Network Intercoms

Enhancing video surveillance with two-way communication and entry control

AXIS
COMMUNICATIONS

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1 Introduction

It is essential for any organization to meet their current requirements while also providing support for future enhancements. While an application today may aim to replicate the functionality of a previous analog solution, network intercoms open up numerous possibilities in video surveillance and access control, no matter how basic or complex the need.

2 IP to keep your investment safe

Pace and progress may differ, but industry after industry is adopting IP technology. The main driving forces behind this transition are usually economic as well as practical; on the whole, network-based solutions are smarter, more cost-efficient and versatile than their analog predecessors.

A modern network intercom can become an integrated part of video surveillance, access control and public safety solutions, as well as a platform for almost unlimited numbers of applications and analytics. Furthermore, open standards ensure that products are future-proof and help to push development and manufacturing costs.

With such flexibility, intercom devices are finding their way into an ever-growing number of locations. While previously they have been primarily mounted at the entrances to different types of properties, intercoms are increasingly being used as help points and emergency phones in public spaces. One thing is certain — with IP introducing increased possibilities for usage and integration there will also be benefits for reducing costs and ensuring that your investment is secure much further down the line.
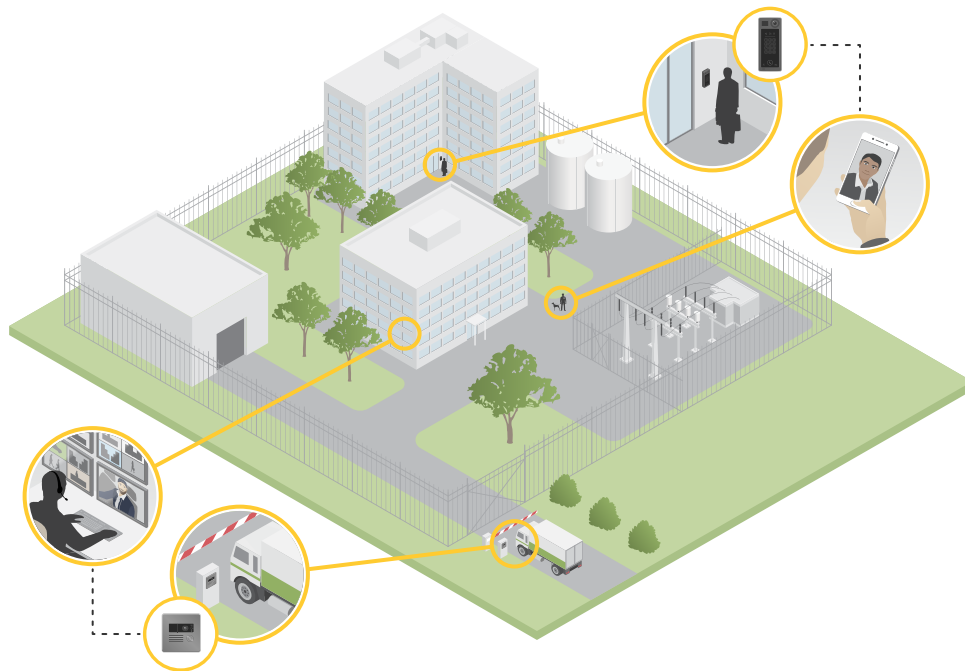

Figure 1. A video intercom can be placed at the entrance to a site and can be connected to several receiving stations. For surveillance purposes, however, it is far more beneficial and efficient to combine them with network cameras and other IP-based devices – all connected to one central point of operation.

3 New technology, new possibilities

From a technical point of view, it is just as easy to transmit audio data over a network as it is to transmit video data. Intercom functionality is therefore a natural part of any video surveillance system.

Intercoms are often installed in complex settings, with ambient noise and difficult lighting conditions. While the need for high quality video and audio is apparent, the transition to IP-based intercoms with a powerful system-on-chip (SoC) also boosts the audio and video experience through features such as echo cancellation, noise reduction, higher video resolution, superb low light performance, wide dynamic range (WDR), Axis Zipstream, edge storage, video analytics and much more.

Installation will also be simplified, particularly for devices supported by POE (Power over Ethernet), since they handle both data transfer and power supply through a single Ethernet cable.

Historically, the intercom and video surveillance industries have lived parallel but separate lives, with very few synergies or connections between them. Not surprisingly, the structure and prerequisites of the two markets look very different.

Intercoms are typically channeled through electrical installers and the like, whereas surveillance cameras are often obtained through a security provider. The different sales channels not only result in separate purchasing processes, but often also in installations being made at different times, and with no connection between the systems. This sort of duplication not only makes systems more expensive, but also more laborious to manage and maintain.

Unlike the network camera industry, which has relied on open standards and interfaces since the late 1990's, many intercom solutions are completely proprietary. Apart from confining customers to a single provider of hardware and software, proprietary systems also tend to be complex and require expert personnel to install and configure. Switching from one provider to another will also be prohibitively expensive, since it would involve refitting the entire system.

4 Benefits of open standards

Systems based on open IP standards, such as ONVIF and SIP, enable great freedom of choice. Customers can choose different products from different manufacturers, as well as connect different systems and devices without having to worry about compatibility and interoperability. Most customer requirements can be fulfilled through integrations using the documented APIs from the Axis VAPIX library.

For example, a video intercom that supports SIP (Session Initiation Protocol) will allow integration with IP telephony and VoIP (Voice over IP) communication systems. This possibility to forward audio as well as images further enhances the flexibility of the surveillance solution and makes daily operations more efficient.

For facilities with a more complex security system, perhaps with a centralized reception or security service already in place, for example large retail stores, logistic centers, airports and university campuses, video intercoms can be an attractive complement and a cost-efficient way to improve surveillance.

A network video intercom enables security personnel to both see and talk to visitors at a gate or at a door somewhere on the perimeter. A security guard does not need to be physically tied to any special location but could be located just about anywhere. This is, of course, an advantage on very large or geographically dispersed sites.

Once a visitor has been cleared they can be admitted to the premises by remote entry control, directly via the intercom or via a separate access control system. If necessary, any type of incident taking place at the entrance can be recorded by the intercom.

5 Seamless scalability – systems that fit perfectly

IP-based systems are infinitely scalable, and can contain anything from a single unit to almost unlimited numbers of devices, with a multitude of different and specific usages.

A typical small system – a handful of network cameras and a single intercom – would usually be found in a small retail store or office. This type of setup covers the basic needs for surveillance and communication. This solution enables, e.g., shop employees to communicate with the truck driver and open the door at the loading dock to receive goods, without having to leave the checkout counter and customers unattended in the store.

Figure 2. A typical security setup for a small or medium sized enterprise. The video intercom enables staff to receive goods and unlock doors for visitors, without leaving customers unattended.

As the business expands, an IP surveillance system can readily expand along with it. In a networked system, adding a new intercom is as simple as adding a new IP camera. The video management software (VMS) facilitates communication with cameras and intercoms and makes it easy to monitor events in real-time and to retrieve stored video.

In, for example, office complexes or hotels, monitoring of the premises can be a part of the receptionists' duties, along with reception tasks and answering the phone. SIP support allows integration with IP telephony, which, among other things, makes it possible to forward video and audio from the intercom and thus answer calls from a desk phone or mobile device, even after business hours and during weekends or holidays.

Larger systems with greater security requirements typically involve large numbers of cameras and multiple intercoms, as well as other equipment for e.g., access control, intrusion alarms and IP telephony, along with various third-party software applications. Customers can be found in both the private and public sectors, and include large stores, airports, logistics centers, hospitals, university campuses and cities.

The use of open IP-based products enables integration that gives the security staff full flexibility and provides new possibilities to efficiently track, monitor and react to incidents.
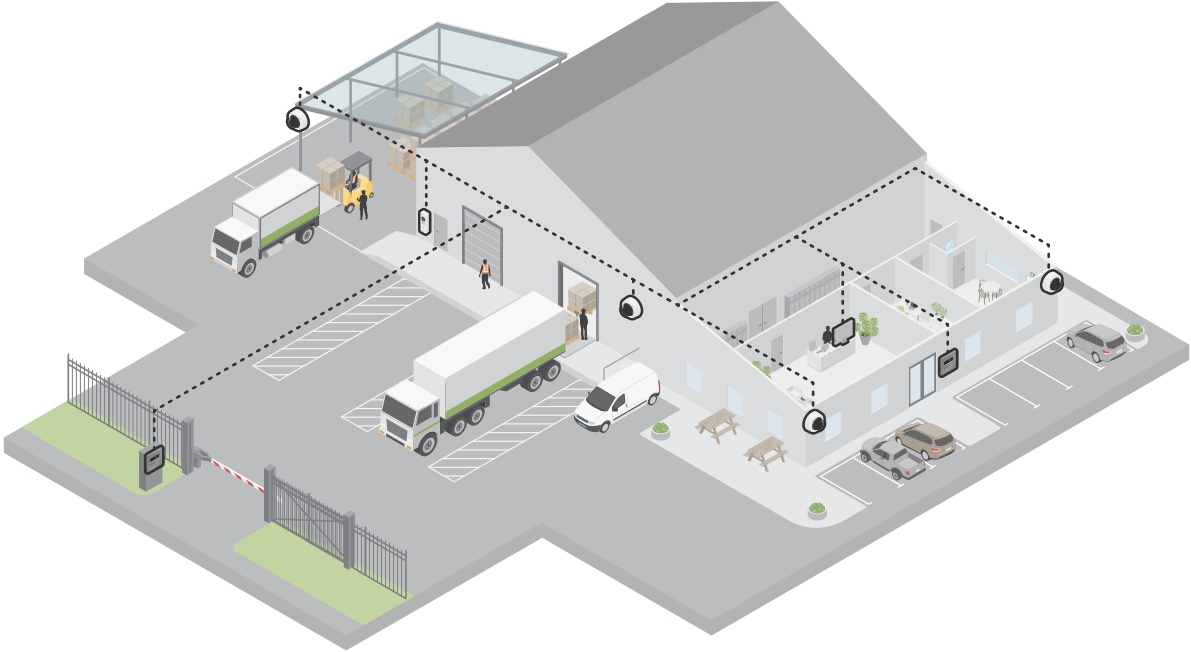

Figure 3. In large systems, for example, at logistics centers or airports, video intercoms are a useful supplement in integrated solutions with network surveillance cameras, access control systems, intrusion alarms and other security applications.

About Axis Communications

Axis enables a smarter and safer world by creating solutions for improving security and business performance. As a network technology company and industry leader, Axis offers solutions in video surveillance, access control, intercom, and audio systems. They are enhanced by intelligent analytics applications and supported by high-quality training.

Axis has around 4,000 dedicated employees in over 50 countries and collaborates with technology and system integration partners worldwide to deliver customer solutions. Axis was founded in 1984, and the headquarters are in Lund, Sweden