# 2023 Cloud Video Surveillance Camera Worldwide Statistics

EAGLE EYE NETWORKS

## Introduction

By Dean Drako, CEO of Eagle Eye Networks

The third annual Cloud Video Surveillance Camera Worldwide Statistics report aggregates data from a sample of 200,000 security cameras worldwide connected to the Eagle Eye Cloud VMS (video management system).

This analysis reveals insights as well as emerging trends as to how organizations are deploying security cameras.

One of the goals of this report is to provide information for our industry and organizations investing in surveillance systems to make informed recommendations and decisions using real data.

Given the emergence and adoption of artificial intelligence (AI) in video surveillance, we have included some of our early data-driven observations in this report. AI-powered video surveillance not only improves business security, but also offers operational efficiency benefits.

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## Cloud System Deployed

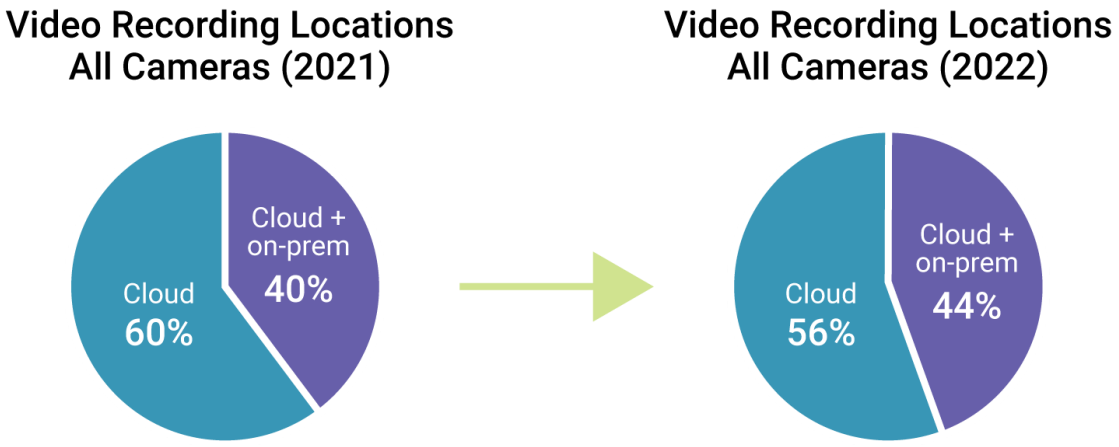
The data produced to create this report was generated from a sample set of 200,000 cameras that are part of Eagle Eye Networks Cloud VMS. Eagle Eye Networks Cloud VMS offers flexible video retention—either exclusively in the cloud or with a hybrid of cloud and on-premise retention, giving customers full control over where they retain their video.

### Broad Scope of Source Data:

- 200,000 cameras, both digital and analog
- 100 countries
- 175 different camera manufacturers
- 1,000s of organizations of all sizes including restaurants, retail businesses, warehouses and storage facilities, multifamily residences, gyms, health care facilities, hospitality venues, schools, and cities

# Video Recording Location

56% of the cloud-based video surveillance cameras sampled are used for cloud-only video recording. 44% combine a mix of cloud and on-prem recording.



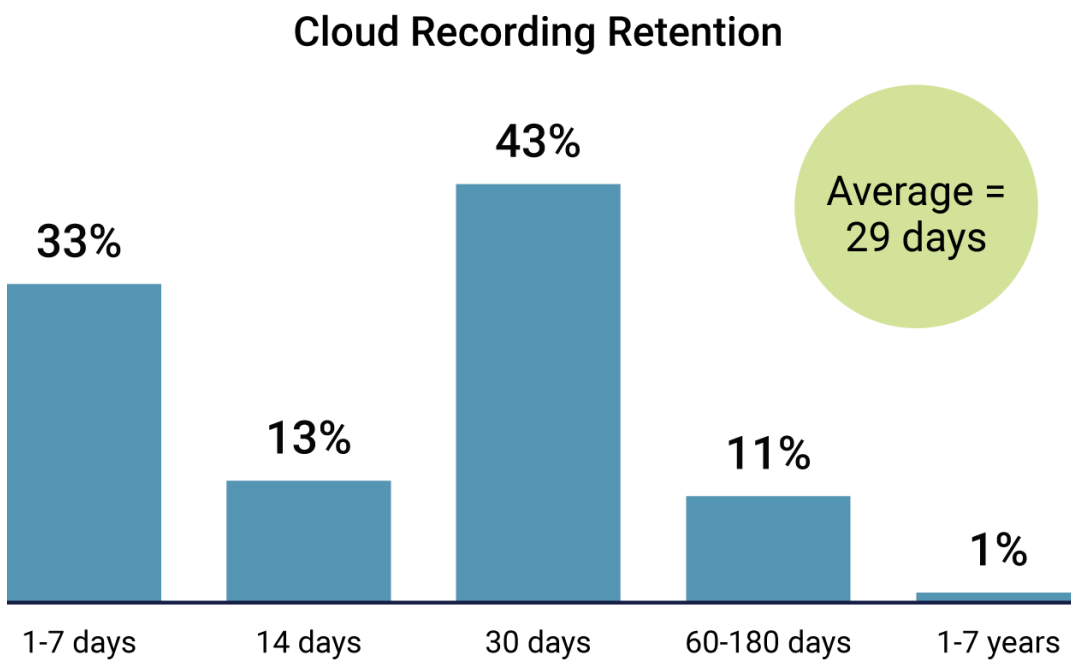

The increase in hybrid systems of cloud plus on-prem video retention is a continuation of a trend seen in last year's report. The increase can be attributed to an industry trend of large enterprises adopting cloud. Larger enterprises have more complex video retention requirements which necessitate the need for a mixed solution.

Many of the large enterprises converting to cloud video surveillance are opting for a hybrid approach as they migrate from legacy on-prem systems. A hybrid approach gives enterprise businesses the benefits of cloud video surveillance, including remote access and automatic system updates. At the same time, the hybrid approach offers on-site server-based retention, which may be required for company standards or help with bandwidth limitations for large installations.

It will be interesting to monitor this trend in coming years to see if these enterprise organizations, as they become more reliant on cloud services in general, also move to cloud-only video retention for their surveillance, or maintain a hybrid approach. When the bandwidth is available, large enterprises can effectively rely on cloud-only storage.

# Cloud Recording Retention

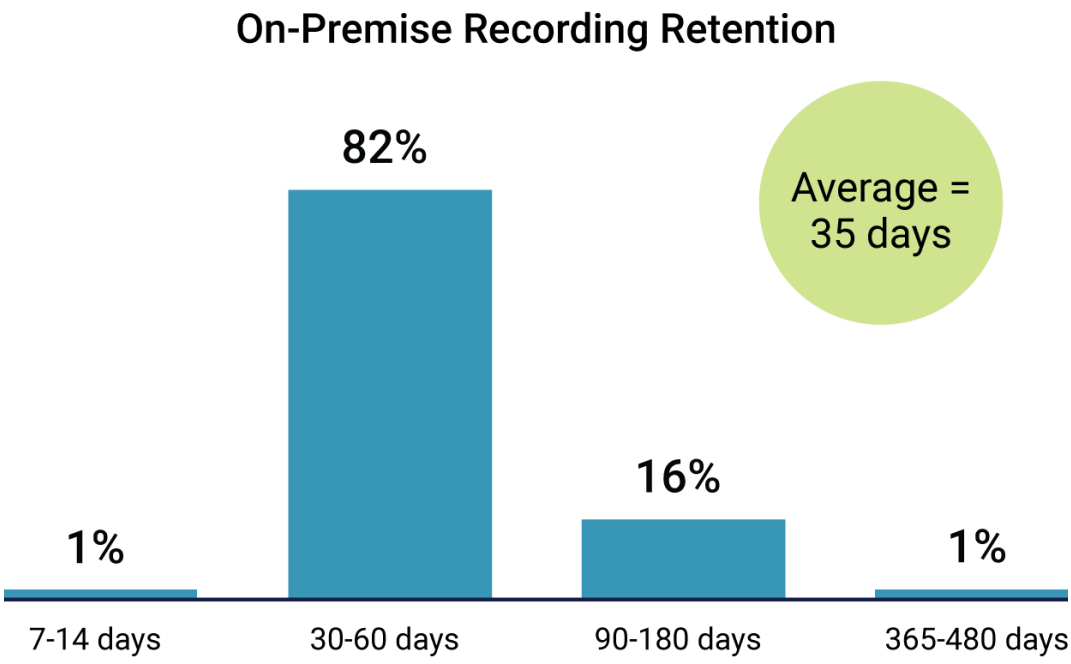
The average cloud recording retention in 2022 is 29 days, which is the same average from last year. The most common cloud retention period is 30 days once again.




Regulated industries, such as banking, law enforcement, and cannabis, can require longer retention, with some contract recordings requiring up to seven years. Video surveillance regulations sometimes further stipulate that video be stored off site, making cloud retention a practical choice for compliance.

# On-Premise Recording Retention

The average on-prem recording retention grew slightly this year to 35 days, compared with 33 days last year. The dominant retention choice continues to be 30 to 60 days, with 82% selecting that option. This is up 4% from 78% last year.



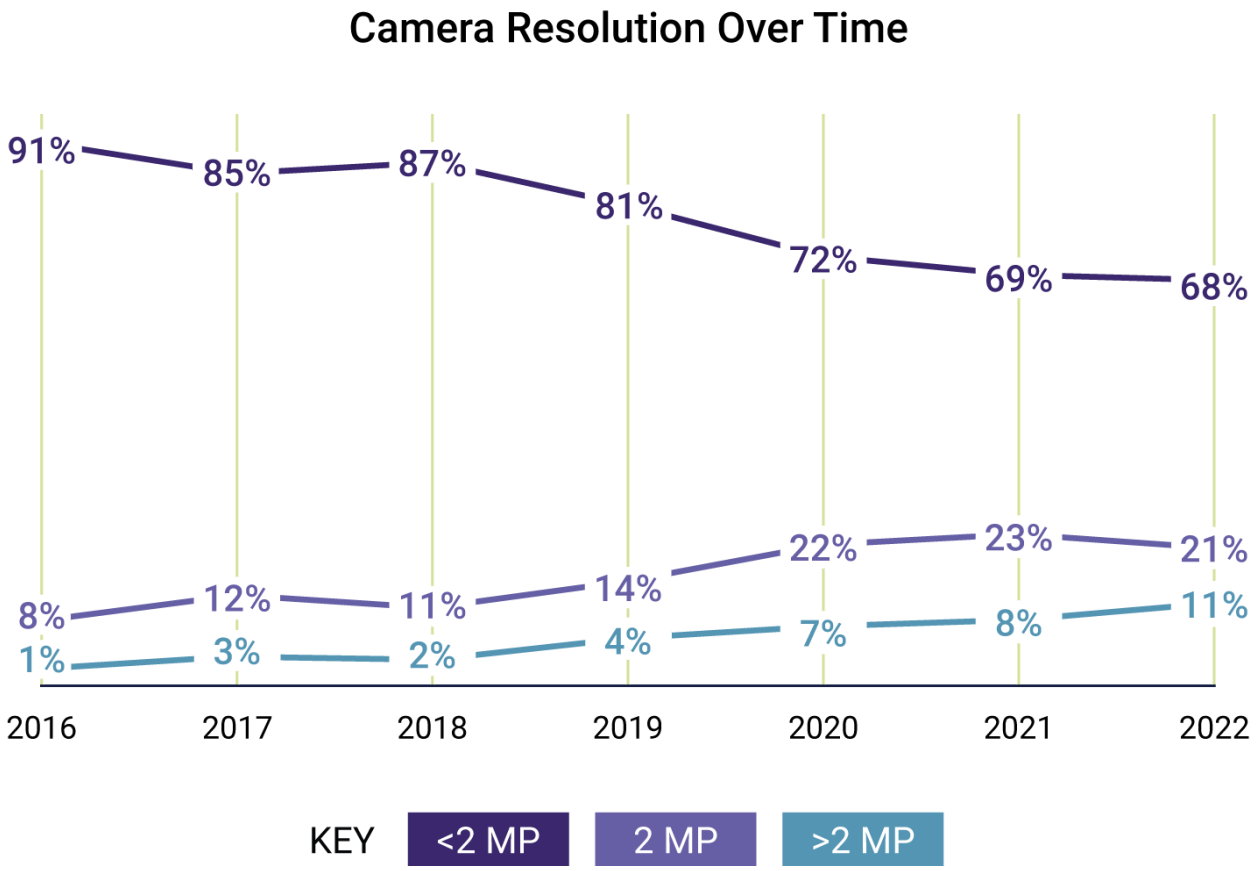

The above general analysis for cloud and on-prem recording retention is independent of organizations' abilities to save and archive specific events, which may be retained for much longer time periods.

# Digital Camera Resolution

The trend toward higher resolution digital security cameras (above 2MP) continues as camera technology becomes increasingly affordable. 4MP cameras in particular jumped at 250% YOY growth worldwide.

2MP (or 1080p) cameras are considered the HD standard for security, but customers, camera manufacturers, and integrators are now seeing the value in higher resolution (>2MP) cameras. The price difference between 2MP and 4MP cameras, for example, is small, but there is a noticeable difference in image quality and coverage area.

The image detail provided by high resolution cameras is making AI security solutions within cloud systems more effective.



# Top Digital Security Camera Manufacturers

The digital security cameras connected to the Eagle Eye Cloud VMS were made by over 175 different third-party camera manufacturers. The only requirement for digital cameras to work with Eagle Eye Cloud VMS is that they are ONVIF conformant.

Below are the top ten camera manufacturers, out of those 175, added to the Eagle Eye Cloud VMS each year, listed in alphabetical order. The list is based on the increase in the number of cameras year-to-year, not the total camera count. The only change to the top ten this year was Panasonic replacing Tyco. There was no change to the top ten from 2020 to 2021.

**Top Camera Manufacturers Added (in alphabetical order)**

| 2020 | 2021 | 2022 |
|---|---|---|
| Avigilon | Avigilon | Avigilon |
| Axis | Axis | Axis |
| Dahua | Dahua | Dahua |
| Hanwha | Hanwha | Hanwha |
| Hikvision | Hikvision | Hikvision |
| Lts | Lts | Lts |
| Mobotix | Mobotix | Mobotix |
| Speco | Speco | Panasonic |
| Tyco | Tyco | Speco |
| Vivotek | Vivotek | Vivotek |

Hanwha cameras were the most added brand in 2022 – a 82% YOY growth in cameras connected to the Eagle Eye Cloud VMS.

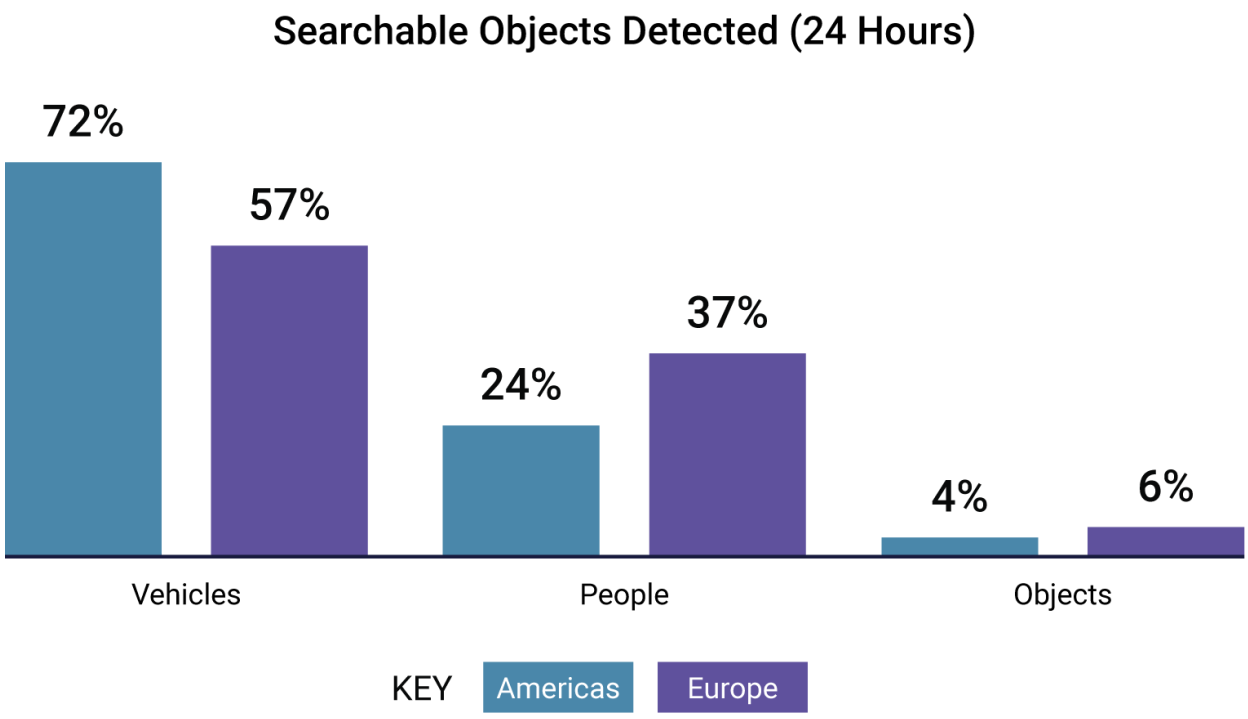
These ten manufacturers account for 90% of the installed third-party cameras; this is up from 87% last year.

# Artificial Intelligence

The adoption of AI in video surveillance is expanding and its importance will be very significant to this industry going forward. AI adoption has been enabled by lower-cost computing power and development of training data and algorithms. The adoption of cloud-based video surveillance makes access to the compute power and algorithms for AI easier which further facilitates adoption. Maintenance of and updates to AI algorithms are both easier in a cloud environment.

One application of AI within video surveillance is the identification of specific people, vehicles, and other objects. This allows for accurate natural-language search capabilities within the VMS.

The following data provides a snapshot of searchable objects detected using AI over a 24-hour period across the 200,000 camera sample used for this report.



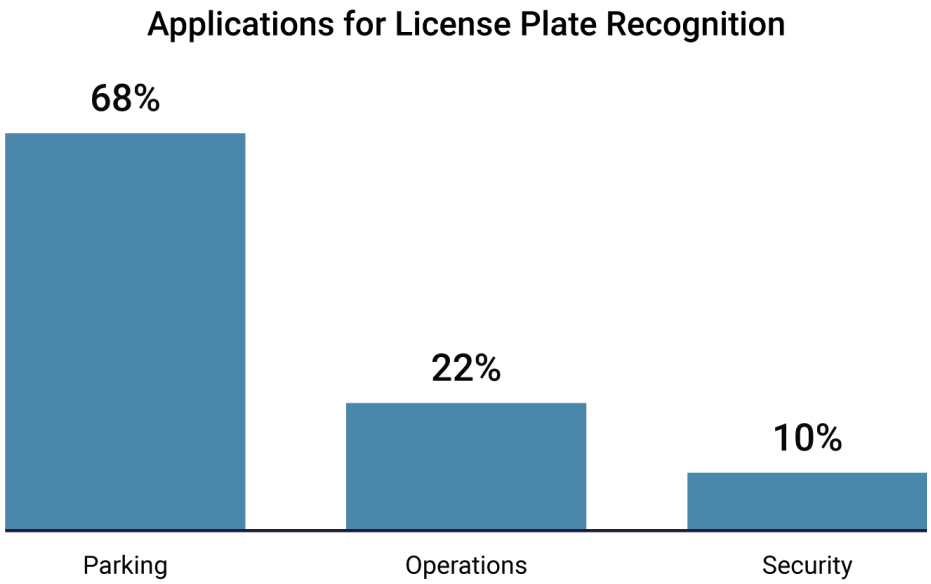

The regional differences in detected objects can be attributed in part to different surveillance needs and uses in different parts of the world. One notable example is the use of surveillance cameras in large parking areas in the United States.

Once the AI detects a person, vehicle, or object, its distinguishing characteristics are filtered and immediately searchable. Search terms include color of clothing, color and make of vehicle, and other objects such as bicycles and backpacks.

# License Plate Recognition

The use of license plate recognition technology is also growing, in parking lots and on the road. AI allows for improved accuracy which has enabled new applications.

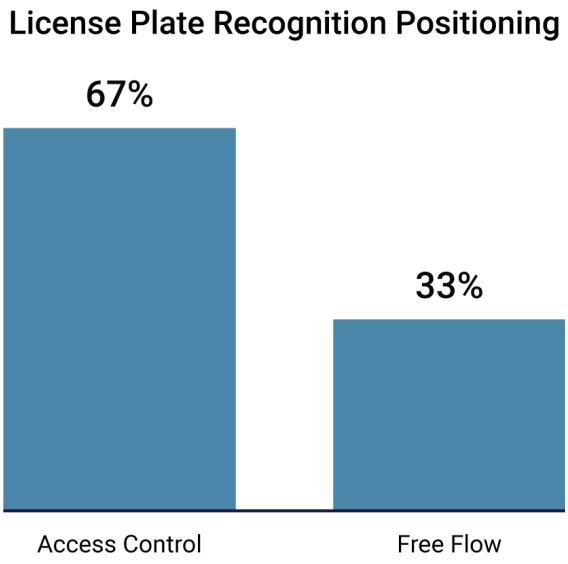
1. **Parking -** Access control, payment and enforcement, occupancy monitoring
2. **Operations -** Fleet management and tracking, service automation, logistics
3. **Security -** Monitoring, vehicle identification, access control



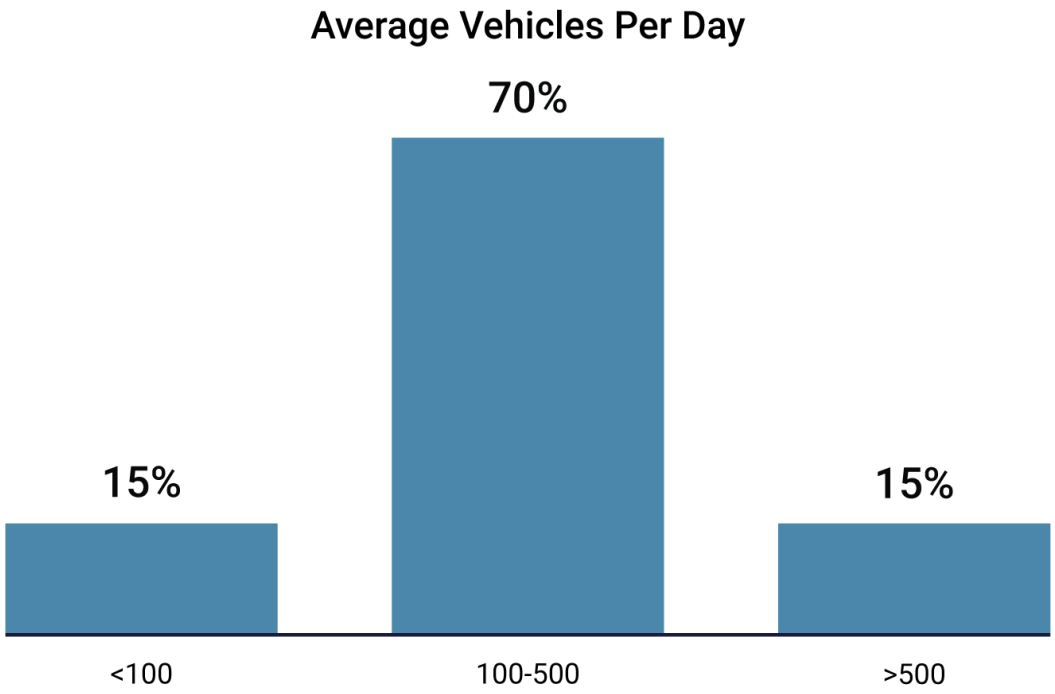

AI license plate recognition technology often provides solutions that exceed the original application.

For instance, access control applications using license plate recognition can benefit both security and parking revenue.

Access control is used in 67% of the applications, whereas the other 33% are cameras capturing license plates without a gated stopping point, known as free flow.



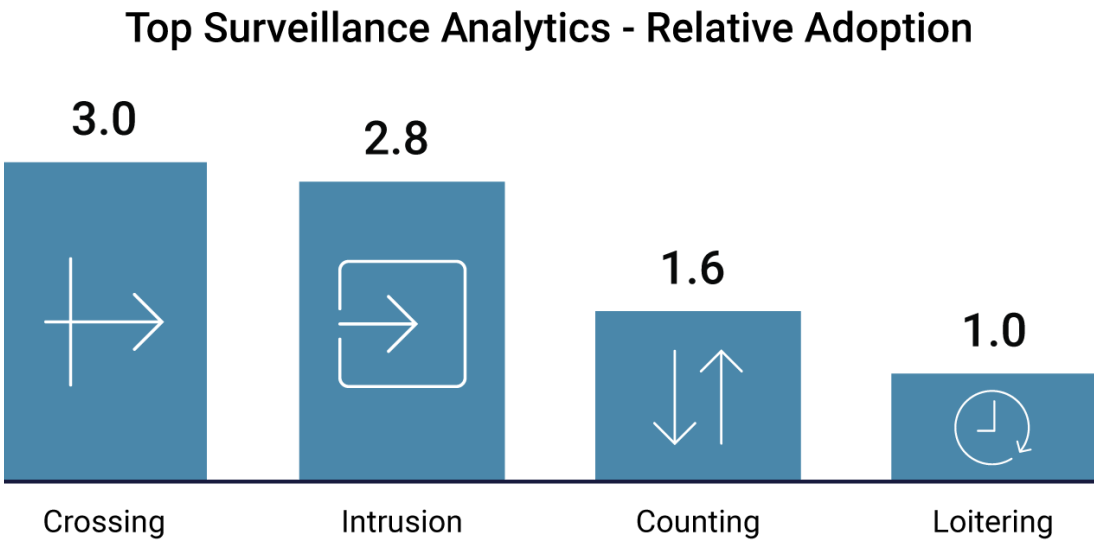
AI makes it possible to detect license plates in various conditions and at a rate that would not be possible with manual monitoring. An average of 70% of cameras using license plate recognition detect between 100 and 500 license plates a day. License plate recognition is also being used on roadways or other high volume locations, recognizing more than 500 per day.




AI remains in early adoption and future data will reveal how the technology expands within the industry. We will see increased use of AI, though, as more video management systems support the technology, particularly in the cloud.

# Top Video Analytics

Security camera system video analytics provide real-time alerts for particular events and generate usable data that can be used to make informed business and safety decisions. We again reviewed the most common physical security analytics and their relative level of use.



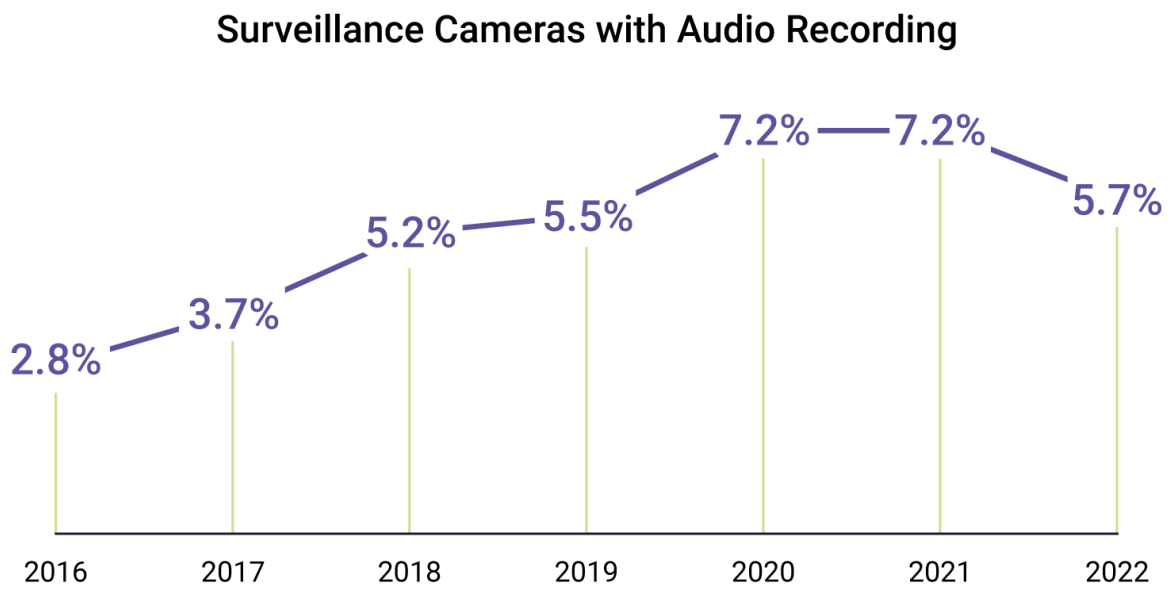

The four most commonly used analytics are:

1. **Crossing** – Identifies whether a person or vehicle crosses a marked line; commonly tied to people entering a business and can also be used to monitor an unsafe area.
2. **Intrusion** – Flags when someone enters a designated area; typically associated with restricted areas.
3. **Counting** – Counts the number of people in an area; typically used to monitor service quality or for safety reasons.
4. **Loitering** – Measures if an individual or group stays in a particular area longer than a designated time; can indicate suspicious behavior.

Similar to last year, intrusion and crossing continue to be the most used of the four top analytics, with crossing shifting to the number-one spot this year. These analytics are followed by counting, which is deployed about half as often. Loitering is used relatively less; it figures in one-third or fewer of deployments compared to line crossing and intrusion.

# Audio Recording

The percentage of security cameras with audio recording enabled dropped in the past year, with only 5.7% of cameras installed in 2022 using audio recording, compared with 7.2% of the cameras installed in 2021.



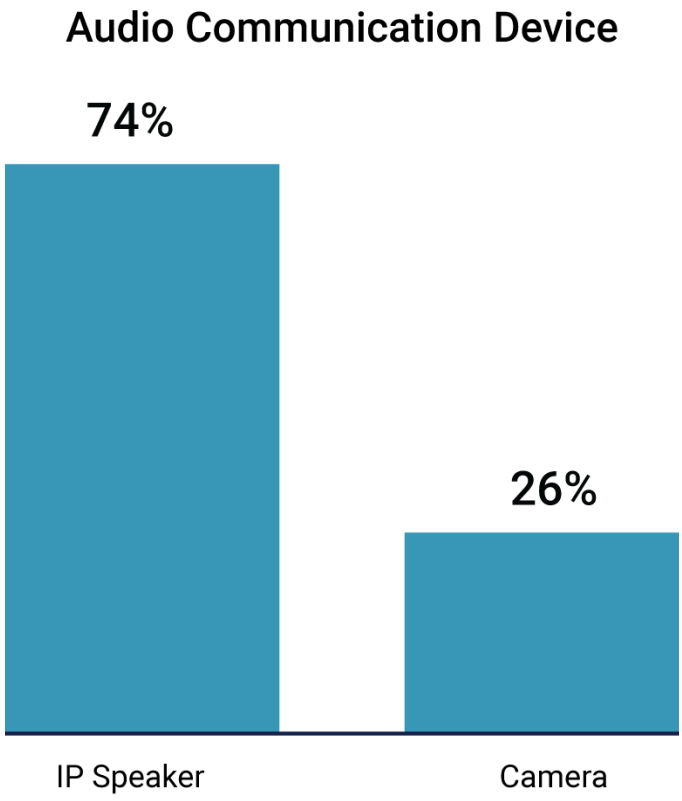

Audio recording adds an extra layer of security and information to video surveillance. There has been a gradual increase in the use of audio in surveillance over the past five years, highlighted by a peak in 2020 and 2021, but its use is limited by restrictions in different countries and states. For example, at least 12 U.S. states require two-party consent for audio recording. General Data Protection Regulation (GDPR) laws in the EU also limit the use of audio recordings.

The dip in audio recording seen this year reflects the global shift in return to work in 2022 as the world emerged from the pandemic. In 2020 and 2021, audio recording provided additional protections and uses for empty or partially staffed offices and buildings. With employees and managers returning to the workplace, the reliance on audio recordings diminished.

Future data will reveal if the pandemic skewed the growing use of audio recording only temporarily, or if there is a true decline in use due to legal or other factors.

# Two-Way Audio

Separate from audio recording, many customers are enabling audio communication as a part of their surveillance system, either through audio-equipped cameras or a connected IP speaker. We are beginning to track this use case. In 2022, less than 1% of cloud-based surveillance systems enabled two-way audio communication.




Of the systems using audio communication, 74% are using a connected (but separate) audio device such as an IP speaker, rather than an audio-equipped camera.

# Conclusion

Much of the 2023 data remains consistent year-to-year, after the pandemic-driven disruptions of 2020-21. The increase in large enterprises moving to cloud surveillance is impacting some of the trends, particularly in recording location and retention. As cloud adoption expands, large enterprises will continue to impact industry trends.

The deployment of higher resolution cameras, particularly cameras of 4MP or higher, is opening the door for new uses of AI technology. Organizations are already finding innovative ways to use AI-powered analytics to evolve how their surveillance system serves their security and business needs.

AI is a powerful tool to use with video surveillance to make the world safer. The reality is that over 50% of businesses are already using AI in some way, according to a 2022 PricewaterhouseCoopers survey. This report will continue to track the rise and use of AI in the security industry as proliferation progresses.