Intelligent Self-Service Offer Center Reduces Inventory Distortion and Raises Brand Awareness

EXECUTIVE SUMMARY
The primary objective of retailers is to get shoppers to buy, and then buy even more. In this digitally-charged world, persuading customers to spend may require finding new ways to engage them. Acting on this premise, a leading U.S. retailer of home merchandise, apparel and automotive products created a fun and rewarding shopping experience that combines digital signage and mobile phones. The centerpiece is an intelligent self-service offer center, from which customers can download special offers to their mobile phones. The solution plays targeted advertising in high traffic areas and provides ways to reduce inventory distortion, raise brand awareness, improve cross-selling and increase customer understanding.
KEY BUSINESS OBJECTIVES
Correct inventory imbalances and find new ways to motivate customers to buy.

MEETING NEW MARKET DEMAND
In a recent Forbes article, contributor Lisa Arthur, CMO of Aprimo, presents key insights into how digital technologies are creating new opportunities to influence customer behavior. “Customer engagement must be relevant and real time. Technology enables retailers and brands to present customers with better, more fitting (more “intelligent”) offers on a 1:1 basis. We’re learning that combining analytics, social media and integrated marketing management (IMM) software creates greater impact and a better customer experience overall – because that customer experience is informed by insightful data. By harnessing the power of the socialization of data and intelligent 1:1 marketing, retailers can appeal to them with meaningful offers delivered when they’re ready to buy.”

Arthur adds, “Already, research suggests that digital platforms influence half of all in-store purchases, and no one is predicting that percentage is going anywhere but up. Forward-thinking retailers will seize the opportunities to incorporate digital technology in their stores via mobile devices, interactive displays, entertainment and other innovations to improve the customer experience.”

WHO WILL BENEFIT FROM THIS SOLUTION
The intelligent self-service offer center integrates various digital technologies, which benefit retailers, brands and customers.

Retailers can promote overstocked products to reduce inventory imbalances, play targeted advertising to raise brand awareness, suggest other purchases to increase cross-selling, promote their mobile and loyalty applications, and collect anonymous customer demographic information to better understand the customer base.

Brands can offer special promotions without incurring the cost of printing and distributing them, and improve success rates for new products by boosting brand awareness at the point of sale.

Customers can learn about in-store promotions and easily download and redeem offers.
THE BUSINESS CHALLENGE
The retail industry faces several significant business concerns related to managing inventory and motivating customers to buy:

• **Reducing inventory distortion:** Inventory imbalances can take a big bite out of profitability when overstocks must be deeply discounted in order to sell them, or out-of-stock items result in lost sales.

  According to the IHL Group, this combined annual cost is estimated at $818 billion, increasing by $50 billion each year.²

• **Raising brand awareness:** It’s a crowded market, so retailers and brands need to find new ways to stand out.

  “Customers are expecting more of an experience, an emotional connection – they’re not just doing functional shopping,” says Sarah Dear, managing partner at marketing consultancy Elmwood.³

  According to Rebecca Thomson, senior features writer at Retail Week, “The growth of online retail has accelerated traditional retailers’ need to boost their brands and communicate a clear idea of what their business stands for. A strong brand and good store experience are obvious ways to differentiate and defend themselves from pure-plays.”¹

• **Improving cross-selling:** The in-store experience, with a wide assortment of products on display, is purposely designed to get customers to buy additional products, thereby increasing sales.

  However, “Cross-selling and upselling are two of the most difficult activities to do well and effectively measure. Of course, measuring conversion rates for cross-sell/upsell can be ridiculously complicated, and depends on what kind of cross-sell/upsell solution you’re using,” says Linda Bustos, Director of Ecommerce Research at Elastic Path.⁴

• **Increasing customer understanding:** Compared to online sellers, who can easily analyze web page visits, clicks and purchasing patterns, brick and mortar stores have to invest more effort into collecting comparable customer data in order to understand purchasing behaviors.

  “Going forward, it won’t be enough to know that a certain customer bought a shirt from your store last month or that they “liked” your brand’s Facebook page last week. Retail marketers now need to combine and analyze these data points plus others, from a variety of different resources, in real time,” says Lisa Arthur, CMO of Aprimo.¹

SOLUTION OVERVIEW
With the help of Intel and nGage Labs*, the retailer developed an intelligent self-service offer center that allows customers to receive offers on their mobile phones and then redeem them wirelessly at the point-of-sale (POS) terminal. Based on an interactive digital sign, the solution connects to the retailer’s legacy systems and supports a mechanism to measure and analyze customer responses to advertising and promotional offers. This capability is enabled by Intel® Audience Impression Metric Suite (Intel® AIM Suite), an audience detection technology that processes images captured by an optical sensor mounted to the front of the digital sign. The technology collects customer demographic information and dwell times - all anonymously and while respecting viewer privacy.

This gender and age range information can be used to deliver advertisements that are targeted for the viewer. Moreover, retailers and product manufacturers can access impression counts, viewer demographics, dwell times, purchase information and other quantitative data that indicates the effectiveness of promotions. This capability, as well as common metrics used by advertisers, such as proof of play and proof of impression, is supported by Intel AIM Suite running on Intel® processors.

**Key Features**
- The solution is fun and easy to use.
- Customers can redeem offers in stores or online.
- Mobile phone app drives participation in loyalty programs.
- Offers are targeted, increasing interest, redemption rate and sales uplift.
- Retailers get metrics that allow for quick optimization of the campaign.
- Transparent integration with the backend retail systems enables advanced promotions.
How It Works
The primary usage model for the intelligent self-service offer center is described in the following and illustrated in Figure 1:

- **The retailer’s mobile app**: Before customers can have special offers sent to their mobile phones, they must first download the retailer’s mobile App. The intelligent self-service offer center guides customers through this process, providing instructions to send a PIN to a shortcode (63370) using SMS (short message service) to authorize the download.

- **Targeted advertisements**: When customers walk in front of the self-service offer center, it detects their age range and gender with Intel AIM Suite. This information, along with location and time of day, is used to play targeted advertisements and offers.

- **Offer selection**: When customers want to receive the offer promoted on the digital sign, they wave their phones in front of the sign. This is called Wave2Save.

- **Authentication**: An optical sensing package in the digital sign detects the wave pattern and sends a message to the nGage Labs Digital Media Bridge containing the selected offer and the fingerprint of the customer’s wave. At the same time, the accelerometer in the customer’s phone also detects the wave pattern and sends a message to the nGage Labs Digital Media Bridge with the fingerprint of the customer’s wave. Both fingerprints are then compared by the media bridge.

- **Offer download**: After matching the fingerprints, the nGage Labs Digital Media Bridge sends the requested offer to the customer’s mobile phone along with any other cross sell or individually targeted promotions.

- **Purchase decision**: The customer shops and decides whether to buy the promoted item(s).

- **Checkout**: The customer brings the item(s) to the checkout register and shows her/his phone to the cashier, who enters codes to redeem the special offer. Once the transaction is completed, a receipt is sent to the customer’s phone. The retailer has the option of implementing nGage Labs’ Wave2Save application and mobile phone interface, which allows customers to wave phones at the POS terminal to redeem offers, thus eliminating manual steps.

Other capabilities
The intelligent self-service offer center also supports the following customer services:

**Figure 1. Primary Usage Model for the Intelligent Self-Service Offer Center**

1. Customer waves phone in front of sign to receive offer
2. Offers targeted to customer based on shopping preferences
3. Customer selects items based on received offers
4. Customer waves phone at register to redeem offers
5. Customer receives digital receipt on their phone
Interactive Directory: View the store floor plan and find departments, bathrooms, etc.

Product Way Finder: Look up a product and get turn by turn directions to its location.

Offer Center: Navigate and search through offers, and have those of interest sent via SMS or Wave2Save to a phone.

The intelligent self-service offer center solution helps address several challenges facing the retail industry by:

Reducing inventory distortion by intelligently promoting merchandise.

> When the self-service offer center solution is tied to the inventory management system, retailers can make special offers on overstocked or seasonal items that must be sold quickly and cease advertising out-of-stock items, with the option of suggesting alternative products.

Raising brand awareness on products by playing targeted advertising or presenting special offers.

> Intel AIM Suite collects and analyzes anonymous demographic information, which can be used to play targeted advertisements to customers, showing them products of interest and making special offers that encourage them to consider buying.

Improving cross-selling by showing information on other relevant brands.

> The self-service offer center solution can suggest additional items to purchase based on historic purchase patterns furnished by the retailer’s business intelligence systems and anonymous customer demographics information supplied by Intel AIM Suite.

Increase customer understanding by driving mobile app downloads and collecting anonymous customer demographics data.

Cross tabulating data from Intel AIM Suite, actual sales receipts and the mobile phone app provides a full “closed loop” measurement of the effectiveness of spending on digital marketing campaigns.

TECHNOLOGY

The intelligent self-service offer center combines the offerings from several solution providers:

nGage Labs: In support of the intelligent self-service offer center, nGage Labs enabled the management of the kiosk, the campaigns, the cross-sells and the analysis of each offer. Overall, nGage Labs provides retailers, their suppliers and advertisers the ability to execute direct to consumer incentive and coupon campaigns via mobile devices through a solution that is both convenient to use and effective to operate. This new, unique and ground-breaking solution utilizes innovative network security technology, advanced predictive modeling techniques and robust marketing campaign management to allow consumers to receive, select and redeem coupons via POS devices and digital signs. Retailers are able to accept mobile coupons without the need to scan barcodes on the phone display or have cashiers validate promotions by keying a promotion code into the POS. The solution thereby eliminates the most challenging obstacles to the broad adoption of mobile coupons: ease of redemption and the ability to effectively target market promotions. The nGage Labs platform enables the retail marketing department to execute on innovative omni-channel campaigns without direct involvement from IT or merchandising departments by providing robust integration with retailers’ legacy systems.

Dynasign*: Dynasign is a leading digital signage content management software developer and service provider. Dynasign offers simple, effective and powerful Digital Signage Software as a Service (SaaS) platform, Dynasign Online* that can be tailored to customer business needs. Dynasign lets customers establish digital signage networks, ranging from a few screens to thousands of screens, without the need to purchase or manage any server hardware or software. Dynasign’s open content architecture allows “out-of-box” integration with content sources from RSS feeds, XML files, databases and Web 2.0 applications.


Intel: Intel AIM Suite is a unique, cutting-edge technology that delivers real-time audience measurement and analytics for marketers, retailers, brands and digital advertising network operators. When digital screens are used for messaging, promotions and advertising, Intel AIM Suite provides objective, quantitative measurement and actionable analysis of the numbers and behaviors of people looking at those screens.

Peerless Industries, Inc.*: Peerless Industries, a leader in the audiovisual mounting industry for over 40 years, provides innovative mounting solutions that focus on quality, ease of installation and functionality while providing an aesthetically pleasing look and, ultimately, the best value. Peerless offers the most comprehensive line of video/audio mounts and installation accessories for residential and commercial markets. Peerless’ line of mounting equipment includes a broad selection of solutions for televisions and VCR’s, LCD and plasma screens, monitors, projectors, speakers and more.

SaddleRanch*: SaddleRanch is an advanced media content company providing interactive and dynamic digital signage.
### Systems Integration

The nGage Labs solution integrates with the retailer’s backend system via automated import capabilities and real-time web services. For the solution featured in this paper, offers are distributed by the retailer and imported into the nGage Labs solution, which handles the importing of products, department hierarchy, pricing rules, offers, etc.

To simplify integration, an enterprise gateway can be used to import data from backend systems directly into the nGage Labs system. This schema was modeled after a collection of existing backend solutions, like JDA’s Merchandise Management System (MMS) and SAP. The retailer, on the other hand, sends offers directly to nGage Labs and has the option of automating the import process in the future.

Once the initial import jobs are set up, which ties into normal data flow for most retailers, the marketing staff can operate their campaigns without any assistance from IT or merchandising, if they choose. Marketing gets access to the data they need right in the system, and they can create and change their campaigns without having to request reports, more data or new offers.

### Wave2Save Application

Android and iOS (Apple*) mobile phones are supported, and they are sensed by a Microsoft Kinect* sensor and a Logitech* camera mounted on the front panel of the intelligent self-service offer center. Aside from the sensor and the camera, all other equipment is standard on any digital sign.

It’s important to make sure the right customer gets the offer download, especially in environments with a lot of wireless users and signals. When customers wave their phones, 99 percent of the time a match is confirmed using location and time-based algorithms. In order to increase the success rate further, two fingerprints are created by the accelerometer in the smart phone and the sensor on the digital sign, and are compared in the cloud to verify a match.

### Anonymous Viewer Analytics (AVA)

Intel AIM Suite adds powerful data collection and audience measurement tools to a digital signage network. By providing valuable metrics that were previously unavailable, retailers, brands and media companies can better understand audience characteristics such as actual impressions, length of impressions, potential audience size, and gender and age range demographics.

These metrics can help marketers determine the best locations for displays, tailor screen content based on audience characteristics and understand audience engagement levels. Intel AIM Suite enables marketers to objectively measure advertising effectiveness – information that can be used to identify actionable steps to boost their return on investment (ROI).

On a regular basis, the intelligent self-service offer center uploads data to the Intel AIM analytics system in the cloud. nGage Labs retrieves the data and sends it to the nGage Labs business intelligence engine, a reporting tool for analysis.

### Near Real-time Analytics

Retailers can quickly analyze any campaign using near real-time analytics. For example, if a new offer page is displayed in the tools department, within a few minutes the retailer gets data on the number of impressions, how many customers wanted the offer, and the number of distributions and redemptions, among other things.

This functionality reduces costs by allowing the marketing staff to easily measure the effectiveness of a campaign and make changes with confidence, all within a very short time period. The data is presented to them quickly and in an easy to understand manner, thus allowing the staff member to be much more efficient in campaign planning and management. Prior to this solution, it could take days to deliver this kind of data to the right person and then more time to make changes. Most importantly, this capability allows retailers to develop highly optimized campaigns that achieve key sales objectives, like basket size, redemption rates of offers, etc.

### Targeted Advertisements

When consumers walk up to the intelligent self-service offer center, they see targeted offers based on their age range, gender and the locations of the sign. Once customers choose to “interact” with the system, they will be shown targeted cross sell offers as well. nGage Labs’ real-time matching engine provides this targeting capability by looking at the attributes of the consumer and finding the best offer to send to that consumer.

### Remote Management

The intelligent self-service offer center can be remotely managed using Intel® Active Management Technology (Intel® AMT)*. This technology enables retail IT departments to remotely monitor, diagnose and repair systems, thus minimizing costly onsite repair visits. Technicians can power-cycle machines and repair software issues, along with other device management tasks. A keyboard-video-mouse (KVM) feature allows technicians to control the system as if they’re sitting right in front of it, even when the operating system does not respond or the system is down (i.e., blue screen).
Comprehensive Data Protection
Business-critical or customer-confidential information can fall into the wrong hands if the data on retail systems is not properly safeguarded. McAfee offers several products that provide multiple layers of protection against data loss and unauthorized access.

- McAfee® Endpoint Encryption is the cornerstone of data protection since it encrypts data throughout the retail environment, including retail systems, network files and folders, removable media, and USB portable storage devices.

- McAfee® Device Control protects critical data and systems by controlling the use of removable media, as in preventing an unauthorized individual from downloading data from a retail system onto a USB drive, DVD or other removable storage device. The software provides tools to monitor and control data transfers between retail systems and removable media, and it integrates with McAfee® ePolicy Orchestrator® (McAfee ePO) Deep Command® to facilitate the monitoring of critical usage data, such as device, time stamp and data evidence. Retail IT organizations can specify in detail which devices can be connected and what content can and cannot be transferred with removable storage.

For retailers looking for assistance in deploying the capabilities discussed in this solution blueprint, the Intel® Retail Solutions Partner Network comprises industry-leading vendors with expertise in many key areas, including hardware, software, content creation, deployment and networking.

EMPOWERING A NEW WORLD OF RETAIL INNOVATION

The retail industry is in the midst of a dramatic information revolution that is laying the groundwork for new consumer experiences, enhanced productivity, reduced inventory distortion and brand optimization. Intel is addressing this transformation with the Intel® Intelligent Systems Framework, a set of interoperable solutions designed to facilitate connecting, managing and securing devices in a consistent and scalable manner.

What can emerging intelligent retail systems do? Imagine an intelligent store where incoming weather data indicates a severe storm approaching. The store’s digital signs and kiosks immediately begin promoting items commonly purchased during storms, like umbrellas, and prices are adjusted to reflect the predicted increase in demand. Price updates are transmitted to electronic shelf labels and the back office. Data from checkout confirms umbrella sales are increasing, causing immediate alerts to the stockroom. The store’s warehouses and key suppliers send shipments to replenish the shelves.

The Intel Intelligent Systems Framework helps simplify the deployment of intelligent systems and enables retail OEMs to shift their investments from achieving interoperability to unlocking the value of data. The framework features fundamental capabilities, delivered by components that address connectivity, manageability and security, including software and middleware from Wind River® and McAfee®.

For more information, visit www.intel.com/content/www/us/en/embedded/intelligent-systems.html.
Intelligent Self-Service Offer Center Reduces Inventory Distortion and Raises Brand Awareness

**SUMMARY**

There’s no doubt the digital age is having a tremendous impact on retailing. Customers, equipped with powerful mobile phones and applications, are coming into stores and looking up product reviews, searching for the lowest price and getting real-time advice from friends and family. In order to maintain their influence, retailers need to embrace digital trends and market to customers using new, innovative solutions.

The retailer featured in this solution blueprint is taking the lead by introducing an intelligent self-service offer center capable of interacting with mobile phones and playing targeted advertisements based on demographics data supplied by Intel AIM Suite. In addition to being fun and captivating, the solution can help reduce inventory distortion by correcting inventory imbalances and motivate customers to make purchases by raising brand awareness.

**RESOURCES**

Intel Retail Solutions Partner Network

Redefining what’s possible, leading solution providers have come together to address the specific needs of retailers, whether it’s consulting, content creation and management, retail systems, hardware customization, deployment support, network management or cloud-based services. The Intel Retail Solutions Partner Network provides one-stop shopping for cutting-edge technologies that deliver new consumer experiences, enhanced productivity, reduced inventory distortion, brand optimization and more. To learn more, visit intel.com/retailsolutions.

2 IHL Group Report: $818 Billion Lost Annually in Global Retail “Inventory Distortion”; 2012.
3 Source: http://www.retail-week.com/analysis-how-can-retailers-raise-brand-awareness/5040276.article.
5 Intel® Active Management Technology (Intel® AMT) requires the platform to have an Intel AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. With regards to note books, Intel AMT may not be available or certain capabilities may be limited over a host OS-based VPN or when connecting wirelessly, on battery power, sleeping, hibernating or powered off. For more information, see http://www.intel.com/p/en_US/embedded/hwsw/technology/amt.

INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, TO ANY INTELLECTUAL PROPERTY RIGHTS IS GRANTED BY THIS DOCUMENT. EXCEPT AS PROVIDED IN INTEL’S TERMS AND CONDITIONS OF SALE FOR SUCH PRODUCTS, INTEL ASSUMES NO LIABILITY WHATSOEVER, AND INTEL DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY, RELATING TO SALE AND/OR USE OF INTEL PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. UNLESS OTHERWISE AGREED IN WRITING BY INTEL, THE INTEL PRODUCTS ARE NOT DESIGNED NOR INTENDED FOR ANY APPLICATION IN WHICH THE FAILURE OF THE INTEL PRODUCT COULD CREATE A SITUATION WHERE PERSONAL INJURY OR DEATH MAY OCCUR.

Intel may make changes to specifications and product descriptions at any time, without notice. Designers must not rely on the absence or characteristics of any features or instructions marked “reserved” or “undefined.” Intel reserves these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The information here is subject to change without notice. Do not finalize a design with this information.

The products described in this document may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request. Contact your local Intel sales office or your distributor to obtain the latest specifications and before placing your product order. Copies of documents which have an order number and are referenced in this document, or other Intel literature, may be obtained by calling 1-800-548-4725, or by visiting Intel’s Web site at www.intel.com.

Copyright © 2013 Intel Corporation. All rights reserved. Intel, the Intel logo and Intel Core are trademarks of Intel Corporation in the United States and/or other countries.

* Other names and brands may be claimed as the property of others.