Empowering Retail Transformation with Advanced Digital Solutions

Intel® technology continues to enliven the consumer shopping experience while improving merchants’ operational efficiencies and marketing effectiveness.

Overview

With its advanced digital technology, Intel is transforming shopping in visionary ways that benefit both retailers and consumers.

Long recognized for its array of intelligent systems that enliven and empower the retail digital infrastructure, Intel today is creating breakthroughs in mobile technology that will make the shopping experience more exciting and efficient.

At the same time, Intel continues to expand its worldwide ecosystem of solution developers who are creating ways to use Intel® processors and platforms to drive innovation across the retail landscape. In showrooms, store aisles, and warehouses alike, solutions based on Intel® technology are helping retailers refine marketing campaigns, improve inventory controls, and create more operational efficiencies for stronger bottom lines.

With mobile devices destined to become even more powerful, Intel is positioned to lead this new phase of the retail revolution. As smartphones and tablets gain greater ability to interact with digital touchpoints throughout the retail environment—generating, collecting, analyzing, and displaying unprecedented amounts of data—the entire digital infrastructure becomes connected, secure, and managed by Intel® technology.

Throughout the retail industry, innovative solutions based on Intel technology are creating powerful new connections between consumers and retailers, online and physical shopping channels, and loading docks and checkout lines. And the future of retail is all about connecting.

Bricks, Mortar, and Mobile

With Intel technology, both the retail digital infrastructure and shoppers’ mobile devices gain speed, power, and flexibility.

The ability to process large amounts of data can dramatically enrich the shopping experience in a world where consumers can access product details and make purchases from digital signage. Merchants collect valuable marketing data about shopper preferences and demographics using the same interaction.

Intel’s foothold in mobile chip technology is the ultra-low-voltage Intel® Atom™ processor, featuring architecture that will change the face of mobile technology. In fact, the influential MIT Technology Review recently named Intel as one of 2013’s “most disruptive” companies in the world because its mobile technology is so advanced it has the potential to “disrupt” the entire mobile technology market (see sidebar).

With the convenience and faster processing of today’s mobile devices, consumers will do more anywhere-anytime purchasing, which has been a strong technology driver in transforming the retail industry. Future viability of brick-and-mortar shopping is the industry’s greatest challenge, which is why Intel is working with leading retailers and solution developers to make the in-store shopping experience as easy and exciting as using a mobile device.
A Virtual Shopping Trip
Retailers around the world are deploying Intel technology-based digital infrastructures in many scalable configurations. But whatever form the deployment takes, shoppers interface with Intel’s digital technology from the moment they enter the store. Here are some of the ways:

On Digital Signage
Intel’s leadership in technology has been key to the development of highly effective and flexible digital signage. Whether on video walls, kiosks, shelf displays, or vending machines, these rich and immersive images quickly capture shoppers’ attention and can even allow direct interaction. Some examples are:

- Adidas employed an Intel technology-based interactive video wall to launch a line of sports shoes. This enabled customers to view images of the shoes, learn their features, select sizes and colors, check inventory, and actually purchase the shoes, all at the digital display.
- Metro Group, the world’s fourth-largest retailer, used Intel technology to develop powerful video-enabled aisle displays to direct shoppers’ attention to specific products and promotions.
- CopiaMobile and Intel developed a powerful mobile app for in-store use. Utilizing digital signage, social media, and mobile devices, the app sends special in-store promotions to shoppers, who can redeem offers wirelessly at on-site point-of-sale (PoS) terminals.

Intel has provided digital technology for solutions developed in conjunction with industry leaders such as Coca-Cola, Best Buy, Proctor & Gamble, and Kraft Foods to enliven their digital infrastructures. Solutions based on Intel technology are providing them with beautiful and immersive virtualized environments—plus the ability to gain insight from rapidly expanding amounts of data.

In the Showroom
Using solutions based on Intel technology, retailers can help offset the burden of so-called showrooming—where in-store shoppers select items to purchase and then buy them elsewhere online—by creating appealing virtual showrooms. For example, Intel has collaborated with augmented-reality specialist YDreams and social-media application developer BetaPond to create virtual showrooms especially optimized for large-appliance retailers who face significant inventory challenges due to the nature of the products they sell.

Large-screen, interactive kiosks feature full-size images on high-definition touchscreen displays, eliminating the need for actual physical products. Customers can experience products first-hand while obtaining model and specification information. For example, vibrant images let shoppers “look” virtually inside refrigerators, experiment with television controls, and compare color combinations.

Meanwhile, these interactive displays are integrated with back-end systems for order fulfillment, inventory management, and customer information. This reduces the retailer’s need for showroom space, while lowering capital costs associated with appliances that often remain in local inventory for 100 days or more.

Along the Shopping Aisle
Intel and its solution partners also are helping retailers improve sales on one of the most important in-store touchpoints, the store aisle.

Intel technology-based intelligent shelf solutions give retailers the ability to simultaneously send new and revised product descriptions and pricing to thousands of LCD-based labels along product shelves, significantly lowering the costs of physically updating price tags.

Planograms, which are visual representations of a store’s products or services, are important for determining and maintaining effective shelf displays, but complying with them can be an ongoing challenge. Intel and Carnegie Mellon University provided a solution using digital image-recognition technology to ensure products are displayed appropriately.

This means retailers can reduce inventory distortion through planogram compliance and monitoring, plus it helps them create store-specific planograms for new products and changes in shelf configurations—saving labor, time, and money.
Precision Digital Marketing
Intel technology helps retailers offer stunning visual displays that help shoppers interactively select and purchase items. At the same time, these Intel technology-based displays can improve marketing’s effectiveness in amazing ways—all due to the two-way exchange of information that digital technology makes possible.

For example, consider this digital-signage-based promotional campaign:

- Using the Intel® Client Manager (Intel® RCM), marketers can design promotional content using video, still images, audio, text, or any combination. They can easily input and circulate the campaign to the digital displays—from large video walls to small shelf displays—by defining the number and location of the signs.
- Using the Intel® Audience Impression Metric Suite (Intel® AIM Suite), marketers can quickly determine if the campaign is attracting the desired demographic. This powerful software is based on anonymous video analytics (AVA) technology for detecting viewers’ age group, gender, and viewing duration.
- Marketers then can use the Intel RCM to easily revise promotional messages based on these findings. Revising is quick and immediate, so marketers can continually test and improve promotions for greater ROI.

Solutions such as these draw upon Intel’s extensive experience in proven, broad-based infrastructure tools such as Intel® Active Management Technology (Intel® AMT), a powerful solution for remotely managing and repairing networks and the devices connected to them.

Many retailers use Intel AMT for updating their networked devices, shutting them down on a schedule to conserve power, and performing maintenance on digital devices to keep them operating while saving the cost of on-site repairs.

Improved marketing effectiveness comes from the consumer data these digital devices can collect and analyze. Never before have marketing campaigns and product promotions been so personalized, directly addressing the preferences of shoppers, individually or in categories. The value of solutions such as Intel RCM is in being able to effectively communicate with shoppers at the moment when they are most receptive.

Digital-Empowered Warehouses
Retail’s digital revolution extends from shiny showrooms and merchandise-laden aisles to warehouses where Intel technology is helping curb inventory distortion—primarily out-of-stock and overstock conditions—that costs retailers worldwide several billion dollars a year.

Using Intel technology to connect digital display devices to back-office stocking systems provides efficiencies and inventory safeguards never before available. Examples are:

- **Shelf detectors** that ensure optimum product placement, and advanced PoS terminals that analyze post-sale stock levels.
- **Inventory-monitoring systems** that automatically adjust product pricing, on store shelves and websites, to reflect overstock conditions.
- **Interactive displays**—featuring newly announced products—that track customer preferences so inventory levels are accurately aligned with demand, reducing the challenge of over- or under-stocking new products.

Tightening the data relationship between marketing activities and product stock levels is vital to reducing retail inventory distortion. With Intel technology-based intelligent systems, marketing can track customer behaviors related to specific products and relay the information to the warehouse, where inventory systems can detect pending threats of under- or over-stocking.

Making Omni-Channel Real
In this era of diverse purchasing methods, retailers are adopting an omni-channel strategy to present a seamless brand experience for their customers, whether shopping online or in store aisles. Connectivity, compatibility, scalability, and security remain critical to successful operation of an omni-channel, which is why solution developers are turning to Intel.

SHAKING UP MOBILE TECHNOLOGY
An influential observer of the technology industry, the MIT Technology Review recently named Intel as one of 2013’s “most disruptive” companies, based on Intel’s potential to dramatically shake up the mobile technology market.

Specifically, MIT editors cited that Intel’s new generation of powerful, high-performance mobile microprocessors are capable of improving mobile technology to the extent of altering the market’s leadership rankings.

In 2012, when the MIT review first listed its top 50 disruptive companies, its editors took note of Intel’s growing presence in mobile technology by stating the company “has reinvented transistor architecture as it continues to shrink the size of devices on a chip.”

Also at that time, the MIT editors acknowledged that Intel’s 3-D transistors, which will be used in a new generation of 22-nanometer chips, will have disruptive, market-changing potential. Those chips are now in production.
The Intel® Intelligent Systems Framework offers industry-standard compatibility and security among diverse components. While serving effectively as the backbone of the omni-channel, this framework provides important benefits for the retail digital infrastructure. Protecting the omni-channel's systems, networks, and data remains critical, and Intel provides a comprehensive range of security capabilities with additional security solutions from McAfee for protection against attacks, viruses, and malware.

Intel's ecosystem of system vendors, ISVs, system integrators, and cloud-to-device services builds on the Intelligent Systems Framework and works closely with the Open Data Center Alliance to ensure seamless integration of intelligent systems throughout the omni-channel and the entire retail digital infrastructure.

Conclusion
Intel and its partners continue to define the technologies that are transforming the retail industry so shoppers can find and buy the products they want more quickly and efficiently. These advanced Intel technologies also help retailers meet the demands of consumers, retain satisfied customers, improve operational efficiencies, increase margins, and boost profits.

For More Information
- Transforming Retail Spaces into Experiences: www.intel.com/content/www/us/en/retail/retail-overview.html

Mobile devices continue to gain popularity for both online and in-store purchases. Faster throughput due to powerful Intel® technology will expand the use of mobile devices anywhere, anytime.

To learn more about Intel Retail Innovations, visit www.intel.com/content/www/us/en/retail/retailsolutions.html

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1 Requires activation and a system with a corporate network connection, an Intel® AMT-enabled chipset, and network hardware and software. For notebooks, Intel AMT may be unavailable or limited over a host OS-based VPN, when connecting wirelessly, on battery power, sleeping, hibernating, or powered off. Results dependent upon hardware, setup, and configuration. For more information, visit www.intel.com/content/www/us/en/architecture-and-technology/intel-active-management-technology.html.

2 MIT Technology Review, 50 Disruptive Companies 2013, www.technologyreview.com/tr50/2013 INFORMATION IN THIS DOCUMENT IS PROVIDED IN CONNECTION WITH INTEL® PRODUCTS. NO LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, 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. Copyright © 2013 Intel Corporation. All rights reserved. Intel, the Intel logo, Intel Atom, and Intel Core are trademarks of Intel Corporation in the U.S. and other countries.

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