

# Lean Retail— Doing More with Less

## Executive Summary

An increasing number of consumers shop on-line. Some consumers go to stores to see and touch products then quickly comparison shop on their smart phones to purchase the product at another retailer offering a lower price.

Customers are also using social websites to determine their purchase decisions. To respond to these changes in consumer behavior, retailers need to be agile.

Lean Retail, an approach that uses technology and network architectures to reduce costs and enable innovation, can increase a retailer's agility in responding to and shaping the consumer's experience. The main tenets of Lean Retail are:

- Whenever possible, move IT equipment from the store to the data center.
- IT equipment in the stores and the data center should be consolidated and virtualized.
- Maximize the functionality of IT equipment in the store.

Lean Retail makes it faster, easier, and less expensive to deploy services needed by the store operations team, the web team, and customers. Lean Retail gives IT staff more time to respond to the needs of the business.



## The Challenge Facing Retail Leaders

There are two hurdles that slow innovation. One is the multiple networks in stores. These are created by point solutions for video displays, video surveillance, and point-of-sale (PoS) systems and their attendant devices, such as Wi-Fi devices and others. The problem is exacerbated by new point solutions and by different organizations being responsible for different networks. This historic layering of one network upon the next increases lost opportunity and fiscal constraints. It also contributes to the overall problem that in retail, IT staff must often spend more than 80 percent of their time on maintenance, according to Gartner and Forrester reports.

The second obstacle for retail is in the data center, where retailers must keep up with changes enabled by cloud computing and new technologies. Legacy systems and processes have evolved over time to create silos of deep knowledge in specific technologies, as well as tools that aren't integrated with each other. Legacy systems and processes keep innovation tethered to outdated practices, with the result that retailers have trouble keeping up with the changing customer landscape and with evolving business requirements.

## How Lean Retail Supports Store Operations

Because leading retailers create trends and also follow them, data matters to them. Retailers need to try new ideas, see if they work, and find out how and what customers are buying. To execute business decisions, a retailer must account for the multiple ways consumers are making purchases. Given this reliance on data and the need for agility, business decision making in retail can be either empowered or constrained by the underlying technical architecture and network.

Consider some of the following ways in which technology can support the collection of data and the testing of new ideas:

- Put new digital displays in the stores and measure the response.
- Place video cameras in critical areas not just to stop theft, but also to observe customer traffic and behavior.
- Create websites that focus on specific demographics and product lines.
- Put tablets into kiosks to give customers information and access to virtual experts.
- Give associates tablets so that they can access information quickly and so they can speed up checkout.
- Give managers tablets so they can check planogram compliance and monitor tasks, and so they have access to real-time business intelligence on sales and inventory.
- Monitor, aggregate, and analyze social media feedback on your stores and your brand.

Using data in this way, retailers can get an edge on the competition and better understand the customer. Lean Retail gives operations ways to innovate, test, validate, and then scale effectively from pilot to production.

### Store in a Box

A special case for Lean Retail is creating a store in a box. Some retailers want to open new stores quickly, perhaps seasonally, or open a specialty store location within a larger store or mall. Cisco® Integrated Services Routers can be loaded with:

- » Cisco UCS Express blade servers
- » Cisco Wide Area Application Services (WAAS) for WAN acceleration
- » Cisco Unified Communications Manager Express
- » A 4th Generation (4G) connection (soon to be released)

You can enable all these store capabilities, along with WAN connectivity and voice communications, and package them in a small box that can be turned on for operations. Using the Cisco Integrated Services Routers and the add-ons listed above, a store in a box can be moved and reestablished in a new location very quickly and conveniently.

## How Lean Retail Supports Shoppers

- Planogram compliance makes the store's visual experience more appealing and makes it easier for customers to find merchandise.
- Shoppers benefit when retailers combine features of the store and the Internet in either venue.
- Shoppers benefit from access to virtual experts who can help them make buying decisions in the store or on the web.
- Shoppers want associates who can enhance the store experience with information at their fingertips.

## The Challenges Facing Retail IT

IT is incredibly important in retail, but can be perceived by store operations and management as a hurdle as well as an enabler. Of all the different components in retail, the IT department is the one that gets the greatest advantage and agility from the Lean Retail model. Lean Retail reduces the high percentage of time that IT normally spends on maintenance, giving IT time instead to innovate and to execute.

### Stores

For IT, the primary benefits of Lean Retail in the stores are faster roll-out of new applications and capabilities, reduced operations expenses enabled by remote management of IT equipment, and reduced costs.

### *Servers and Cisco UCS Express*

There are cost and security benefits in removing servers from stores. If servers remain in the store, IT should consider consolidating them onto Cisco UCS Express on the Cisco Integrated Services Router (ISR) G2 (Generation 2). This consolidation, combined with the virtualization available on Cisco UCS Express, immediately reduces maintenance, licensing, and energy costs.





Any server in a store requires maintenance fees. By consolidating servers onto Cisco UCS Express, you reduce maintenance fees of multiple servers into one. You also gain the ability to remotely manage the servers by taking advantage of the network. In addition, the servers are now blades within the ISR, requiring no additional floor space.

Cisco UCS Express is bundled with VMware Hypervisor, enabling IT to virtualize multiple applications on a single server. This capability can:

- Improve server utilization rates
- Lower maintenance, licensing, and energy costs

The payback for consolidating and virtualizing servers in stores can be rapid. When you combine this with reduced ongoing operations and energy costs, and the Payment Card Industry (PCI) validation testing performed by Cisco on UCS Express and the ISR, Cisco UCS Express may make your business much more cost-effective.

### **Switches**

Cisco switches in the wiring closet can be remotely managed. Cisco switches are tested in Cisco labs with other networking and IT equipment to help ensure that they can be configured for compliance with PCI requirements. With the Smart Install capability on Cisco switches, the switches can be auto-configured from the ISR, pushing configuration files onto the switches. Compact switches can be auto-discovered upon installation and then auto-configured.

Cisco switches come with Cisco EnergyWise technology, which allows IT to set up rules to turn off IP phones, desktop and laptop computers, access points, and other network-attached equipment when the store is closed. Cisco has developed an EnergyWise calculator for retailers that can quantify your utility bill savings.

In addition, adding compact switches and smart power distribution units (PDUs) enables you to network PoS stations, including scanners, printers, and digital displays, and to power kiosks and demo pods. The compact switches can use pass-through Power over Ethernet (PoE) and take advantage of the energy saving benefits of Cisco EnergyWise. Smart PDUs can be managed to turn off specific equipment through EnergyWise. Compact switches also make it possible to significantly reduce the cabling needed to network all of the devices on the store floor, reducing complexity and maintenance costs.

### *Integrated Services Routers*

Cisco Integrated Services Routers (ISRs) enable remote management and a smaller IT footprint in the stores. ISRs provide connectivity for applications and slots for Cisco UCS Express, 3G and 4G wireless access, and a range of other extensions, including video surveillance and video display networks.

Providing all of this within one system with a small footprint can lower costs in multiple ways. The ISR can incorporate Cisco WAAS, enabling WAN acceleration of applications running in the data center and Unified Communications Manager Express to replace the PBX telephony systems in your stores. The ISR provides one system to network video, voice, data, and wireless networks.

The combination of these services on a single system enables IT staff to manage the IT devices in the store remotely, deploy new applications and upgrades more quickly, and provide high-quality, secure service. Cisco does extensive testing in a lab environment and provides detailed guides to make it faster and easier for your store systems to comply with a PCI audit.



### Cisco Lean Retail Store Portfolio

- » Cisco ISR Integrated Services Routers G2
- » Cisco UCS Express
- » Cisco Wide Area Application Services (WAAS)
- » Cisco Aironet® wireless access points
- » Cisco ScanSafe Web Security
- » Cisco Cius with Cisco WebEx, Cisco TelePresence, VXi, and VDS
- » Wiring closet and compact switches with Cisco EnergyWise

### Wireless Access Points

Cisco provides a Wi-Fi controller that can manage multiple, remote access points and that lets you take the access point controller out of the store. You can still have rich Wi-Fi services in the store without the complexities of managing multiple boxes.

The Lean Retail model also stresses maximizing functionality in equipment. This is where Cisco's enhanced local mode wireless functionality comes in. You can now have a single access point serving data to clients and also monitoring for attacks (using the Cisco wireless intrusion prevention system [wIPS]), whereas in the past that functionality would have required an overlay system for wIPS. Both data and monitoring functionality can now be done in a single access point. Retailers can either save on the number of access points they deploy, or they can expand network coverage with the access points previously used for monitoring only.

In addition, when you pervasively deploy access points with Cisco CleanAir technology, you can protect wireless network performance and enhance the user experience by automatically mitigating wireless network interference. IT can benefit from CleanAir technology by getting granular visibility into the radio frequencies and taking proactive measures, thereby reducing the number of troubleshooting calls related to connectivity in various branch locations.

### Cloud Services and Tablets

Cisco ScanSafe service, a cloud-based web filtering and security service, enables secure Wi-Fi access for both internal and public Wi-Fi networks. Cisco ScanSafe blocks access to inappropriate websites, and can generate reports.

A new mobile device that Cisco offers is our business tablet, Cisco Cius™. Cius provides all the security you would expect from a Cisco product, including VPN, the ability to limit access to a private Android application store, and the ability to have the tablet used as a video screen, IP phone and computing device connected, by wire or wirelessly, to your enterprise network. In addition, Cius has all of the Cisco collaboration services including IP telephony, Cisco WebEx®, and Cisco TelePresence®. The Cius can be used as a kiosk device or given to associates or store managers to access retail applications or a virtual expert at the touch of the screen.

Cisco is recruiting retail applications vendors to port their applications to the Cius. Several of these application vendors offer their products as software as a service (SaaS), so that retailers can use the cloud and pay for what they use without having to increase the number of systems in their stores or data centers.

Cisco Cius is also incorporated into the Cisco Virtual Experience Infrastructure (VXi) , reducing or eliminating the need for PCs in the store. Cisco's thin clients include the Cius, which can be a data, voice, and video device, and other thin clients that work with Cisco IP phones. Cisco Virtual Desktop Service (VDS) enables the acceleration of data, voice, and video streams to multiple thin clients and can be run from the Cisco Unified Computing System™ in the data center.



## Data Center

How does Lean Retail, which puts more emphasis on moving IT equipment to the data center, get more efficiency out of IT staff and systems? How can IT staff be freed up from some of the most time-consuming maintenance tasks?

### *Servers*

Provisioning a new server in most large data centers takes six weeks. The length of the process is partly the result of the historical development of tools by function and the specialized knowledge possessed by each team. For example, the server team, the storage team, and the network team all have different provisioning tools. These tools don't communicate with each other, leaving that task to the people who manage these systems. Each of the teams has to communicate the parameters of their systems and the timing of the changes to the other teams.

Because it takes six weeks to provision a new server, servers that run applications infrequently are often kept running just so IT staff can avoid reprovisioning them. This includes servers used for dedicated applications and servers used for testing—the data center becomes analogous to a parking lot full of idling cars. What's more, without virtualization and Service Profiles, every application needs to be provisioned for its peak load, no matter what time of the day or month that peak occurs.

In contrast, when provisioning takes minutes instead of weeks, the resulting savings in IT staff time, time to market, and the improvements in system efficiency yield dramatic results. New applications and new functionality can be deployed much more quickly. When systems are shared between stores, mobile devices, and web applications, data center resources are available for other tasks.

The new servers in Cisco Unified Computing System have a capability called Service Profiling. Service Profiles enables the server, storage, and network teams to all work on the same tool to provision the server, storage, and network systems. This dramatically reduces the time it takes to provision a new server from weeks to a few hours. In addition, rather than leaving servers idling so they don't have to be reprovisioned, a Service Profile can be transferred to a server, to bring it up or change its mix of applications in minutes.

Cisco Unified Computing System is designed for virtualization. The average efficiency of servers in the data center is in the single-digit range. With faster provisioning and virtualization and the greater efficiency of servers running at higher rates of utilization, you really can do more with less.

To complement server virtualization, the Cisco MDS family of intelligent switches provides storage virtualization. The Cisco MDS 9509 Multilayer Director and MDS switches can improve storage efficiency by over 50 percent by enabling virtual drives on storage arrays. Cisco Application Control Engine (ACE) appliances help to balance computing loads across servers.

### ***Switches***

The amount of cabling required on most servers adds another layer of complexity and maintenance to a data center staff's work load. Most servers use seven cables to handle their storage, network, management, and redundancy requirements. Cisco has introduced a new technology called Unified Fabric in Cisco Nexus® switches. Cisco Unified Fabric, working in conjunction with Cisco Unified Computing System, reduces the number of cables needed to just two cables per server.

The benefits of Cisco Unified Fabric include:

- Reduces cables per server from seven to two, dramatically reducing maintenance time and faults
- Reduces the energy use per server by reducing the number of ports needing power
- Reduces the time it takes to install top-of-rack Cisco Nexus switches

Cisco Nexus switches also enable network virtualization, so that one system can do the work previously done by multiple switches. Cisco Nexus switches help move applications between data centers for business continuity and to follow user needs across geographies. They also help you move applications between data centers hosting private and public cloud services.

### Cisco Lean Retail Data Center Portfolio

- » Cisco Nexus switches with Cisco Unified Fabric and EnergyWise
- » Cisco Unified Computing System servers
- » Cisco Wide Area Application Services (WAAS)
- » Cisco ACE Application Control Engine appliances
- » Cisco MDS 9509 Multilayer Director and MDS switches

### Remote Management

Having IT staff travel to stores is expensive and time-consuming. With Cisco technology, you can manage all of the following remotely:

- Cisco ISR Integrated Services Routers
- Cisco Aironet wireless access points
- Cisco UCS Express server blades
- Wiring closet switches
- Cisco IP telephony, which can be managed centrally through Cisco Unified Communications Manager or managed in a distributed manner through Cisco Unified Communications Manager Express
- Cisco's compact switches, which auto-configure

### Energy Management

Today, running out of floor space and running out of energy are two of the biggest problems data centers face. Without a new approach to deploying IT equipment, these problems will only get worse. Cisco data center technologies consolidate floor space, reduce energy use, and enhance energy management. Cisco Unified Computing System servers and Cisco Unified Fabric in Cisco Nexus switches help to increase rack density and consolidate data center floor space. Cisco's top-of-rack switches enable less cabling, saving on power per port. In addition, although not accomplished specifically with Cisco products, in-row cooling provides more efficient cooling to the data center.

Additional energy savings come from Cisco EnergyWise, which makes it possible to monitor devices that are connected by PoE. You can only manage what you can measure, and you can only measure what you can access through the network. Because Service Profiles make it so much faster to provision, you can now power off servers that are only used during peak load periods.

All in all, Cisco's data center solutions make it possible to manage energy use by:

- Monitoring server use
- Consolidating and virtualizing servers
- Reducing the number of cables required per server
- Using top of rack switches
- Reducing the power per rack



## Getting Started with Lean Retail

Here are some examples of how stores can benefit from Lean Retail now. Each of these projects will reduce your costs (RC), free IT time (RT), or provide critical information about your customers and store operations (CI) :

- Use the EnergyWise technology included in Cisco switches to turn off PoE equipment in the stores during off-hours. (RC)
- Add the Cisco ScanSafe Web Security service to block your customers and employees from using Wi-Fi inappropriately. (CI)
- Move servers out of the store and into the data center and consolidate store computing onto Cisco UCS Express on Cisco ISR Integrated Services Routers. (RC, RT)
- Move the Wi-Fi access point controller to the data center. (RC, RT)
- Install Cisco's wireless access points and have a single access point serving data to clients and also monitoring for attacks. (RC,CI)
- Take PBX systems out of the store and replace them with Cisco Unified Communications Manager. (RC, RT, CI)
- Use compact switches to reduce cabling and control energy costs. (RC, RT)
- Use a Cisco ISR to create a store in a box. (RC, RT)
- Incorporate Cisco Virtual Desktop Infrastructure (VDI) to reduce or eliminate desktops, laptops, and security risks. (RC)

- Use Cisco WAAS to accelerate application response time over the WAN. (RT, CI)
- Use Cisco Cius business tablets for many in-store functions, including bringing virtual experts to the store on demand. Further eliminate the need for laptop and desktop systems in the store with VDI and Cius. (RT, CI)
- Incorporate 4G networking into the ISR to replace your current WAN backup strategy. (RC,CI)

In the data center, the benefits of Lean Retail can free system and staff time:

- Introduce Cisco Unified Computing System and Service Profiles and see how much more quickly you can provision new servers. Measure how these changes to IT process free up IT staff for other projects.
- Introduce Cisco Nexus 2000 Series Fabric Extenders and 5000 Series Switches with Unified Fabric and reduce cabling on servers from seven per server to two per server, while consolidating and virtualizing your network.
- Start migrating applications to Cisco Unified Computing System and see how the combination of server, storage, and network virtualization can enable you to move compute loads to fewer machines faster, in order to meet the needs of the business during different times of day, week, and month.
- Perform a data center energy audit and efficiency study to see how much consolidation, virtualization, Service Profiles and Unified Fabric can improve your data center efficiency for IT systems, staff, and energy consumption.
- Start measuring the reduction in systems and energy costs from these changes.



## Summary

Lean Retail makes IT systems and IT staff more efficient and reduces costs. Lean Retail enables faster roll-out of applications and capabilities in stores and provides more for less in data centers. As the retail landscape continues to evolve, Lean Retail helps retailers adapt and innovate faster.

Each product in the Lean Retail portfolio alone has specific benefits; they are grouped for retail customers because as a whole they provide a breadth of synergistic benefits as part of the Cisco Borderless Networks, and Cisco Data Center and Collaboration Architectures. Coupled with Cisco solutions for PCI compliance, these architectures and products help you reduce costs and maintain a competitive edge in the challenging retail market.



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