How network audio adds value to your business

Understand how end-to-end IP audio solutions can lower TCO and increase returns on your infrastructure investments.

AXIS®
COMMUNICATIONS
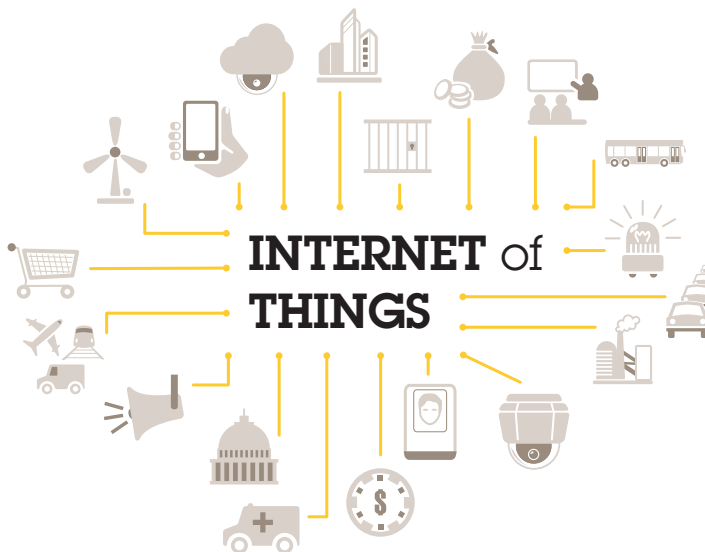
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1. Introduction

Businesses have leveraged the power of video through IP-based surveillance systems for quite some time now. However, they have yet to take full advantage of network audio, which offers options to boost security, safety, and business operational efficiency.

Unlike traditional speakers, network audio solutions are an integrated part of your infrastructure. This means that they can work in tandem with your security, safety, and OT (operation technology) devices. Automating processes through an integrated network audio system helps customers save time and costs.

This white paper aims to help you understand the several ways in which Axis network audio solutions will add value to your business.

2. The rapid evolution of IoT

The technological revolution of connected devices that began over the last decade has made inroads to almost every industry now. Internet is not just limited to computers and mobile devices, but also appliances, machinery, security surveillance devices, vehicles, and many more "things." This has fuelled developments such as smart homes at the residential level and industry 4.0 at the enterprise level.

2.1   IT and OT merging in IoT

As this Internet of Things (IoT) revolution scales up, companies increasingly witness IT (information technology) and OT (operation technology) convergence. IP-enabled solutions are taking precedence over traditional systems to achieve data transmission between devices and facilitate communication. In the past, IT and OT in a business usually worked as silos and independent units. Now the convergence has prompted the need for not only IT and OT departments but also business owners to collaborate closely and take charge of the overall system to ensure seamless operations between IT and OT.

2.2   The business value of blending audio into IoT

The most important question is how IoT benefits businesses. Digitizing operations and integrating them under the umbrella of IT would help automation of processes. This would lead to lower costs, optimized energy and bandwidth usage, and better operational efficiency. We are seeing more smart buildings automate operation and energy-saving by integrating systems to IoT, including HVAC, security, access

control, etc. IoT helps businesses understand customer behavior better and provide improved service to customers. For instance, retailers who integrate video surveillance systems with analytics can understand what their customers want most.

The traditional audio system is part of the OT which supports public announcements and it operates as an independent, siloed system. Adding audio to IoT would be a gamechanger that improves customer experiences and drive business opportunities. IP-based audio allows integration with network systems like video surveillance, analytics, SIP devices that enable business units to deliver instant audio contents and advertisements to the right audience at the right time. Businesses can now fully take advantage of transforming audio systems from an independent OT system to the overall IoT system.

3. Advantages of integrating audio with IoT

Technological advancements have opened new possibilities for audio integration with network systems. Network audio overcomes the challenges and limitations of using legacy analogue technology in audio systems, including complex installation and maintenance, audio quality, zoning limitations, and scalability.

The transformation optimizes the effectiveness of audio systems, not only to address the limitations of traditional solutions, but also to offer users more opportunities to explore many new applications. Many enterprises are getting smart with network audio systems which deliver high-quality audio and smartness – smart and easy operation, smart investment, smart integration.

> **Smart and easy operation:** Network audio systems offer a single solution for different kinds of needs that protect your property and/or keep people safe. The system is just as flexible if you want to change zone or content management or scheduling.

> **Smart investment:** If you need to add more devices to the system, the simple network cable-based connectivity makes the process of scaling up easier than ever before. Just plug it into your existing network, and you are good to go.

> **Smart integration:** An exceptional advantage that network audio brings in is the power to integrate with different systems like access control, video surveillance, alarm systems, and many more. The integration allows automated processes. For instance, an audio system integrated with fire alarms can automatically play evacuation instructions if a fire is detected, saving time and, potentially, lives. Similarly, network audio integrated with video surveillance systems can help operators give verbal warnings if they detect an intruder. This works incredibly well for perimeter protection because often knowing that someone is watching them is enough to deter any intruders.

As with IP surveillance, Axis Communications is a pioneer in the field of IP audio. Several enterprises have adopted the Axis network audio system to improve their customer engagement, customer experience with instant voice communication and background music, and prevent loss with proactive security using audio deterrence.

Blending to IoT, audio can be scaled to support both operational and commercial needs. IT can take central management of the audio devices with standard cybersecurity and sustainability policies. The OT department can enjoy the benefits from simplified operations and management.

4. Investing in IP audio

Lower TCO (total cost of ownership) is a crucial advantage for investing in network audio systems. There are are four main areas where customers can reduce the costs.

> **Hardware and installation:** With Axis network audio systems, less is more. This is because these aren't just speakers. They are proper IT devices and complete audio systems in a single unit with all the hardware and software components needed to warn intruders, provide instructions in an emergency, make announcements, play background music, create and manage zones, and manage scheduling and content. The change of the complex system into an all-in-one audio system essentially simplifies the system installation which saves significant man-hours and reduces TCO.
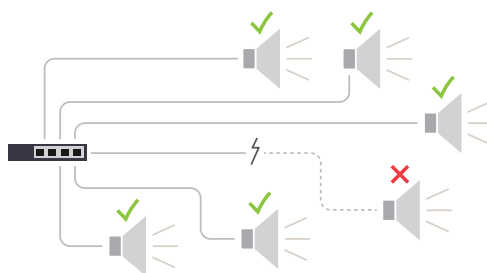

Network audio
All-in-one system

Traditional audio
Additional hardware needed

> **Cabling:** Instead of installing dedicated cables for the audio system, Axis enables you to connect the network audio system to existing network infrastructure, saving significant man-hours and cabling charges.

> **Maintenance:** An unexpected short circuit can bring the entire audio system down, and it can take hundreds of onsite hours to locate the problem. Axis network audio solutions require minimum onsite intervention from staff. Even when there is an issue, detecting its cause and solving it is a simple process. Remote testing lets you monitor the system's performance and informs you of where exactly the problem is. This helps you fix issues quickly with minimum disruption to your business.
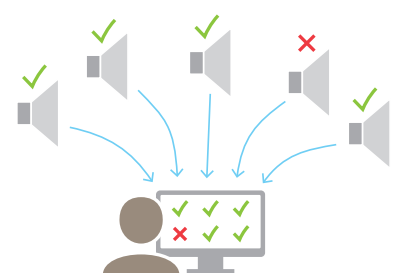

Network audio
System keeps working

Network audio
Remote system health monitoring

> **Operation:** Traditional audio systems are cumbersome to operate, with numerous dials, switches, ports, and wires. Axis network audio systems offer an intuitive interface that facilitates smart and easy operation. Axis provides an end-to-end audio system that includes the hardware and audio management software.

Content management
Play background music and live or pre-recorded messages

Content prioritization
Prioritize content and ensure urgent messages interrupt the schedule

Scheduling
Schedule when and where to play specific content

Health monitoring
Discover system errors remotely

Zone management
Divide your site into zones and play content of your choice in one or more zones
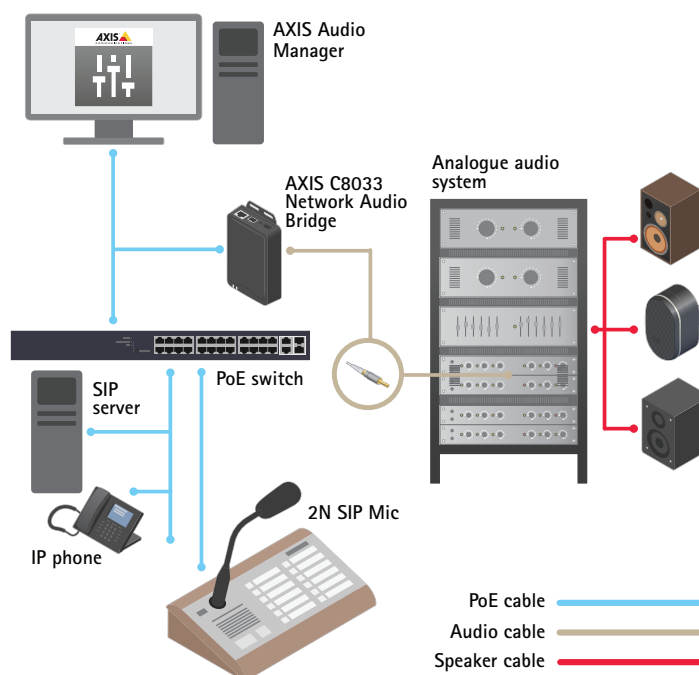
User management and access control
Control who has access to what features

5. Case study: Maximize sound quality and coverage with the right investment

Background: A food production company in Hong Kong aimed to improve workforce efficiency by adding background music for the production zone. The existing analog system could not support the new initiative, which required a different PA system, including speakers, amplifiers, and zone control system. Additional investments in cabling and installation also had to be made.

The Axis partner proposed an IP-based solution that could be integrated with the customer's current analogue system for higher efficiency and investment justification.

AXIS Audio Manager

AXIS C8033 Network Audio Bridge

Analogue audio system

PoE switch

SIP server

IP phone

2N SIP Mic

PoE cable
Audio cable
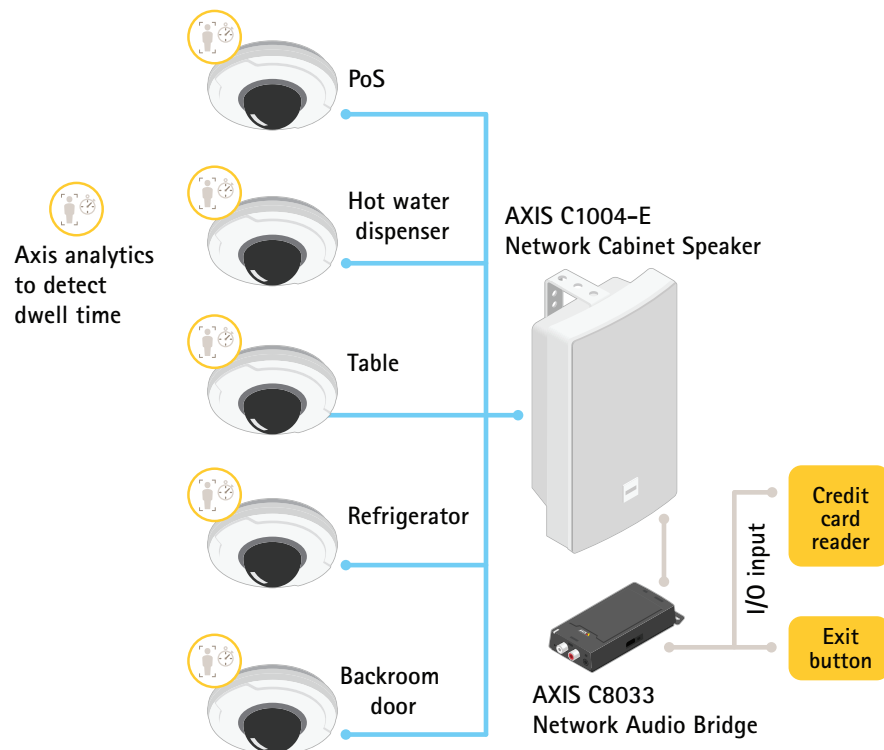Speaker cable

Axis solution and values

Axis offered the IP-based solution with an analog-to-network converter device for easy migration from legacy to network audio, a microphone console, and audio management software. The solution offers new functionalities to play background music and announcements with the analog audio system and enables flexibility to manage streaming for single/multiple zones. An integrated audio system with extended functionalities is now in place instead of the different PA system initially planned. The customer is satisfied with the investment decision for an integrated system that can be set up easily without additional cabling and installation costs.

6. Case study: Using audio + video analytics for unmanned operation hours

Background: A convenience store in South Korea wanted an audio system for its unmanned store to improve customer experience and prevent shrinkage. Besides welcoming customers and bidding them farewell as they leave, the store owners wanted more customized audio messages that would be played depending on customer behavior or location within the store.

Axis solution and values

An Axis network audio speaker, Axis network cameras, and analytics were installed in the project. A welcome message is played when visitors enter the store, and a good-bye message is played when they leave. This creates a warm and welcoming atmosphere for visitors, even at unmanned stores. For security, the management can now prevent any untoward activities by playing pre-recorded audio clips mentioning that the stores are under surveillance to avoid potential loss. To enhance customer experience, event-triggered audio instructions can be played in different zones to support customers who are unfamiliar with the operations.

PoS

Hot water dispenser

Axis analytics to detect dwell time

Table

Refrigerator

Backroom door

AXIS C1004-E
Network Cabinet Speaker

AXIS C8033
Network Audio Bridge
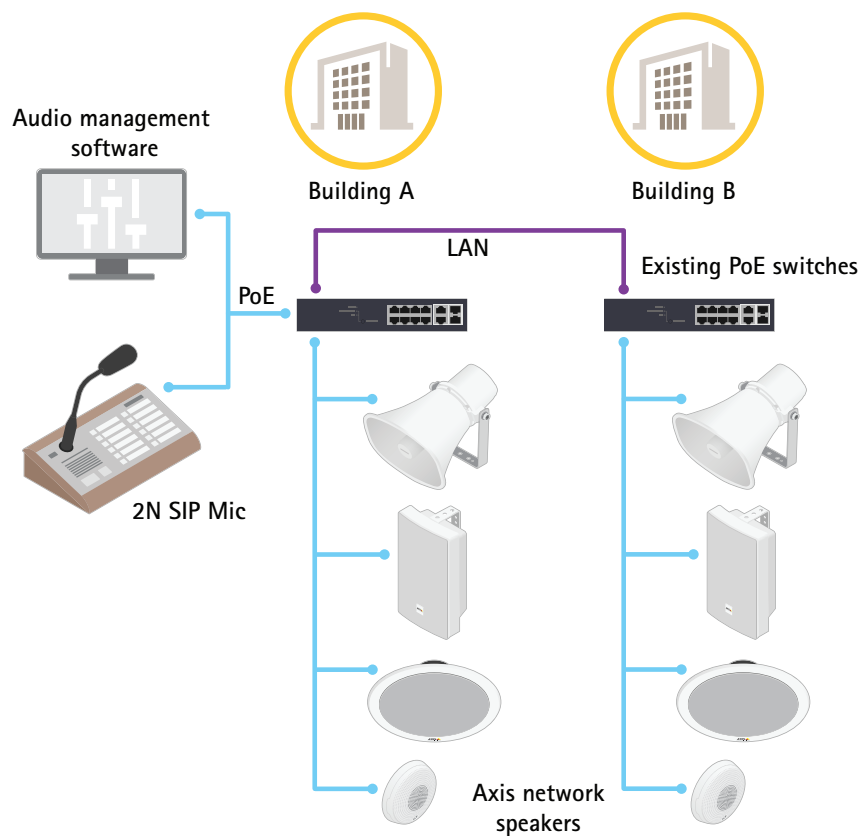
Credit card reader

Exit button

I/O input

The system also became a channel to play audio advertisements based on the location or behavior of visitors. This helps the convenience store drive in-store sales in addition to increasing revenue by selling audio advertisements to vendors.

7. Case study: Technical benefits of IP audio over analog in a multiple buildings site

A Korean multinational semi-conductor manufacturer planned to expand their large manufacturing site by adding more buildings. But a significant challenge at large sites is reaching messages out to employees. The company management needed a PA system for paging and announcements to staff in different working areas inside the plants.

However, the existing system used old cables and analog systems, delivering impaired-quality audio communications. Also, the company constantly had to spend on the maintenance of the complex system. Especially when expanding the site, it became challenging to integrate existing new PA systems.

The company had used Axis network cameras before. By leveraging the existing PoE network infrastructure built for network cameras, they installed the Axis network audio system for 1-to-1 paging and public announcements.

Axis solution and values
The company made use of an Axis end-to-end network audio solution, built on existing PoE network for security cameras.

The solution offered seamless integration of the existing PA system with those at the new factories. It significantly lowered the TCO with optimized investments, maintenance, and operation labor costs. Since the existing network was used, the company also saved on the costs of cabling. Finally, the solution offered centralized management across several factories, resulting in lower maintenance costs and operational labor.

8. Axis offerings for an end-to-end audio solution

8.1 One-stop-shop for IP audio

Axis is a complete network audio solutions provider with a range of both hardware devices and software to manage and control security, safety, and operational efficiency in small, mid-size, and large sites. The Axis audio solutions portfolio includes all-in-one speakers, audio system devices, microphones, and audio management software.

Get everything you need from one vendor, along with dedicated support at every step. This saves you from compatibility concerns, cost, time, and effort.

8.2 Seamless integration with the ecosystem

Axis network audio solutions integrate easily with other offerings from Axis: cameras, video management software, analytics software, access control, and third-party SIP-based applications. This brings your entire video and audio solutions under a single ecosystem, further increasing your convenience and lowering costs. Integrating audio into IoT infrastructure maximizes the use of audio communication anywhere and anytime for higher efficiency and productivity.

8.3 Multipurpose beyond security

Axis network audio can help your business for purposes beyond security. However, what is even more important to note is that there is no need to prioritize security, safety, or operational efficiency as the primary goal of using network audio solutions. All three aspects receive equal importance. You can use an Axis audio system for a combination of the three without the need to compromise or having to invest in separate systems.

8.4 Maximize benefits for IT, OT, and business owners

Moving to IP-based systems makes the audio solutions a part of the IoT infrastructure of a site. This means that audio systems can be part of a connected ecosystem, adding more value to IT and OT departments and, in turn, the businesses. Leveraging the power of IP systems, network audio can go from being just a few speakers and announcements to an integrated security and marketing solution that helps the bottom line of businesses.

About Axis Communications

Axis enables a smarter and safer world by creating network solutions that provide insights for improving security and new ways of doing business. As the industry leader in network video, Axis offers products and services for video surveillance and analytics, access control, intercom and audio systems. Axis has more than 3,800 dedicated employees in over 50 countries and collaborates with partners worldwide to deliver customer solutions. Axis was founded in 1984 and has its headquarters in Lund, Sweden.

For more information about Axis, please visit our website www.axis.com.

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