According to a National Retail Federation survey from 2010, at that time only 25 percent of retailers integrated POS and video. The problems preventing this integration were lack of standards, numerous different POS systems, and other compatibility issues between video and POS information. Five years down the road, this integration has gained much popularity and is now commonly used by retailers. *a&s* spoke with several companies to learn how POS and video integration help retailers with loss prevention.

● **BY** *Israel Gogol, Freelancer*

POS and VIDEO INTEGRATION
A Way to Stop Sweethearting?

Five years have passed since the aforementioned National Retail Federation (NRF) survey, and the POS industry is still very fragmented; however, POS and video integration is gaining ground and is now becoming an industry common practice.

"We do integration with POS for 100 percent of our customers — that's where the highest payback is," described Charlie Erickson, Director of Product Management at 3xLOGIC. "We have 100 different POS integrations, and employees completely dedicated to accomplishing these integrations. Difficulties arise because of lack of standards and different systems. We have one customer that has three different systems that we had to integrate with POS but ultimately it's worth it: this is where we see the largest return for our customers."

Market segmentation is not the only problem facing the integration of POS data with other systems. Knowledge gaps as to what solutions are available to retailers, or even what this integration means are faced by solution providers.

"One of the challenges is the lack of standards in regards to integration. We see this as well. We also see that the definition of POS integration is very broad. Each client interprets it differently, from text overlay on the video to more advanced solutions. Even end users don't have a consensus on what it means. There is also a market education problem, some clients don't even know what is possible," mentioned Mike

❶ Mike Compton, President, Digiop
❷ Charlie Erickson, Director, Product Management, 3xLOGIC

Compton, President of Digiop.

Even when a client decides to go forward with POS-video integration there are internal hurdles to be overcome.

"In some chains the IT department wouldn't allow access to the POS data for fear of exposing customer payment information. In others, the providers of the recording technology didn't have open standards or the framework to correlate the transactions with the associated video," explained Scott Thomas, Global Director of Business Development for Retail and

Banking at Genetec. Today in the IP video world many of those challenges have been overcome. "At Genetec we have developed a custom framework that allows the stores to set the precise parameters of what information is seen by their loss prevention team. This means data like credit card numbers can't be seen by investigators, but the rest of the transaction can be searched and viewed to identify fraudulent cashier activity at the register. This same open architecture framework allows Genetec to integrate with every register and POS system that moves data over the companies LAN or WAN," Thomas added.

With numerous POS vendors, data being handled differently from system to system, and no industry standard in sight, individual development efforts are required for each new integration. Digiop is taking a different approach, rolling out later in 2015 a universal driver for POS integrations. "Instead of having a separate driver for each POS system, we have a universal driver that can consistently collect data. This allows us to make sure the integration and interactive experience is identical for all end users," explained Compton.

Another example is Tyco, which has adopted the NRF's UPOS standard. "The adoption of NRF's UPOS standard has assisted in driving the integration of POS and video. Today we use UPOS as our preferred means for integration in POS and video, outside of XML and XLS format. In some cases direct integration is still required, but usually only between backend systems like exception reporting systems and video surveillance, and not at the device level," said Justin Lee, GM of Asia at Tyco Retail Solutions.

FIGHTING "SWEETHEARTING" SCAMS

One of the most common forms of fraud involving employees is "sweethearting," in which the cashier passes items without scanning them for a friend or family members. This sleight-of-hand at checkout is particularly difficult to spot and several solutions involving the integration of video surveillance and POS data are trying to solve this problem.

"Theft by employees at the checkout makes sense, that's where the money is, and that's where the products have to go through, so it is easier to hide theft going through the register," explained Malay Kundu, Founder and CEO of Stoplift Checkout Vision Systems. "For every US$100 of shrink, $35 is actually attributed

❸ **Bridget Johns,** Head of Customer Success, RetailNext
❹ **Malay Kundu,** Founder and CEO, Stoplift Checkout Vision Systems

to loss at the checkout."

Retailers do data mining on their POS data and try to find anomalies in cashiers' performance. To tackle more sophisticated fraud, like "sweethearting," data analytics may be required in combination with video analytics. "There is a tendency for perpetrators of these types of crimes to use and reuse similar patterns. Creating rules to identify when voids, canceled transactions, and returns occur is a common way to detect the traits typically used for this type of fraud. Once POS data is correlated to our video management system, we can offer alarms and searches that bring these behaviors to the top of the loss prevention department's things to look out for," Lee explained.

However, exception-based reporting is looking for the exceptions, it assumes that the rest of the times everything is ok.

"The problem is that exception-based reporting is looking for the extreme situations, and can't detect the ones that are hidden by environmental 'noise' such as employees continuously stealing small amounts avoiding detection," Kundu said. "Sweethearting is an Achilles heel for retailers. It leaves no data trail and can't be data mined and detected using POS data."

Stoplift offers integration of POS data and video surveillance combined with specialized video analytics to detect sweethearting. "What the system is doing is watching the cashier and the customer and their activity and comparing it to the data from the POS," Kundu explained. "What we are doing is a number of things in parallel. The most important is watching the human interaction with merchandise. One of the things that we chose to do is to use video and POS data so that the system can know what was scanned and what was not scanned. If there were items left in the basket that weren't scanned or if the cashier issued a refund without a client standing at the register."

A product called ScanCam offers a different approach. ScanCam is attached directly to the POS scanner, so whenever a product is scanned the unit activates a blinking green light. Instead of detecting theft, the device alters the behavior of the cashier, making sure they scan items properly.

"The ScanCam addresses 'sweethearting' by changing operator behavior and in our

> One of the most common forms of fraud involving employees is 'sweethearting,' in which the cashier passes items without scanning them for a friend or family member.

experience, almost instantly," explained Peter Stothers, MD of ScanCam. "The operator quickly associates a positive scan with a blinking green light that is pointed at their lanes video surveillance camera. In no time, they figure out that if they sweetheart an item by obscuring the barcode, the ScanCam light will not blink catching them red-handed".

ScanCam also makes detecting "sweethearting" from video footage (either live or historic) easier. It allows even personnel with limited training in loss prevention to spot sweethearting events. "If the item was scanned and placed in the customer's basket and the ScanCam did not blink, it was stolen, plain and simple," said Stothers.

It is important to remember that not all missed scans are the result of employee theft. Many times it is the result of a mistake, carelessness, or distraction of the cashier. According to Bridget Johns, Head of Customer

❺ **Justin Lee,** GM, Asia, Tyco Retail Solutions
❻ **Peter Stothers,** MD, ScanCam
❼ **Scott Thomas,** Global Director, Business Development, Retail and Banking, Genetec

Success at RetailNext, using video footage for preliminary investigation can also help maintain a good atmosphere in the workplace and avoid regarding an innocent mistake as a crime.

"Trust of employees is an important part of the retailer's overall recipe for success. By tying, for example, exception-based reporting directly to video data, a retailer can first identify trends that might prompt an investigation, and then conduct the initial phases of that investigation through video and other evidence without having to communicate with anyone in the store. It's a non-threatening way of conducing first-level investigations that doesn't erode the trust so necessary in developing a cohesive, shopper-centric team," Johns explained.

This is an additional value retailers can get from video integration — it can be used for training purposes and make sure employees don't make the same mistakes again.

ARE VIDEO ANALYTICS RELIABLE?

Opinions in this matter differ and should be reviewed critically. "The market is still suffering from the stigma created by early players and fallout for early adopters in the analytic space. Analytic engines in the market are now mature, but market acceptance hasn't quite caught up. However, we are starting to see the tide changing in terms of perception as we demonstrate more real-world examples of how analytics have successfully

been used," said Tyco's Lee.

While video analytics have good performance and usability in applications like heat mapping, identifying dwell time, and customer flow through the store, successfully detecting sweethearting is more challenging. Some of our interviewees were skeptical about the success rate of video analytics for sweethearting.

"No video analytic can detect intent. What was once billed as artificial intelligence to identify potential shoplifting behavior, like loitering in an aisle, is now used to alert the store that a customer may need assistance," mentioned Genetec's Thomas, adding that the false alarm rate of video analytics makes them impractical to use. "The problem is for every real incident identified there are a thousand alerts that are not theft. No retail chain has the staff or hours necessary to sift through that much video to find the real sweethearting events."

Other interviewees also pointed to false alarm rates as the main factor that will make video analytics for sweethearting unusable.

"It is my belief that video analytics still have a very long way to go," added Stothers. "The problem with using analytics for security is that the false alarm count needs to ideally be zero, and this seems totally impossible. Too many false alarms and you won't even bother turning it on; quite a common occurrence. For example, depending how busy the store is, an operator can scan up to 1,000 items an hour. In a large scale retailer with hundreds of stores, even a decimal false alarm rate will generate thousands of alerts each week. The problem is: most chains simply don't have the manpower to manage this amount of input so the system would get quickly turned off. "

Video analytics providers, such as Stoplift are aware of this problem. "We do a number of things to make sure we give as much actionable results as possible — our subscription model

Sweethearting, a form of fraud in which the cashier passes items without scanning them, is one of the most common forms of fraud involving employees and very difficult to catch. Image courtesy of StopLift.

includes validation by analysts who examine only incidents identified as potentially suspicious by our algorithms. This hedges the false positive risk for the retailer. As an example of how efficient our system is, using less than a dialup line's worth of aggregate bandwidth, our end-to-end system is able to deliver results which retailers themselves report as 99-percent accurate and actionable," Kundu said.

FUTURE PROSPECTS

Technological improvements, among them the growing use of IP equipment, will make integrations easier.

"Going forward, increasingly we'll be able to get data directly from central computers, as opposed to connecting with every register. Connecting with every register right now is somewhat of a hardware nightmare. The challenge will get easier as data exchange formats mature and we see more IP adoption," predicted Erickson.

Together with the growing adoption of IP infrastructure, more and more integrations will be possible. These integrations of different systems will allow retailers to gain insights and benefit beyond loss prevention.

The combination of POS data, video footage, video analytics, and data mining will help retailers not only curb shrink, but more importantly get a more complete understanding of their clients, what they buy, where, and how. a&s