

DRIVING RETAIL SUCCESS WITH TECHNOLOGY INNOVATION

New systems, standards and methods — supported by a solid IT infrastructure — deliver a competitive advantage in a challenging shopping environment.

Executive Summary

Retailers face an ever-evolving shopping environment and daunting competition in which customers have more options than ever before. By taking advantage of the latest technologies, a retailer can thrive in this environment.

For example, point-of-sale and mobile technologies can greatly improve customer service and enhance the experience for shoppers. Meanwhile, Big Data analytics can improve decision-making and streamline operations, while customer relationship management (CRM) software can boost sales. The variety of retail technologies is wide, and the benefits they deliver can provide a significant advantage over retail competitors.

Yet, before investing in and deploying any new technologies, a retailer must ensure that its back-end IT infrastructure is capable of supporting the new demands that will be placed on it. The technologies that can enhance customer experience, improve sales and boost efficiency can't do their job if they're not supported by the right network and data center investments.

Retailers also must ensure that front-end solutions integrate effectively with back-end systems and that every element of the IT environment meets their security needs.

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The Promise of Next-generation Technology

In recent years, the balance of power in retail shopping has shifted rapidly away from sellers and toward well-informed, mobile and socially connected consumers. The once sharp line delineating in-store retail and e-commerce blurs as on-the-go, tech-savvy shoppers research, browse, try on and transact wherever and whenever they please.

While many retailers view technology — particularly the web — as a threat, farsighted decision-makers view technology as a tool that can be used to attract and retain customers while increasing sales and improving profitability. Often, a once-feared technology can actually turn out to be a useful sales tool. [Market research firm yStats](#), for example, reports that in 2014 more than half of consumers with Internet access researched products in-store before buying them online, yet an even larger share searched for information online and then purchased an item in-store.

Today's new market reality is forcing retailers to become more sophisticated and imaginative in how they attract and engage customers, predict demand, manage and move inventory and integrate their physical, virtual and mobile selling channels. Many retailers have decided that the best approach to remaining competitive in the digital age is to adopt advanced IT systems and related technologies.

Retailers are expected to spend more than \$190 billion on IT in 2015, according to a [report from global research company IHL Group](#). It's easy to see why retail IT spending is skyrocketing: Technologies ranging from sophisticated point-of-sale platforms to omnichannel marketing and Big Data analytics are improving efficiency and profitability, while opening the door to new customers in both domestic and international markets and helping retailers build stronger and deeper bonds with their existing customers.

4 out of 10

The number of consumers who are open to purchasing any type of product online

SOURCE: Walker Sands Communications, [Reinventing Retail: What Businesses Need to Know in 2015](#), February 2015

Point of sale: Remember stand-alone cash registers? They have joined typewriters, dictation machines, analog PBX phone systems and fax machines in the business technology graveyard. A new generation of networked POS technologies has arrived to make payments faster, easier and potentially more secure for both consumers and retailers.

A modern, networked POS system enables a high level of control over retail operations, increasing efficiency and boosting profits. POS systems are useful for processing exchanges and generating sales reports, as well as collecting valuable customer information. When inventory management is integrated into a POS system, both online and in-store kiosk shoppers can quickly learn whether the product they are hoping to purchase is actually in stock and available for immediate delivery.

POS systems also bring a store's staff in contact with customers as they make their purchases. If the transaction is positive, the customer generally leaves the store with a good impression. This makes it important for a retailer to invest in a user-friendly POS system that an associate can navigate simply, promptly and effectively.

Many retailers have deployed mobile POS systems to add even greater functionality. With users able to help shoppers anywhere

MAXIMIZING POST-SALE CUSTOMER INTERACTIONS

When [nTelos Wireless](#) realized that it needed a better way to follow up on new sales, generate leads and improve customer satisfaction at its 65 brick-and-mortar stores spread across Appalachia and the mid-Atlantic, it looked for a customer relationship management solution that would match its needs.

"What we needed was a call-back program that allowed us to reach out to customers to make sure they were happy with the phone and the service they had selected," says Ralph Kirtland, vice president of IT for nTelos Wireless. "We had this type of program in the past, but it was all driven by emails and Post-It notes."

After experimenting with a cloud-based CRM service, nTelos Wireless decided to leverage its existing investment in Microsoft products and adopt Dynamics CRM. "Anything here that isn't a telecom billing app or middleware solution is Microsoft," Kirtland says. "So the fact that Dynamics was made by Microsoft and highly rated by Gartner made our decision a slam-dunk."

With the new CRM in place, nTelos sales staff members are now guided through a series of scripts identifying whom to call and when, the questions to ask and how to record the results. The system has worked so well that nTelos was able to reduce the number of times it needed to contact customers after a sale. Meanwhile, customer referrals have risen and calls for tech support have dropped, saving nTelos tens of thousands of dollars in support costs.

Even better, the number of product returns attributed to "buyer's remorse" dropped by 20 percent within the first 90 days, saving the company more than \$200,000 over two years. "If you catch customers within the 14-day return period, you have a chance to educate them about what's really causing any problems," Kirtland says.



in the store, mobile POS allows for customer-friendly capabilities such as line-busting, while helping retailers maximize efficiency and profits with floor-plan optimization and up-selling.

Omnichannel and UCC: Omnichannel marketing and unified communications and collaboration systems, incorporating a complex mix of technologies, retailer tactics and customer preferences, have become an integral part of the retailer-customer relationship. Taking advantage of online and mobile shopping platforms, social media services, product comment websites, digital signage, instant messaging and a variety of other channels, retailers can now reach out to customers in an almost endless number of ways both online and in-store.

Cutting-edge mobile payment technologies are a particularly important part of omnichannel marketing. By 2018, according to [market research firm IDC](#), 60 percent of omnichannel retailers will have launched customer mobile payment initiatives.

CISCO MERAKI: TOTAL NETWORK MANAGEMENT FROM THE CLOUD



Cisco Systems' Meraki platform helps retailers solve business problems and reduce operating costs by enabling convenient and secure network management, both wired and wireless, from the cloud.

From a single Cisco Meraki dashboard, a retailer can easily manage Wi-Fi access points as well as its entire wired switching and router infrastructure, controlling users, applications and devices. Other features include Intelligent WAN (IWAN) technology, enabling software-defined routing services and advanced analytics capabilities.

Tommy Bahama, a clothing retailer with more than 130 stores and 15 restaurants worldwide, uses Cisco Meraki access points, switches and a security appliance to provide easy centralized network management across all of its locations.

When Ben Bridge Jeweler, a family-operated fine jewelry retailer with more than 75 stores across the western United States, needed to quickly deploy and manage point-of-sale tablet devices in each of its locations, it turned to Cisco Meraki for a secure, cloud-based solution. Ben Bridge is now looking into the possibility of analyzing foot traffic through smartphones and extending branding to customers' Wi-Fi sign-ons.

From guest Wi-Fi to line-busting and inventory management, Cisco Meraki cloud-managed networking lowers operational costs and improves customer experience. Wireless access points, switches and security appliances are optimized for distributed retail locations. Cisco Meraki's intuitive cloud-based management is easy to use and can be deployed in minutes without training or dedicated staff.

Many big retailers are already using omnichannel and UCC solutions. According to [yStats](#), Wal-Mart uses its vast store chain to offer omnichannel options such as shipping purchases from a store directly to customers and allowing customers to pay with cash in a store for items ordered online. Meanwhile, several online options are advancing on the physical space. Groupon and eBay experimented with pop-up stores for the 2014 Christmas shopping season in Australia, and Amazon opened its first staffed pick-up and drop-off location on a university campus in the United States in early 2015.

The growing use of mobile devices inside physical stores is becoming an important factor in omnichannel marketing. Many shoppers now use their mobile devices to compare prices online while shopping in-store, a practice known as "showrooming." An even newer phenomenon — "reverse showrooming" or "webrooming," where customers research items online and then purchase them in-store — plays to the retailer's advantage. A [late 2014 Harris Poll](#) found that while 49 percent of U.S. residents said they have showroomed, 69 percent stated that they have webroomed.

Customer engagement center: Recent decades have seen retailers' call centers morph into contact centers and, more recently, customer engagement centers. The name changes are more than superficial, as today's multichannel customer engagement center is designed to serve customers in the ways they prefer rather than forcing them to adapt to the retailer's technology.

Customer engagement solution providers, such as eGain, offer automated solutions that make it easy for customers to navigate retail websites while giving retailers the ability to interact with customers via a unified communications platform that supports phone, email, instant messaging, online chat and other communication channels. According to [IDC](#), by 2016 the top 150 retailers will improve their return on investment in hyper-personal loyalty based on unified customer engagement.

Big Data analytics: Customers are prized because they buy things. Yet customers also generate another important, but often overlooked, benefit: information. The massive amounts of data that customers produce as they search for, learn about, discuss, review and pay for products can provide retailers with valuable insights — as long as the retailer has the right tools and approaches to make the most of this valuable asset.

Customer-supplied data gives retailers numerous ways of understanding shoppers' habits and preferences via multiple digital touch points — from mobile purchases to social media interactions — that previous generations of retailers could only dream about. Yet massive amounts of unstructured customer-supplied information — Big Data — pouring into a retailer's data center becomes useful only when it is organized into information and then transformed into knowledge. A new generation of Big Data analytical tools helps users make sense of the unstructured data gleaned from social media feeds, blogs, videos and numerous other sources to expand customer intelligence.

Sharp retailers understand that Big Data doesn't flow in only from customers. Employees, suppliers, branch stores, transportation carriers and a wide range of other sources also generate massive amounts of actionable data. To successfully compete in today's consumer-empowered marketplace, retailers must leverage all of their information assets to gain a complete understanding of their markets, customers, products, competitors, workforces and more.

According to an [Information Week survey](#), the three major factors driving interest in Big Data retail analytics are: finding correlations across multiple disparate data sources (48 percent); predicting customer behavior (46 percent); and predicting product or services sales (40 percent).

Mobility and apps: Retail apps play an important role in a mobile-optimized retail world, allowing customers to search for and purchase products while inside a store or just about anywhere. Mobile apps are also useful customer retention tools. Coupons and loyalty programs keep regular customers informed, aware and happy. Meanwhile, mobile payment technologies, such as Apple Pay and Google Wallet, give consumers a fast and convenient way of purchasing products directly from their smartphones or tablets.

[According to mobile analytics firm Flurry](#), mobile shopping app use grew faster than any other category of apps in 2014. Sessions in shopping apps on iOS and Android devices increased by 174 percent year over year — 220 percent on Android alone.

Beacons are one of the most important new mobile technologies helping retailers win back sales to their stores. These low-cost devices deliver welcome messages, shopping hints, coupons and other types of information to customers via smartphone apps indoors over a Bluetooth connection. Hundreds of large retail chains nationwide are now using or testing this technology.

Retail sales associated with beacon technology are projected to grow from \$4.1 billion this year to more than \$44 billion in 2016, according to a [Business Insider Intelligence report](#).

Inventory management: Retailers are increasingly investing in software and infrastructure to better align and automate the management and distribution of goods. Tracking product demand via inventory management systems, based on data fed in from networked POS systems, mobile payment technologies and other sources, offers a more precise method for ordering, storing and restocking merchandise.

With radio-frequency identification technology, for example, retailers can ensure real-time visibility into the number and types of products that are available across locations, creating an enhanced experience for consumers as they shop across channels. RFID also helps in-store employees to better track and update inventory, which lets team members keep a pulse on what products, sizes, colors and styles are available in-store.

Retailers that implement RFID across multiple locations also have the opportunity to turn brick-and-mortar stores into distribution centers, providing more flexible delivery options to consumers, such

40%

The percentage of consumers who say they have used a mobile payment application in the past year

SOURCE: Walker Sands Communications, [Reinventing Retail: What Businesses Need to Know in 2015](#), February 2015

as ship-from-store service, in which shoppers can order items online and have them delivered to their location. Having items shipped from the retail store closest to the customer allows for same-day or next-day delivery service. About 9.2 billion RFID tags will be sold in 2015, up from about 7 billion in 2014, according to market research firm IDTechEx.

Inventory management systems also can be integrated with workforce management solutions to optimize the number of staff needed to handle new tasks. These include ship-from-store service chores where items must be pulled from the shelf, boxed and put out for courier pickup and delivery.

Customer relationship management: The customer intelligence derived from CRM analytics software gives retailers a powerful weapon in their never-ending quest to increase sales. Using customer data to influence and change behavior, with the goal of maximizing customer value, is essential to long-term retail success.

Analytics software also enables retailers to easily build and share reports and analyses based on current and historical data. The insights can then be used to identify trends (at a store, regional, district or company level) regarding labor costs, schedule accuracy, workforce efficiency and more.

Digital signage: Digital signage allows retailers to reach customers with carefully tailored, dynamic messaging. Compared with boring, static signs that need to be reprinted regularly, digital signs save time, energy and other resources while delivering exciting, high-impact marketing messages.

Digital signage can complement current marketing and merchandising strategies to further enhance the customer's shopping experience, build loyalty and boost sales. Digital signage can also be used to provide relevant information to an audience near the point of sale, enabling retailers to generate higher brand awareness and boost their sales.

By selling advertising space and time to suppliers and other businesses, a growing number of retailers are using digital signage to provide a new revenue stream. Such advertising can also help retailers drive more sales.

Digital signage's popularity among retailers of all types and sizes is reflected in its robust adoption numbers. According to [market research firm IDC](#), digital signage in the U.S. retail market is expected

to grow from about \$6 billion in 2013 to nearly \$28 billion in 2018.

Social media: Information obtained from social media sources, including Facebook, Twitter, YouTube and similar services, helps retailers better understand current and potential customers, including their motivations and preferences for buying and using specific types of products.

Social media channels also bring customers into stores. Many retailers now rely on social media to distribute coupons and announce in-store events. Social media technologies can also be used to present videos, podcasts, webinars and other informative content that highlights products, provides advice, promotes the retailer's brand and encourages viewers to become regular store visitors.

The Need for a Robust IT Infrastructure

To effectively implement all of the technologies that are now essential to remain competitive, retailers must have a powerful, reliable back-end infrastructure. Without a robust support platform, a retailer won't be able to maximize its investments in next-generation IT.

Networking

Networks have become the retailer's central nervous system, delivering essential data to business systems, employees, suppliers, stores, branch offices and customers. Retailers without fast, efficient and reliable wired and wireless networks operate at a critical business disadvantage.

A retailer's enterprise network must fully support machine-to-machine communication, interconnecting POS systems, digital signage, inventory tracking technologies (such as RFID readers), mobile devices and an ever-expanding array of other technologies with corporate IT resources.

The more demands a retailer places on its network in terms of data and users, the more bandwidth it needs to ensure adequate performance. A bandwidth-strained network wastes both time and money, leading to frustrated users and customers who must cope with slow and unreliable performance. To ensure adequate bandwidth, the retailer must estimate current needs under various conditions as well as likely future demands.

As wireless networks become faster, more reliable and increasingly secure, many retailers are turning to the technology for general business use as well as to provide Wi-Fi service to customers. A wireless network is generally less expensive to deploy and maintain than a wired network, since it eliminates the need to install costly cables throughout offices and stores. The emerging 802.11ac standard offers speeds approximately three times faster than its predecessor, 802.11n.

Data Centers

Data centers are evolving rapidly as cloud computing continues to virtualize a growing number of IT resources, including servers,

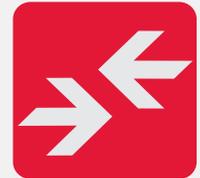
storage and even network components. Although the conventional data center is far from dead, a growing number of retailers are transitioning toward less expensive, more compact facilities that make maximum use of several rapidly maturing cloud technologies.

Cloud-based models: Many IT operations traditionally located inside data centers are now moving into provider-hosted cloud environments. Software as a Service, for example, is a popular cloud delivery model with a track record extending back over a decade. With SaaS, virtually any type of business application can be hosted by a vendor or service provider and made available to users via the Internet. SaaS's prime benefit is that it frees the retailer from complex software and hardware management.

Infrastructure as a Service is another popular cloud delivery model. IaaS allows retailers to gain maximum flexibility and agility in the utilization of IT hardware resources, such as servers and storage systems, which are hosted by an offsite provider. The approach enables retailers to rapidly deploy or even open several new stores, supply solutions that meet new business requirements and pay for resources as needed.

Converged infrastructure: Many retailers are turning to the

FINDING PERFORMANCE AND VALUE WITH A CONVERGED INFRASTRUCTURE



A powerful, reliable back-end infrastructure is essential for any retailer that's serious about maximizing its investments in next-generation IT. Apparel retailer Chico's FAS decided that a converged infrastructure, integrating multiple IT technologies from a single vendor, would provide the maximum benefit in cost and operational efficiencies.

Chico's FAS's back-office systems, supporting purchasing, clothing design, material sourcing, and distribution and financials operations, were confined within a 1,200-foot data center located in a hurricane-prone area. The company turned to HP for an alternative, innovative data center solution that would provide a stable, efficient and flexible cloud environment to accommodate its growing business needs.

By deploying a pair of HP POD modular data centers — fully integrated and performance-validated prior to delivery — Chico's FAS was able to slash its server count from 600 to 150, reducing operational costs by 75 percent while achieving 60 percent power savings. The HP PODs, built by HP and tailored to the retailer's exact specifications, also enabled Chico's FAS to expand its order processing and inventory management operations by 50 percent in less than eight weeks — at less than half the cost of building a traditional brick-and-mortar data center.

"The ability to quickly deploy new HP PODs and add rackspace as needed allows us to provision faster while cutting costs," said Steven Ross, vice president of technology for Chico's FAS.

converged infrastructure model as a platform on which to build their data centers. A converged infrastructure integrates multiple IT technologies, such as servers, storage, networking equipment and software applications, into a single, comprehensive solution.

Many retailers find value in the simplicity of a converged infrastructure, integrated by a single vendor or built according to a vendor's predesigned templates, as opposed to conventional IT infrastructures that are assembled from multiple vendors' products.

Converged infrastructure solutions also simplify hardware repairs, software updates and many other routine data center operations, because a single party handles all technical support activities. Converged infrastructures are often deployed in the form of a modular data center, featuring preinstalled server racks and other IT equipment, designed for easy drop-off and deployment.

Disaster recovery and business continuity: Every retailer needs a disaster recovery/business continuity plan to protect its IT infrastructure — including servers, networks, devices, data and connectivity — at an alternative site after a major system disruption caused by fire, flood, earthquake or any other type of natural or man-made calamity. After successfully transferring systems, the goal is to recover, restore and test affected systems, and then to place them back in service.

According to the [Federal Emergency Management Agency](#), recovery strategies should be developed to anticipate the loss of one or more of the following system components:

- Data center environment (including a secure computer room with climate control and backup power supply)
- Hardware (networks, servers, desktop and notebook computers, wireless devices and peripherals)
- Connectivity to a service provider (such as fiber, cable or wireless)
- Software (such as email, enterprise resource planning and office productivity applications)
- Data

Overcoming Technological Challenges

Every system, regardless of its purpose or scope, must be carefully planned, fully tested and intelligently deployed. Detailed planning and thorough testing ensure that a new system meets its performance goals and is fully compatible with the current IT infrastructure and existing business processes. Problems, when they arise, must be dealt with quickly and logically in cooperation with the system's vendor and other relevant partners.

Planning and testing: Project planning begins as soon as the retailer identifies the need for a specific solution, such as the deployment of a mobile shopping app or the installation of a digital signage system. All key stakeholders should be involved in the planning to ensure that current and future needs are addressed across the board.

46%

The percentage of retail decision-makers who considered social media to be among their key investments

SOURCE: CIT, "[2015 Retail Outlook](#)," January 2015

Once planning begins, the next step for many retailers is finding a knowledgeable technology partner to work with. A partner must have the insight and experience to guide the project through to its successful deployment. Working in close collaboration, the retailer and technology partner jointly define the project's requirements, goals and deadlines.

Integration: To reduce the possibility of creating disruptions, a new technology must be completely integrated into the retailer's existing systems. Front-end retail solutions, such as POS stations and self-service kiosks, must be fully supported by the retailer's back-end technology, including servers, storage systems and wired and wireless network infrastructures, as well as software such as an enterprise resource planning solution.

Hardware and software compatibility issues are a leading cause of integration problems. It is not unusual for a retailer to implement new software or hardware only to discover that it is not compatible with the existing IT infrastructure, or that current systems are not robust enough to support it. The retailer must then allocate additional workforce and financial resources to an unanticipated data center upgrade. Retailers can avoid this unpleasant surprise by working closely with a technology partner and vendors to determine software requirements long before deployment.

Failing to accurately anticipate future demands on the back-end infrastructure created by emerging technologies, as well as trends ranging from rising sales volumes to expanding databases, can lead to performance issues that slow down business processes and can potentially anger customers. Careful planning can help a retailer avoid such problems.

Security: Virtually every technology a retailer adopts creates a new security concern. Websites, wired and wireless networks, mobile devices, payment systems and other digital platforms and services must be protected against internal and external threats. Attackers will take advantage of any security oversight or loophole to target business and customer accounts, potentially creating significant financial and reputational damage to the parties affected.

Numerous high-profile system breaches at retailers of all sizes have made data security a top priority. According to Mandiant, a division of computer security firm FireEye, retailers experienced a record number of security breaches in 2014, with intrusions at retailers making up 14 percent of those the firm investigated, up from 4 percent a year earlier.

To protect business and customer data, retailers should never store credit card information in the front end of a POS system, where it is vulnerable to being hacked. If a payment system stores credit card information in the cloud, it should be protected by a provider that uses security certificates.

Retailers should also ensure that payment card information goes directly from the card reader to the payment processor. A device running point-to-point encryption will ensure security by transmitting encrypted card data straight to the payment processor.

A retailer that stores any payment card information needs to tokenize the data. Tokenization creates a unique encrypted token the first time a card is swiped. When the customer returns to make another purchase, the token will be charged rather than the credit card, precluding the need to reswipe or send it to the processor. Finally, it's important to take full advantage of POS security features designed to thwart identify theft.

Network security technologies: Because attackers routinely use networks as pathways to compromise servers, POS systems, mobile payment platforms (such as smartphones) and other connected devices, retailers should take steps to protect their network infrastructure.

Firewalls, particularly next-generation firewalls, are important network safeguards. NGFWs, which are essentially integrated network security platforms, use advanced technologies such as website filtering, intrusion prevention algorithms and deep packet inspection to protect networks against attacks and infiltration.

Other important network security steps include the deployment of commercial anti-malware protection tools (including security and incident event monitoring) and implementation of a vulnerability management program. Retailers also should invest resources into

employee training in security practices as well as the creation of an incident response team that can immediately react to intrusion alerts.

Fortified network and device access and authentication tools are also essential to prevent an attacker from directly accessing POS systems and other devices, either from the Internet or from within a retail store. Servers, POS systems and other key IT assets also must be physically secured to prevent both unauthorized access and tampering.

To prevent malware from entering the enterprise network via smartphones and tablets, a mobile device management (MDM) solution should be a part of a retailer's overall network security policy. Internet-connected devices on a retailer's network endpoints now include notebooks, smartphones, tablets, RFID and barcode readers and POS devices.

Although mobile connectivity empowers business success, data becomes even more vulnerable when it's on the go. A 2015 [IBM–Ponemon Institute study](#) reveals that 67 percent of companies allow workers to download nonvetted mobile apps on their devices, thereby creating a pathway for hackers to steal business data. To block this threat, a retailer should not give enterprise network access to mobile devices unless they (and their users) comply with the company's security policies.

The largest retailers understand that effective security technologies and practices are worth the extra cost and effort. [IDC predicts](#) that even as cyberattacks increase, by the end of 2016, the top 250 retailers will have reduced their exposure and loss by more than 50 percent by adopting intelligent sense-and-respond security strategies.

Payment card security: Compliance with the Payment Card Industry Data Security Standard (PCI DSS) is essential for all retailers that

THE SCOPE OF THE THREAT

Retailer security breaches have become so widespread that successful hacker attacks now seem almost commonplace. Yet the financial damage such breaches create is anything but trivial. A [2015 IBM–Ponemon Institute study](#) found that the average consolidated total cost of a data breach is \$3.8 million, representing a 23 percent increase since 2013. Several major retailers have learned the hard way about the importance of data security:

Clothing retailer, 2006–2007: Approximately 46 million records compromised.

The data breach affected several major brands. At least 45.6 million credit and debit card numbers were stolen over an 18-month period. Approximately 450,000 customers also had their personal information stolen. The company spent at least \$5 million in connection with the breach's impact.

Department store, 2013: Approximately 110 million records compromised.

An infiltration involving payment card readers allowed hackers to steal at least 40 million credit and debit card numbers that were used at U.S. stores during the 2013 post-Thanksgiving shopping rush. A month later, the company revealed that the personal information of 70 million customers had also been compromised. The company eventually agreed to pay \$10 million to settle a class-action lawsuit related to the breach.

Hardware chain, 2014: Approximately 56 million payment cards compromised.

In September 2014, a big-box retailer announced that POS systems at stores in the United States and Canada had been infected with malware that posed as anti-virus software. The code was used to steal credit and debit card information from about 56 million customers. The company later reported spending \$43 million in a single quarter dealing with the fallout, only \$15 million of which was likely to be covered by insurance.



accept payment cards, whether online or offline, because it provides the best approach for keeping customer payment card data secure. PCI DSS was created jointly in 2004 by four major credit card companies: Visa, MasterCard, Discover and American Express.

The standard specifies a minimum set of requirements for protecting cardholder data that may be enhanced by additional controls and practices to further mitigate risks. PCI DSS applies to all entities involved in payment card processing, including merchants, processors, acquirers, issuers and service providers, and all other entities that store, process or transmit cardholder data.

Additional details are available in a downloadable document — the [Payment Card Industry Data Security Standard: Requirements and Security Assessment Procedures](#) — from the PCI Security Standards Council.

Payment card security can also be built into the actual cards that customers use. Determined to reduce payment card fraud, European retailers joined together several years ago to develop and deploy EMV (EuroPay, MasterCard, VISA), a system that uses a computer chip instead of a magnetic strip to store cardholder data. With EMV, cardholders enter a personal identification number rather than a signature for verification.

EMV cards provide a far more secure purchasing technology. The

chip embedded on an EMV card generates a fresh code for each transaction, rendering stolen data useless.

After years of holding back, more U.S. payment card providers are now issuing EMV cards to their customers. As a result, U.S. retailers are now rapidly adopting EMV terminals and EMV-compatible POS systems to process customer payments.

CDW: A Retail Partner That Gets IT

Emerging shopping platforms and services promise to help retailers open the door to new customers in both domestic and global markets while building stronger and deeper bonds with existing customers. Yet a bewildering maze of new technologies creates a fear factor that prevents many retailers from adding essential new systems and services while upgrading the existing infrastructure resources that will enable them to compete and thrive in a rapidly changing retail environment.

CDW is ready to help retailers cope with the digital shopping revolution and transform exciting new technologies into a tactical advantage. From inventory management and other back-end systems to mobility platforms, storefront technologies and customer experience solutions, CDW provides retailers of all sizes with the integrated solutions and services necessary to attract new shoppers, expand engagement and drive revenue. The retail revolution has started. Don't get left behind.

For more information about CDW's solutions and services for retailers, contact your CDW account manager, call 800.800.4239 or visit CDW.com/retail.



Cisco® Meraki® provides powerful and intuitive centralized management via the cloud, while eliminating the cost and complexity of traditional onsite wireless controllers.

CDW.com/meraki



Apple® offers a substantial lineup of mobility products to meet your business needs — including the iPad®, iPhone®, iPod touch®, MacBook Air® and MacBook Pro® products. Apple's products offer easy, secure integration into existing environments while providing great productivity and ease of use to your workers.

CDW.com/apple



MobileIron® provides an enterprise mobility management (EMM) solution that meets both user demands and IT needs. MobileIron is enabling organizations to become truly mobile first. This platform allows IT to secure and manage devices, apps and content providing end users with instant access to organizational data on a device of their choice.

CDW.com/mobileiron



e-Nabler, the company behind eMobilePOS, is a pioneer and leader in mobile POS and cloud-based Software as a Service. This full-feature mobile POS and inventory management software fits all the functionality of a traditional POS workstation into an Android™, Apple® iOS tablet or smartphone.

CDW.com