LOSS PREVENTION

ONE INFRASTRUCTURE, MANY USES

Susan Reda | July 30, 2014

The Kroger Co. develops enterprise IT architecture system with help from strategic partners

The idea of leveraging loss prevention technology for store operations and analytics has been a hot topic for years. But when the conversation shifted to actual examples, the silence was deafening — until now.

Earlier this year The Kroger Co. launched a new enterprise IT architecture system dubbed Retail Site Intelligence. Working closely with three key partners — product design services company eInfochips, retail IT service provider Wincor Nixdorf and standards alliance ZigBee — the supermarket chain developed a system for its stores that uses industry standard ZigBee "wireless mesh" networks to integrate long-battery-life sensors, handheld devices, point of sale devices and video management software into a next-generation platform.

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Dion Perkins, The Kroger Company

Dion Perkins, research and development engineering manager for Kroger, says there are numerous benefits to digitizing the stores, including increased operational efficiencies and enhancing the customer experience.

Nonetheless, he insists it's the customer who sits at the heart of the project.

"The ultimate goal is to improve customer service and to deliver the best possible shopping experience," Perkins says. "With one infrastructure we're able to roll out new technologies more quickly than having to roll out a new infrastructure each time."

In the beginning …

The decision to build a system that enables multiple business processes was grounded in cost and clarity of vision. "We have several parts of the business and they're all focused on digitizing the store, increasing operational efficiency and improving customer service," Perkins says. "We recognized that if each business unit implemented solutions individually, our support costs would soon get out of control.

"Also, when you consider the size and scale of Kroger — we're an economy amongst ourselves," he says. "Anything that we choose to install is a multimillion dollar decision that has to be managed across thousands of stores. There is a lot of value in many of the new solutions that vendors were bringing to the table, but each required its own infrastructure. There was no single infrastructure that would support all of the desired business initiatives. Having a single infrastructure accelerates future deployments as well as reducing installation and support costs."

Kroger began looking for partners to help them build a system to solve problems and open doors to emerging technology opportunities. The project began on the LP side with the installation of IP cameras and a tailor-made video management system.

This application uses what is reported to be the first device that serves as both a video camera and a ZigBee access point. The camera is integrated into the store's IP network, yielding better camera network scalability and support. It is also the foundation for networking capabilities into existing store systems and will allow Kroger to extend its reach into emerging technologies — essentially accelerating it along the path to a new digital store framework.

Who did what

Although not widely known in retail security circles, eInfochips Security and Surveillance Product Manager Dhaval Shah says his company has extensive experience building custom video monitoring solutions for some of the largest companies in the world, including several in the Fortune 100.

"Our video management software is the core of surveillance at the Kroger stores. Part of the appeal for Kroger was the fact that our software is customizable and a white label product," Shah says. "Kroger wanted a partner who could turn their ideas into products that suited their needs. This required technologies from across the board to be integrated into the product concepts that Kroger had envisioned. We did just that, designing tailored products based on

their specific environment requirements."

The work with Kroger is ongoing, he says. "As the system matures we will continue to challenge ourselves to make improvements."

What ZigBee brings to the table is a low-power, wireless mesh network that supports the integrated ecosystem of technology deployed — and soon to be deployed — at Kroger stores. Each camera is outfitted with four ZigBee access points that enable connections to various sensors including temperature sensors, heat maps and barcode scanners.

Like the eInfochips software, the ZigBee network operates on an open, global standard that allows Kroger to deliver additional customer-centric benefits to shoppers. The sensors and other devices that rely on the network for power are capable of running for five to seven years without battery replacement, contributing to the return on investment.

Wincor Nixdorf's main role in the project was business process optimization. "We served as the commercialization partner who could provide lifecycle services for the solutions," says Steve Cunningham, vice president of sales for North America. "Kroger is extremely good at identifying technology that can bring advantages to the store. We were able to add features and functionality to the product, and we will continue to introduce new ideas based on the global reach and relationships of Wincor."

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Steve Cunningham, Wincor Nixdorf

Benefits stack up

Perkins reports that the supermarket chain is already enjoying benefits resulting from the rollout of RSI. "With the real-time analytics we can immediately improve our operational efficiencies and enhance the customer experience," he says.

One of the first systems Kroger has rolled out is temperature sensors. "You've probably experienced this before," Perkins explains. "You buy a bag of salad one week and it lasts seven, eight days. The next time you buy the salad it only lasts two days. The customer is left wondering, 'What was different?'

"This could have been caused by poor stocking techniques that raised the temperature by a few degrees. Being aware of problems in real time allows us to fix them immediately — giving our customers the best quality product in the industry."

Perkins notes that digitizing the store is key for operational efficiencies. Rather than individuals manually checking temperature quality, the system signals when temperatures move outside established parameters.

Next to be deployed is video management, followed by mobile shopping. With customer service as the over-arching goal, the roll-out of mobile shopping has been fast-tracked. Kroger is currently piloting a dual system that gives consumers a choice of shopping with a handheld device or their

smartphone. The system is so sophisticated that if the battery on a shopper's smartphone is running low, she can grab one of the store's handhelds and it will pull the data from her mobile device into the current session so no previously logged shopping information is lost.

"It's all about making the shopping experience delightful for the customer," says Perkins. "With the data and analytics we're learning how to lay out the store in a way that can be convenient for customers to navigate. We envision customers being able to request assistance on demand using the handheld scanners. And we can also push out coupons to customers, along with other offers, which will help them make more informed decisions."

Peering into the future

Perkins says there are several other projects currently "in the lab" that Kroger intends to roll out in the near future. He emphasizes, however, that unlike past projects, these initiatives can move through the pipeline quickly because the infrastructure required to implement them is already in place.

Frank Berry, founder and senior analyst with IT Brand Pulse, believes Kroger's approach to digitizing the store is both exemplary and likely to be replicated by other large retail chains.

"Most IT products are developed by design teams insulated from the user and application," he says. "Kroger's hands-on involvement in the development process has yielded products that are innovative and tailor-made for digitized store environments.

"They've taken a holistic approach, completely defining the architecture," Berry explains. "The fact they partnered to deploy the world's first IP camera that doubles as an access point for wireless networking is a testimony to the scope of this project. Everyone else has silos of technology that are difficult to integrate. This is a game-changer and it gives Kroger a sustainable competitive edge.

"It's not easy by any means. This has been two years in the making. But I think we're in the very early stages of a trend by large corporations to develop a single infrastructure," Berry adds.

Cunningham also believes others will look to replicate Kroger's set up. "When you get right down to it, RSI is a solution that addresses multiple pain points — not just LP and not just mobile — and it does so while improving customer service, which should be the chief goal for retail companies.

"When you have a solution that enables your manpower to be more efficient, the cost savings begin to add up," he says. "The benefits Kroger is enjoying now just scratch the surface compared to what's ahead."

While Perkins guards the return on investment figures tied to this project, there's no denying that the company is pleased with the benefits. "There are a lot of different things we have in mind as we look to the future. All I can say is that we don't see an end to the possibilities," he says. "We're looking to increase integration with other systems, and we look forward to more real-time information and real-time analytics. With RSI, the door's wide open for continuing to create the best shopping experience possible."