

Connected Retail Architecture: Reuse Network Services to Boost Efficiency and Profits

The Problem of Information Silos

Today's retailers are struggling with heightened consumer demand and fragmentation, greater competition, increasing labor costs and turnover, and a complex global supply chain. Retail shoppers today are more sophisticated and technology-savvy. They are accustomed to digital media content across channels and devices. Customers expect a visual, informative, consistent, and entertaining experience when they visit a store.

In addition, data security is no longer optional but a significant government mandate. Thus retailers are turning to technology to revolutionize the shopping experience across channels while at the same time increasing visibility into their supply chain, securing customer data, and boosting employee productivity.

However, using new technology effectively can be challenging for retailers that have many disconnected silos of information—requiring employees and customers to re-enter data and duplicate effort across channels. Especially since many retailers have unique pilots or applications in key stores that need to be integrated. As new technologies are employed, the complexity of the infrastructure increases.

To increase operational efficiency, many retailers are attempting to correlate real-time demand from consumers through the distribution chain to the suppliers. Then they can identify excess product in the supply chain and create dynamic advertisements and offers to the consumers that will boost operational efficiency and profits.

Additionally, retailers must address efficiencies in the workforce, empowering employees with the product knowledge and selling strategies to drive sales and improve customer satisfaction. Streamlining corporate communications, policies, and procedures increases employee buy-in and reduces staff turnover.

Solution: An Architectural Approach

Retail organizations can bridge their information silos by adopting an architectural approach that addresses key business processes, IT interfaces, and the interactions that work together to support them. This approach defines reusable IT services such as mobility, virtualization, application delivery, and real-time communications that support business processes and can be utilized across an organization. Retailers can achieve cost savings, faster deployment of new capabilities, and more innovative approaches to solving business challenges.

Businesses are increasingly using a form of enterprise architecture, whether an industry-standard framework such as The Open Group Architecture Framework (TOGAF) or Zachman, or an internally developed architecture, to improve the linkage of business objectives to a technology architecture. Cisco provides the network infrastructure and services to integrate business tools and devices across silos. Working with your existing enterprise architecture framework, Cisco® network-based services are among the reusable assets that help to lower operating costs, increase productivity, and generate new revenue streams.

Enhance Business Applications with Network-Based Services

Retailers commonly deploy diverse technologies and applications to address operational and strategic business functions. Many of these applications are mission-critical, performing a specific function such as product look-ups, ordering, workforce management, and video surveillance. These basic applications are then tied to more advanced functions such as mobile line busting, targeted marketing, and remote assistants.

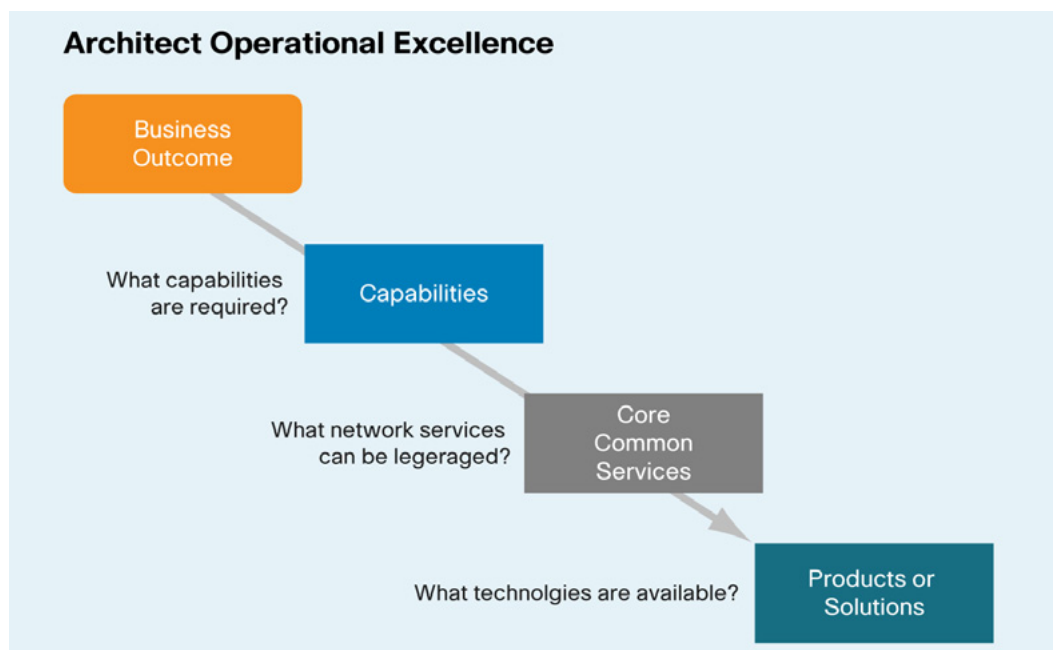
Using services to replace or enhance common application features has long been a proven strategy for application development and deployment. The use of services allows for greater standardization and centralization or control over the application environment, an improved user experience, and new capabilities and integrations not available previously.

Cisco technologies provide common network-based services that are available across the retail enterprise and can be used and reused by different business- and retail-specific applications.

The Cisco Service-Oriented Network Architecture (SONA) is an open framework for network-based services used by enterprise applications to achieve business results. Within this framework, Cisco has defined a Lean Retail Architecture that uses the same capabilities and network services but ties them to specific retail applications and business priorities.

This top-down architectural approach focuses first on business objectives, and then identifies what business capabilities are available in the form of applications and business services. The next step is to understand what functional services are common across the business capabilities and finally to deploy the foundation to deliver the required services.

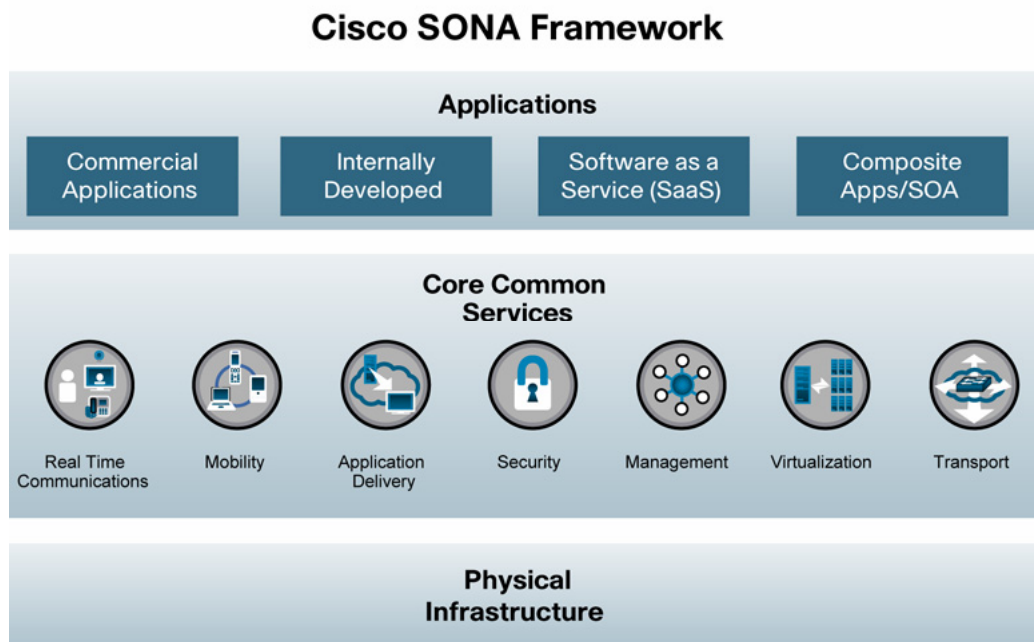
Figure 1. Steps of a Top-Down Architectural Approach



The Cisco SONA framework consists of seven core service groups that deliver consistent and robust capabilities throughout the network. A core service group is a collection of one or more functional services that create a common quality, ability, or feature that can be used or developed by higher-level applications such as SCM or ERP. The core services are delivered by physical infrastructure, which may include one or more products or solutions. The core service groups consist of the following:

- Real-Time Communication Services offer session and media management capabilities to enrich communications and collaboration from the retail floor to the corner office.
- Mobility Services offer access to location information and provide connectivity for wireless devices and sensors.
- Application Delivery Services help ensure that applications perform to users' expectations whether on the floor or at a satellite location.
- Security Services help protect the infrastructure, data, and application layers from constantly evolving threats, and also offer access control and identity functions.
- Management Services offer configuration and reporting capabilities across the infrastructure from the retail floor to the supply chain.
- Virtualization Services increase the utilization and efficiency of infrastructure for retailers seeking to optimize their investments and limit space usage.
- Transport Services are the common foundation that enables the breakdown of retail silos and integration of disparate systems.

Figure 2. Core Services Categories



Utilizing Cisco Core Services to Improve Efficiency

Cisco offers a number of core services that can be used and reused among multiple business applications in support of retail solutions. This drives efficiency, lowers time to deployment, and protects investments as services deployed for the initial retail solution are used again by subsequent solutions and applications.

Cisco core services are pervasive across the networked environment and retail domains and may be centrally managed by existing business process management tools or workflow applications. The portfolio of Cisco retail solutions is focused on integrating operational silos and improving efficiency with greater flexibility and responsiveness. The services used across the solutions include: transport, virtualization, security, mobility, and real-time communications (Figure 3).

Figure 3. Common Services Reuse

Building Upon Existing Services and Solutions

Cisco Retail Solutions						
Digital Media	X		X		X	Operational Excellence ↑
Remote Expert Assistance			X		X	
Video Surveillance	X	X	X	X		
PCI	X	X	X	X		
Workforce Optimization	X		X	X	X	
Lean Store Inventory Management	X		X			
Common Network Services	Transport	Virtualization	Security	Mobility	Real-Time Communication	

Cisco Connected Retail Solutions

Cisco Connected Retail Solutions give your business better access to more accurate and timely information throughout your store and ecosystem and improve how you interact with your customers and suppliers. These solutions support business goals that may pertain to a specific domain within retail—such as supply chain management, payment security compliance, or customer personalization—but also enable communication across domains to facilitate objectives such as: regulatory and safety compliance, vendor management, total customer satisfaction, or overall staff productivity and satisfaction.

Connected Retail Solutions are organized into portfolios to address your specific business imperatives. These include: improving the customer experience, securing data from the store, improving employee productivity, and achieving a Lean Retail Architecture. Each of these portfolios contains multiple solutions from Cisco and leading retail industry application and hardware partners that together enable significant business results.

The following Connected Retail Solutions use network services within the Cisco SONA framework to address many of the key customer and operational issues facing business leaders today.

Digital Media Systems

Consumers make 75 percent of their purchasing decisions in the store. Tech-savvy shoppers expect in-store experiences to be on par with media-rich online experiences, and expect content relevant to their personal purchase decisions. It is also more important than ever that retailers strengthen their brands in order to stand out and compete effectively in today's larger global markets.

As a result of fragmented customer bases and increasing expectations, Digital Media Systems have emerged as an effective way for retailers to transform their business by improving communications with customers in a cost-effective manner. These systems empower retailers to reach customers directly at the retail level, nearer the point of purchase. Centralized control and customization make it easier to target digital content and correlate sales to the content to evaluate its effectiveness. Further, with Digital Media Systems, retailers can deliver on-demand employee training and communications from headquarters before and after store hours.

Cisco's comprehensive suite of digital signage, enterprise TV, and desktop video is managed from a single platform, scales to thousands of users and digital displays, and is network-centric for optimal, intelligent media content delivery. Using the same core Real-Time Communication Services used for IP telephony, retailers can support a new form of media without having to plan an overlay network.

To learn more about how Cisco Digital Media enhances the customer experience and increases sales, visit: http://www.cisco.com/web/strategy/retail/irm_ovr.html.

Remote Expert Assistance

Stores of all sizes need experts available to support any variety of questions. By using high-quality video to access a network of remote assistants, retailers can always have personalized experts available when and where a customer wants. Using video conferencing kiosks, customers can select their area of interest and create a secure link to a product or solution expert to help close the sale.

While not replacing in-store staff, this solution can help customers get answers to their tough questions and can be invaluable during those times when there are more customers than sales reps. Similar to the Digital Media Systems mentioned previously, the remote expert assistance solution again reuses core Real-Time Communication Services with Security Services enabled by Cisco SONA, again reducing the need to add overlay networks to support this functionality.

To learn more about the Remote Expert Assistant Solution, visit: http://www.cisco.com/web/strategy/retail/irm_imp.html.

Video Surveillance for Retail

Loss of products inside a retail environment is a constant struggle for most retailers. Security guards, surveillance systems, and elaborate security systems with RFID tags are used to combat this problem; however all of these solutions leverage in-store staff to monitor and investigate alerts. This approach, of course, is subject to staffing and customer loads in each location.

With digital IP-enabled surveillance systems, system feeds can be streamed and stored at a centralized location for analysis. In-store management can receive alerts in real time and view them on any secure mobile device. These same systems can also be used to analyze trends inside a store, including congestion areas and the number of people in line over the course of the day. These analytics can be used to optimize store layouts and staffing levels, improving the customer experience and the profit levels for the retailer.

Digital IP surveillance systems use the secure, core Transport and Mobility Services as well as intelligent back-end storage and retention services. These storage services are in many cases the same overall system used for all other business data and thus bring values in scale to reduce overall deployment time and costs.

To learn more about the Cisco Video Surveillance Solution, visit:
http://www.cisco.com/web/strategy/retail/video_surveillance.html.

Payment Card Industry Data Security Standards

Nearly one in every three consumer purchases in the United States is made with a payment card, including credit, debit, and prepaid cards, according to Visa USA. Because of changing demographics and mobile payment options, these numbers are likely to rise in the next few years.

With consumers increasingly using digital payment systems, the need to protect their identity and their assets is becoming a business imperative. Alarming, Visa USA also reported that the vast majority of the merchants it surveyed were not properly protecting consumer data. Visa found only 17 percent of the 231 large merchants it questioned were following Payment Card Industry (PCI) guidelines regarding customer data security.

Retailers who do not comply with these guidelines are subject to fines from their acquiring bank. Additionally, they face consumer lawsuits, lost revenues from customer defection, and scrutiny in the press.

To achieve compliancy and optimal data protection, retailers need a comprehensive security infrastructure that securely processes, stores, and monitors payment data at-rest and in-motion from the store endpoints, data center, remote workers, and business partners. Cisco has worked with PCI auditors to create store, data center, and Internet-edge designs that address the requirements of PCI compliance. Lab tested and audited designs provide guidance on the best configuration of network and retail infrastructure. Cisco's integrated approach to data and network security reduces the complexity of maintaining PCI compliance.

Rather than installing special standalone devices for PCI security, the Cisco PCI Solution utilizes the security and storage services that are already in place for the overall security of information, but which are configurable for these specific requirements.

To learn more about the Cisco PCI Solution, visit: <http://www.cisco.com/web/strategy/retail/pci.html>.

Workforce Optimization

Retail stores are dynamic environments that require staff to be constantly on the move to where customers are requesting service. Staffers need to communicate efficiently with each other throughout the store in order to answer specific inventory or product questions, and respond to other staffers calling with questions. A mobile communication system that can be personalized for individuals and positions will reduce the time it takes to get a hold of an expert, thus increasing customer satisfaction as well as staff productivity.

Also, consider how often customers must wait while staffers go elsewhere in the store to do a price check or inventory lookup. But with a secure mobile network and portable data devices, staffers can perform many of these functions in real time, without ever leaving the customer.

To learn more about Cisco Workforce Optimization, visit:
<http://www.cisco.com/web/strategy/retail/mobility.html>.

Lean Store Inventory Management

Keeping the perfect mix of product in stock in a store takes careful planning, knowledge of trends, and a close watch on consumer buying habits. Detailed buying information enables a more accurate supply of products. With an always-on, secure network connection, stores can instantly

share their sales numbers with their entire supply chain to bring real-time information to supply planners.

Stores can capture trends as they occur based on individual locations, not just general regions, on a weekly basis. The Lean Store Inventory Management Solution uses secure Transport Services as well as Mobility Services to bring information from the store point-of-sale through the entire supply chain and to planning managers.

To learn more about the Cisco Lean Store Inventory Management Solution, visit:

<http://www.cisco.com/web/strategy/retail/lean.html>.

Summary

Cisco Connected Retail solutions help address key operational and business issues faced by retailers today. Cisco and its partners offer foundational and advanced technologies to help the retail industry meet business-critical objectives and maximize the effectiveness of the network. The result is increased productivity end-to-end and an enhanced customer shopping experience. Real-time collaboration through the retail enterprise enables key decision-makers to respond quickly to market conditions and consumer wants and needs.

Deploying Cisco solutions enables retailers to drive operational efficiency, cut costs, and quickly achieve new capabilities through the use and reuse of Cisco core services. Because Cisco Connected Retail solutions utilize the network-based core services described in the Cisco SONA framework, these solutions support business goals while achieving rapid return on investment.

For More Information To better understand how your network can become a strategic asset through reusable services, contact your local Cisco representative or visit:

http://www.cisco.com/en/US/products/ps8222/serv_group_home.html.

Cisco Connected Retail solutions are deployed globally by leading-edge retailers. For more information on successful implementations and best practices, visit: <http://www.cisco.com/go/retail>.



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