

Leveraging Cisco Video Surveillance

Today, retailers run a myriad of applications and technologies to support their loss prevention, store operations, and marketing initiatives. These are often separate and distinct—in terms of data collected, department budgets, and usage. Often, they are not leveraging assets across their organizations; therefore, not realizing the benefits that convergence can offer. The key to moving forward is a common platform for video to gain transparency and visibility into all areas of the store and across the enterprise.

Point-of-Sale (PoS) shrink is an ever-growing problem in retail. And with today's economy, analysts predict that PoS shrink will continue to grow. Shrink at the PoS is not just about fraud. In fact, most shrink at the PoS is not caused by fraud or theft, but by operational errors.

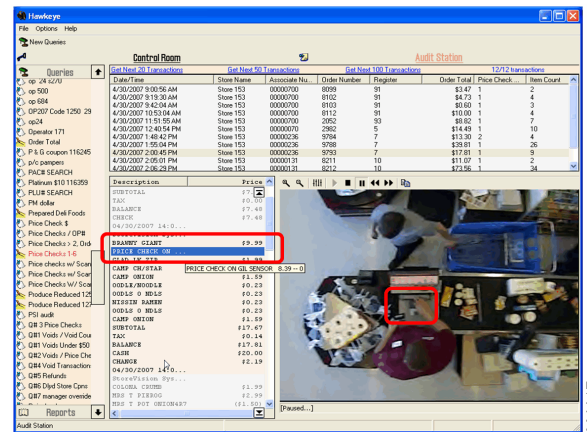
PoS Video Auditing with Agilence

By combining Cisco's leading video surveillance systems with Agilence's Hawkeye application, losses caused by operator errors, promotional errors, systemic issues, and associate fraud can be quickly identified. Further, these problems can be corrected through item-level, PoS monitoring, and analysis of video. Agilence is fully integrated with Cisco Video Surveillance Manager and Cisco IP-based video surveillance cameras providing the capability to:

- Synchronizes every button push and scan to video
- Build custom queries to identify irregularities
- Automate reporting
- Send immediate alerts to E-mail/mobile

Once implemented, the solution gathers PoS data and time-sequenced video footage. Using the Hawkeye PoS Auditing Client, a simple query can be executed for an item of interest such as "price checks". The system returns a list of transactions that include "price checks" and immediately displays the full receipt information along with the corresponding video segment. Each line of the receipt is clickable and paired with a static image from a particular time (see Figure 1). Through this, a loss prevention (LP) analyst can then easily determine whether the price check was valid or whether it was used to create shrink.

Figure 1 PoS Video Auditing with Agilence



In this example, the cashier is using the price check key to commit discounting fraud (or sweet hearting). The cashier uses the price check key because, to any front of store manager, it looks like a regular scan. The scanner beeps and the price is displayed on the monitor. However, the item is not rung up and does not get charged.

This solution enables retailers to identify inefficient processes, optimize them thereby reduce their impact on profitability.

Network Design Considerations

When designing a converged IP network infrastructure to support traditional IT services such as voice, video, and data applications, the design engineer should be particularly cognizant of the bandwidth implications that video content involves. Although the Hawkeye application only sends still images and small video segments, thereby conserving significant amounts of network bandwidth, appropriate QoS templates should still be implemented and a suitable operational policy established as other applications may also access the stored video content without these refined capabilities. These requirements must then be balanced against the business requirements of the all store systems including their evolution over time.

When the Hawkeye Site Server and PoS Auditing Client are integrated with PoS, it is recommended to improve security by isolating the network segments connected to the server from the rest of the IP network infrastructure and tightly controlling access to these network segments.

Network isolation within the LAN infrastructure can be accomplished through several methods. The preferred method is to use separate logical VLAN segments provisioned off of a converged switch infrastructure. Using a converged switch infrastructure design has the advantage of lower overall hardware and reoccurring maintenance costs.

PCI Compliance

The Agilence systems must meet PCI compliance standards. In most cases, the Hawkeye application receives encrypted credit card data without an encryption key. The Hawkeye application then performs a one-way hash against the encrypted number so it cannot be decrypted. This enables the Hawkeye application to search on the encrypted credit card information but enables no other identification. The Hawkeye application does not store any identifying information such as cardholder name, card expiration date, card validation code, PIN number, or magnetic stripe information. In some rare cases, the unencrypted credit card number will be visible to the Hawkeye application. In these cases, a one-way hash on the number is performed prior to storing it in the system database. At no time does the Hawkeye application transmit any credit card information across the network.

Deployment Models

The PoS Video Auditing solution can be tailored to fit small-to-large scale retailers with a variety of options. Flexibility comes in several key areas:

- **Analog Support**—Retailers may have already purchased analog cameras and non-Ethernet cabling such as coaxial. Cisco supports this legacy technology by providing various forms of encoders. They can be positioned inline between the analog cameras and the network. Alternatively, an encoder can be integrated into the Cisco Video Surveillance Integrated Services Platform appliance or ISR router.

- **Cisco Video Surveillance IP Cameras**—High-resolution MPEG-4 and/or H.264 digital cameras offer superior performance in many different lighting environments.
- **Appliance versus Integrated Models**—Cisco offers retailer's flexible deployment options across several of its solution components. Devices can be implemented as a standalone appliance or integrated into Cisco's Integrated Services Router (ISR).
- **Cisco Video Surveillance Media Server**—Available as a standalone appliance or as a network module that can be inserted into Cisco's adaptable integrated services router (ISR).
- **Cisco Video Surveillance Operations Manager**—Available as a soft client on Cisco's Video Surveillance Manager (both the appliance and network module) or as a central server.
- **Hawkeye Site Server**—Each satellite location (store) includes a server that uses patented technology to synchronize item level detail including open rings, voids, and price checks.
- **Hawkeye Enterprise Server**—A central server that is necessary to aggregate data from the satellites. This enables Analysts to analyze data across districts, regions, and even the entire organization. This server is usually located in the organization's IT headquarters and is accessible via the LAN/WAN.
- **Hawkeye PoS Auditing Client**—A state-of-the-art tool for identifying and investigating loss realized at the PoS. Hawkeye PoS Auditing Clients can reside at stores and at central locations.
- **Hawkeye PoS information capture function**—The capturing of information from the PoS is enabled through several integration methods: printer-based, scanner-based, T-log, Keystroke capture, or a combination of the above.

Figure 2 depicts typical technical details and the flexibility in deployment options for the Cisco PoS Video Auditing solution with Agilence.

Agilence LP Analysts

For companies that do not have their own analyst staff, Agilence offers monitoring and auditing services. These analysts are all former loss prevention and operations

experts and use the same Hawkeye PoS Auditing Client tool to identify and investigate potential fraud, operational inefficiencies and policy violations.

Once identified, these incidents are documented and sent to the customer, along with the embedded video highlighting the violation. The reports are also logged in the Agilence Case Management System.

Summary

Retail shrink is a continual problem. The PoS Video Auditing solution with Agilence enables retailers to reduce shrink by identifying and investigating shrink faster than any tool in the retail industry. Typically, 10 to 50 percent reductions in shrink is achieved, with a significant improvement in analyst performance and efficiency. The patented technology enables retailers to not just look for exceptions, but to quickly analyze thousands of transactions and see the corresponding video right on their desktop.

For more information, refer to the following URL:

<http://www.cisco.com/go/retail>

Figure 2 PoS Video Auditing Solution—Integrated Option ISR/G2

