

WHITE PAPER

How Retailers Use LTE as Wireless WAN to Improve Service & Operations



Enterprise Networking Trends for Success in Retail

Overview

Innovation is changing retail from the storefront to the back office and beyond. New levels of mobility allow companies to reach customers in fresh ways that extend far beyond brick-and-mortar locations — delivering a customized, curated, and seamless experience. IoT and cloud applications are streamlining supply chains, reducing shrinkage, and improving employee productivity and safety.

Because of retail's digital transformation, IT teams and the enterprise networks they manage have never been more important — or more burdened. As the role of connected technologies continues to grow and intertwine with virtually every aspect of business, IT teams no longer are simply troubleshooters. Today they strategically define and execute a company's most important goals.

Retailers are re-evaluating their entire network infrastructures. Of course, moving away from aging legacy networks is easier said than done. Retail CIOs and network administrators must balance corporate mandates for speed and agility with mission-critical needs such as security, cost savings, and 24x7 uptime. These companies also are considering the role of cellular-enabled wireless WAN as it evolves from 4G LTE and Gigabit-Class LTE to 5G. Wireless innovation is unlocking new levels of mobility, flexibility, network reliability, and remote management.

This white paper outlines emerging trends in retail IT, challenges posed by those trends, and considerations for choosing future-proof edge network solutions for retail.

Legacy networks often can't keep up with the demands of omnichannel retail strategies, the Internet of Things, and the shift to cloud computing.

Drivers for Digital Transformation & LTE in Retail

Customers Expect Tailored & Immediate Service

Omnichannel retail isn't a passing fad, it's the new industry standard. Customers don't distinguish among the many ways they interact with their favorite retail brands, so retailers must merge online and in-store contacts to deliver the seamless experience they expect. Examples include:

- Apps let in-store users scan product barcodes with their mobile devices to highlight product details and buyer reviews
- Supply chain projects such as "buy online/pick up in store" systems erase the lines between e-commerce and brick-and-mortar sales.
- Shoppers can browse outfits on interactive digital signage, save size and item data from in-store fitting sessions, then purchase those items later from their mobile devices.

Retailers & Employees Expect Increased Operational Efficiency

Digital transformation is just as important in the back office and warehouse as it is at the storefront. New technologies and apps improve supply chain efficiency and responsiveness, as well as staff productivity. Further, IoT devices can drive loss prevention and decisions based on real-time information.

For customers and employees alike, cloud computing is an essential part of retail's digital transformation. A wide range of data can be sent, stored, processed, monitored, and acted upon quickly and without the need for local servers or computers.



Technologies, Trends & Network Requirements

Guest WiFi

Customers of just about every type of business have come to expect guest WiFi, but especially in retail. Omnichannel experiences and highly interactive apps drive people to use their phones or even tablets while shopping.

Retailers can benefit from guest WiFi, too. They can use splash pages to deliver surveys, gather key analytics, and provide sales announcements or coupons to entice additional purchases.

Beacons

Beacons use Bluetooth low-energy technology to make smartphones location-aware and to notify nearby devices of their presence. As a shopper moves through a store, beacons transmit data about the device owner.

Beacons enable customers to make in-store payments from their phones, and receive targeted advertisements and information about sales. In turn, retailers gain data about customers that can help them make informed decisions about staffing and store layout, influence buyer behavior, and customize each shopper's experience through real-time and predictive analytics.

Digital Signage

Unlike traditional signs, digital signs have the flexibility and interactivity required for effective omnichannel marketing. The ability to instantly update content from a remote location, offer personalized purchase recommendations, and integrate with apps and beacons makes digital signs a truly versatile investment.

Even in less futuristic settings, the cost savings of reduced personnel hours spent manually updating pricing and other content can deliver an immediate boost to the bottom line. In an outdoor deployment, digital signs might be leveraged to raise brand awareness or drive in-store or online traffic.

During peak selling seasons, such as Black Friday and during the holidays, in-store digital signs can be used for staff training. Finding multi-use solutions for in-store deployments will lower the total cost of ownership of your network while maximizing your organization's productivity.

Success Story

Evereve

For swiftly growing retail enterprise Evereve, intermittent connectivity outages at stores and IT manpower limitations at the corporate office had become too cost-prohibitive. With a streamlined support team and many applications dependent on connectivity, store managers felt helpless as they waited for their operations to be restored.

Evereve chose Cradlepoint's NetCloud Service for branch, delivered through cloud-managed routers with built-in LTE, to meet its primary and failover connectivity needs.

Network disruptions no longer derail Evereve's store managers, because when connectivity at a retail site is lost, LTE failover immediately goes into effect. When new stores are under construction, Evereve can get the network up and running at the site quickly and easily, configuring routers from a remote location.

"I have confidence this is the network solution that will allow our business to scale as we double and triple the amount of stores we have."

Anthony Hoang,
CIO, Evereve

Cloud Applications

Cloud applications and services are overtaking the world of retail management. Here are a few examples:

- Customer service applications paired with beacons allow retail stores to identify shoppers and then trigger customized promotions that employees can use to nurture brand loyalty.
- Retail-as-a-Service, or RaaS, lets IT departments offload data to cloud platforms rather than keeping it on-site. During peak seasons, retailers can purchase more storage; then when they are ready to scale up, the infrastructure they need is already in place.
- Cloud applications help retailers analyze and respond to data in real time. Aggregate information can keep store managers and sales associates “in the know” about top sellers. At corporate headquarters, purchasing agents use the data to make inventory decisions.
- Retailers are losing billions of dollars each year to the “Ghost Economy” — item returns and overstocked or understocked inventory. Inventory analytics platforms help close inventory gaps and generate more sales.

Employee Devices

Whether through company-provided devices or personal devices that employees are allowed to bring from home, retailers understand the benefits of equipping staff with mobile devices to use while they move through the store so they can provide better customer service and even complete POS transactions before shoppers can change their minds.

Mobile devices also serve as important tools for employees to access training portals, payroll management, and important corporate files.

Bring Your Own Network: Pop-Ups, Stores-Within-a-Store & Kiosks

Pop-up retail and stores-within-a-store have become go-to strategies for testing products, building brand awareness, and driving sales during a finite season or period of time, such as during a holiday. A cousin of the store-within-a-store trend, kiosks can help drive extra revenue and brand exposure when placed inside another brand’s retail location, or they can be used to provide customer service, online ordering, and gift cards inside their own stores.

Consumers rank the following as their top priorities¹:

1. Prompt Service
2. Personalized Experience
3. Smart Recommendations

1 **Source** Time Trade, “State of Retail 2016,” 2016. https://nrf.com/system/tdf/_TimeTrade_State_of_Retail_2016.pdf?file=1&title=TimeTrade's%20State%20of%20Retail%202016

Networking Challenges in Retail

Network Downtime

In retail, downtime is money. Retailers compete to make the buying experience smoother than ever, making even momentary downtime unacceptable. POS connectivity failures can cost enterprises thousands of dollars in lost revenue and brand damage. In the case of a long-lasting outage, such as a wired-line breakage of the primary connection, wired failover solutions such as T1 lines usually are laid in the same trench as primary wired lines — and subject to the same outages.

Solutions for Improve Uptime

Reach 99.99 percent reliability with an LTE-enabled failover network, an option that's affordable and isn't typically subject to the same outages as wired lines. This is a solution that can easily overlay the existing network infrastructure.

Bandwidth Surges & Troughs

The rapid growth of applications for connected devices and opportunities presented by increasingly connected retail environments must be met with sufficient bandwidth and data to support the increase in network utilization by both customers and company-owned technologies. Retail network administrators face a particular challenge in bandwidth management due to the varied data usage that comes from customer traffic surges and peak selling seasons. With wired connectivity, it's impossible to instantly provision more bandwidth.

Solutions for Bandwidth

LTE connectivity can provide the extra bandwidth needed, and can be pooled among multiple locations to avoid data going unused. Simply choose a network management solution that allows network administrators to remotely monitor and adjust usage to avoid overages.

Security of Critical Information

Already viewed by attackers as highly lucrative targets due to the massive amount of credit card data being processed, businesses face mounting challenges as IoT continues to grow in retail settings. Each device is another network on-ramp and adds to the complexity of security management.

While security threats continue to evolve and employee errors continue to threaten information security. IT departments cannot directly supervise the network at all times. Hackers are well aware of this, and in-store staff members often find themselves in the crosshairs of malware or phishing schemes.

Success Story

ChargeltSpot

ChargeltSpot provides multi-faceted value for retail stores and venues with its free phone charging stations. It's a popular amenity that is only feasible with always-on connectivity — and is more palatable to retailers and other venues if ChargeltSpot can stay off their corporate networks. With retailers not wanting ChargeltSpot to tie into their store networks, the company knew it needed LTE for connectivity, noting the mobility, flexibility, and speed it provides.

Cradlepoint's NetCloud Service for IoT — which includes cloud-managed gateways with embedded LTE — enables secure, reliable VPN functionality, keeping data safe as it travels to and from these widely dispersed kiosks. The stores and venues that host the kiosks can keep their networks physically separate from ChargeltSpot's network.

“We've had very steady connectivity, and our kiosks have performed extremely well in that environment.”

Robert Kay

Senior Vice President of Operations for ChargeltSpot

The rise of cloud-based applications in retail is another significant concern for IT departments. Today's retailers use SaaS for everything from inventory tracking to POS. While cloud-based applications bring greater scalability, flexibility, and intelligence, they also saddle network administrators with more potential holes in the network.

Speaking of POS, financial institutions require that any company that stores, processes, or transmits credit card information comply with the Payment Card Industry Data Security Standards (PCI DSS). Companies that fail to comply are subject to fines, lawsuits, and can even be banned from processing credit cards. Retailers that experience security breaches often find themselves in news headlines, significantly impacting goodwill with customers, partners, and shareholders.

Retail IT managers must find ways to address these drivers and implement new PCI Compliance measures without having the resources to provide constant, on-site IT support.

Solutions for Network Security

To isolate payment data from traffic on public WiFi, digital signs and other applications, retailers can air-gap their data via physically separate endpoints. This tactic, called Parallel Networking, making it impossible for hackers to pivot from their point of entry to a company's POS applications. Another option is to virtually isolate IoT data on a perimeter-secured overlay network via Software-Defined Perimeter (SD-Perimeter) technology.

Moving some data off the core network is a critical piece of maintaining PCI compliance. Another best practice for PCI compliance and protection of direct-to-Internet traffic is to choose a network solution with a built-in firewall, easy VPN capabilities, robust network segmentation, multiple SSIDs, content filtering, and the ability to remotely manage updates and add on security integrations with industry-leading platforms through the cloud.



1 in 4
retail data breaches
involve web app attacks.²

² **Source** BDO, "2016 RiskFactor Report." 2016. <https://www.bdo.com/insights/industries/retail-consumer-products/2016-bdo-retail-riskfactor-report>

What to Look for in Network Solutions for Retail

The bottom line is that retailers are selling an experience along with their products. No promotion, sale, or gimmick can come close to a top-notch customer experience when the goal is turning strangers into customers and customers into loyal brand followers.

As retail enterprises look for network solutions that will allow them to integrate the cloud, big data, and the IoT into their operations, and to adapt to changing customer demands, there are a number of important questions to keep in mind:

- How reliable is the connectivity?
- How fast can the solution be deployed?
- Does the solution enable seamless, secure network access from anywhere?
- Can my organization easily scale the network as needed?
- Can the IT department centrally manage hundreds or thousands of deployments?
- How easy is remote troubleshooting?
- Does the solution offer Unified Threat Management?
- Does the solution enable PCI compliance?
- How does the solution handle fluctuating bandwidth demands?
- What is the total cost of ownership?

A growing number of distributed enterprises are finding that utilizing LTE-enabled all-in-one edge network solutions provide the level of reliability and agility they need to get an edge on the competition without sacrificing cost savings. Edge networking solutions that are cloud-managed enable even small IT teams to remotely deploy, monitor, manage, and troubleshoot network connections at many locations.

Success Story

David's Bridal

David's Bridal needed a future-proof failover solution for its 300 stores located across the U.S., Canada, UK, and Puerto Rico. In addition, its IT team needed a way to move beyond the one-at-a-time method they had been using to manage network devices, and move toward centralized network management.

David's Bridal implemented LTE failover across its company and now enjoys high-performance, reliable backup connectivity without reliance on wired-line failover, which can be costly and time-consuming to provision. Plus, the IT team can manage the entire deployment from a central location.

“With just a couple of clicks, I can use NetCloud Manager to upgrade all 330 devices in less than 10 minutes. That saves us a lot of labor and got our stores protected very quickly.”

Kevin Weaver,

Director of Infrastructure.
David's Bridal

Wireless Edge Services for Branch, Mobile & IoT in Retail

Cradlepoint's NetCloud Services for branch, mobile, and IoT provide retailers with tailored services delivered through purpose-built, LTE-enabled endpoints that include a limited lifetime warranty and comprehensive 24x7 support. Each NetCloud Essentials plan provides the functionality needed for rapid deployment and time to value. Advanced Add-on plans allow customers to enhance their networks with advanced management, security, and edge routing.

In branch and mobile, the Advanced Add-on plans provide increased security functionality including application-aware firewall, CP Secure Web Filter (powered by industry-leading Webroot BrightCloud® Threat Intelligence and fully integrated into the NetCloud service), and IPS/IDS with CP Secure Threat Management (powered by Trend Micro's industry-leading Deep Packet Inspection Engine). CP Secure Web Filter allows network administrators to actively protect users from web-based threats and ensure IT compliance at the distributed WAN edge. Retailers leveraging branch and mobile services also can easily add analytics-rich web content filtering with Zscaler Internet Security.

About Cradlepoint

Cradlepoint is the global leader in cloud-delivered wireless edge solutions for branch, mobile, and IoT networks. The Cradlepoint Elastic Edge™ vision — powered by NetCloud services — provides a blueprint for agile, pervasive, and software-driven wireless WANs that leverage 4G and 5G services to connect people, places, and things everywhere with resiliency, security, and control.

More than 27,000 enterprise and government organizations around the world, including 75 percent of the world's top retailers, 50 percent of the Fortune 100, and first responders in 10 of the largest U.S. cities, rely on Cradlepoint to keep critical branches, points of commerce, field forces, vehicles, and IoT devices always connected and protected. Major service providers use Cradlepoint wireless solutions as the foundation for innovative managed network services. Founded in 2006, Cradlepoint is a privately held company headquartered in Boise, Idaho, with a development center in Silicon Valley and international offices in the UK and Australia.

[Learn more about retail solutions: cradlepoint.com/retail](https://www.cradlepoint.com/retail)