and increase surveillance efficiency.

By activating motion detection, the camera can trigger an event as soon as something happens in a scene. A built-in tampering alarm will notify the operator if the camera's operation is disrupted.

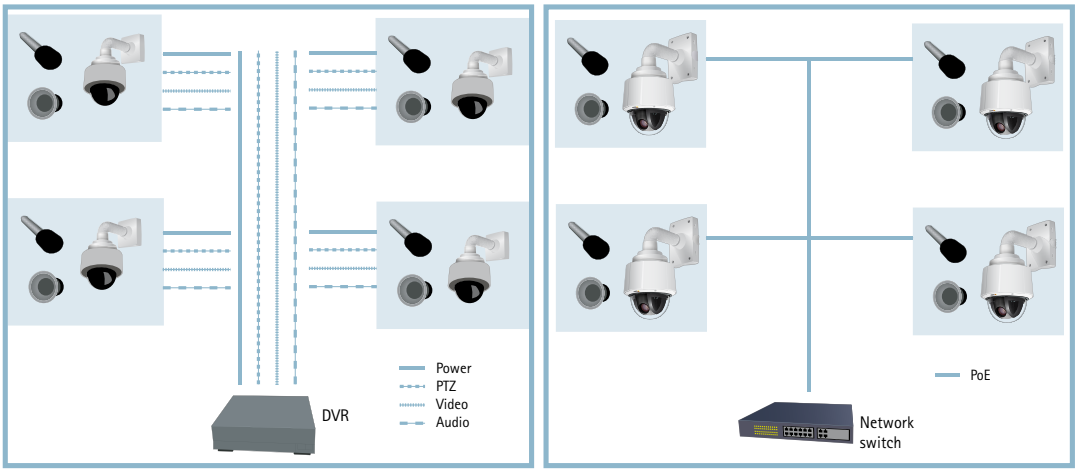
Another useful application is Cross Line Detection. This application detects moving objects that cross a virtual line, making it possible to automatically trigger an event.

The functionality of IP cameras can be extended by adding new applications. The AXIS Camera Application Platform is an open application platform that enables development of third-party applications that can be downloaded and installed on Axis network cameras and video encoders.

5. Fully integrated

An IP camera integrates power, video, audio, PTZ control and I/O in a single cable. That means cost savings, increased functionality and vast integration potential.

With an analog PTZ camera, you need a separate cable to control the pan, tilt and zoom functions. If you add audio, you need yet another cable. Together with the power and video cables, this adds up to costly and inflexible camera infrastructure.



An IP camera not only requires less cabling; it also offers rich integration possibilities. By using the input or output ports on your camera, you can enable entrance control with or without the supervision of an operator. With built-in two-way audio, an operator can communicate verbally with a person standing in front of the camera. The camera can also use audio for detection, and trigger alarms or recordings.

6. Built-in security

IP cameras offer encryption of the video feed as well as multilevel user access control. This means you can control exactly who can see what in your system, and your video is safe from any form of third-party manipulation.

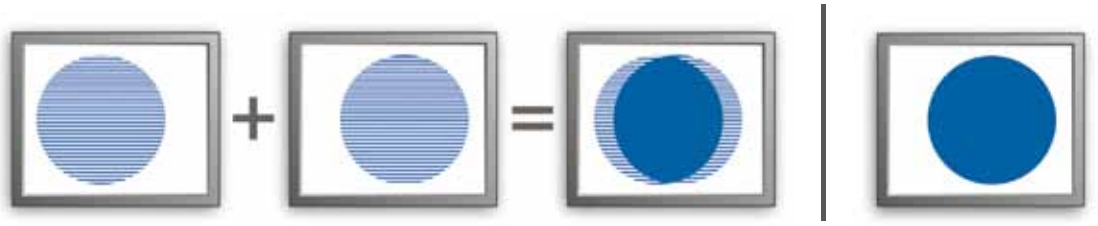
Analog video is insecure. Lacking encryption or any means of authentication, the video feed from an analog camera can easily be tapped into, or even altered or replaced to disrupt the surveillance operation.

Apart from HTTPS encryption and VPN support, the IP camera can also use IEEE 802.1x and IP address filtering. A digital watermark can be added to all recorded material.

7. Crystal-clear motion

With an IP camera there are no interlacing problems. Using progressive scan, the entire image is captured each time, with superior image quality as a result.

All cameras capture an image one line at a time. Most analog cameras use interlaced scanning. This means that only lines with odd numbers are scanned on the first pass, and the even-numbered lines are scanned on the next. The two subsets are then combined into one image. The problem with this is that any motion happening in between the passes will be blurry in the final image.



1st field: Odd lines

2nd field: Even lines [17/20 ms (NTSC/PAL) later]

Freeze frame on moving dot using interlaced scan

Freeze frame on moving dot using progressive scan

IP cameras use progressive scan in which the entire image is scanned on every pass.

At left, an image from an analog camera using interlaced scanning. At right, an image from an Axis network camera using progressive scan technology. Both cameras used the same type of lens and the speed of the car was the same at 20 km/h (15 mph). The background is clear in both images. However, the driver is clearly visible only in the image using progressive scan technology.

8. Easy to scale

IP-based camera surveillance is easy to extend when the need arises. The cabling demands are far less complex than those for an analog system, and with a foundation of open standards you are not locked in to proprietary technology.

Adding more cameras or functions to an analog system means a lot of new cabling, and matching the new equipment to your proprietary system could mean a limited selection from only one vendor.

Axis is a founding member of ONVIF, an open industry forum for the development of a global standard for the interface of IP-based physical security products. ONVIF ensures that IP-based equipment from different manufacturers can co-exist and interoperate on the same network.

By using standard IP components, you ensure easy integration with other systems. You can easily route your video to wherever you need it from day to day, and cameras can be upgraded with intelligent plugins to extend functionality.

9. Lower total cost

The total cost of ownership is lower for an IP-based system compared to an analog one. Even though analog cameras are less expensive to buy, the accompanying labor costs and expensive DVR equipment tip the scales in favor of IP cameras.

In an independent integrator survey in 2010, bids for analog versus IP-based systems for a retail store with 14, 25 and 40 cameras were compared. The survey showed that the IP-based bids were consistently lower, and the difference increased with the number of cameras. With 40 cameras offered, the IP-based system cost 16% less than the analog one.

Less cabling means less maintenance, and the open standard enables the use of inexpensive, off-the-shelf IT hardware for integrating functions.

10. New possibilities

With an all IP-based surveillance system, you can grow with future challenges and opportunities. Open standards and a plugin architecture mean that your cameras can adapt to the latest technology.

An IP-based system offers many advantages compared to an analog system. A Web interface in the camera enables easy access. System management and storage can be handled remotely. Axis cameras and encoders support the AXIS Video Hosting System (AVHS), making it possible to connect the network video product to a local service provider.

Axis cameras can easily be upgraded, and system maintenance and overview are on camera level. Axis IP cameras with SD/SDHC cards or NAS provide efficient and affordable local storage and system redundancy.

VMS Central storage

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About Axis Communications

As the market leader in network video, Axis is leading the way to a smarter, safer, more secure world – driving the shift from analog to digital video surveillance. Offering network video solutions for professional installations, Axis' products and solutions are based on an innovative, open technology platform.

Axis has more than 1,000 dedicated employees in 40 locations around the world and cooperates with partners covering 179 countries. Founded in 1984, Axis is a Sweden-based IT company listed on NASDAQ OMX Stockholm under the ticker AXIS. For more information about Axis, please visit our website www.axis.com.

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