Maximizing LTE and 5G Inside and Beyond Retail Stores

Examples and Success Stories of LTE Edge Networking for Retail Stores and IoT

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Connect Beyond

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Digitally Transformed Retailers Need LTE and 5G at the Edge

The ways and places that retailers serve customers and improve operational efficiency have changed a great deal recently — as have the technologies that underpin this digital transformation. And whether it's a long-term location, a seasonal pop-up shop, or a self-serve kiosk, one of the biggest necessities is dependable connectivity — enabling the modern experience shoppers expect and the operational technologies and IoT devices employees need, and the flexibility to handle it all.

Because of these trends and evolving needs, retailers are turning to LTE and 5G to support their digital transformation.

The Intersection of Retail Needs and LTE Benefits

Exceptional Network Performance

More and more retail applications — voice and video, for example — require ample bandwidth and excellent performance to ensure usefulness and cost-effectiveness. High latency is unacceptable. As LTE and 5G networks and edge solutions evolve, their usefulness in high-bandwidth situations continues to rise.

Business Agility

Time is money, which is why the abilty to get network access immediately is so significant for enterprises that open a lot of new branches. Companies need edge solutions with the agility to support and optimize multiple types of WAN links, allowing LTE for day-1 availability to immediately support business operations.

Simplicity & Flexibility of Network Management

Few companies with multiple branches place full-time IT professionals at each site, which means the ability to deploy them easily and configure, monitor, manage, and troubleshoot them centrally is essential. Cloud-based management platforms are ideal.

Security for all Types of Traffic

Branches today deal with numerous types of traffic, including direct-to-internet traffic, IoT information, and data that must be sent to back to the corporate data center. Flexible security features are the only ways to accommodate such diversity.

What is Digital Transformation in Retail?

For Customers

— Fluid omni-channel engagement
— In-store experiences
— In-store and remote kiosks
— Interactive digital displays
— Guest Wi-Fi

For Operations

— Real-time supply chain
— Intelligent inventory
— Loss prevention
— In-the-moment marketing
— Data-driven decisioning

For Employees

— Continuous training
— Roaming PoS (e.g. tablets)
— More focus on customers
— Better scheduling

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Today's Retail Scenarios Depend on Wireless WAN

Wireless WAN uniquely addresses the reach, reliability, and agility requirements of today's hyperconnected and cloud-dependent retailers. It combines the pervasiveness and performance of LTE and 5G cellular networks with cloud-delivered wireless edge solutions.

There are many scenarios in which Wireless WAN solutions address the unique challenges of retail connectivity. This e-book explores several of those situations, including:

Link Failover and Out-of-Band Management (OOBM) for Branch Continuity

Even a few minutes of downtime — especially during peak business hours — can cripple a retailer's revenue, costs, security, and brand credibility. WAN link failure often limits branch continuity, which is the ability to keep connectivity at retail stores up and running at all times.

⚠ Main Challenge: WAN Link Failure

Benefits of Overlay LTE Failover for Branch Continuity

Protecting WAN Uptime

With LTE failover solutions, business policies can automatically send traffic across the wireless link as soon as the primary wired link degrades or fails. Once the wired link is restored, traffic flow returns to normal.
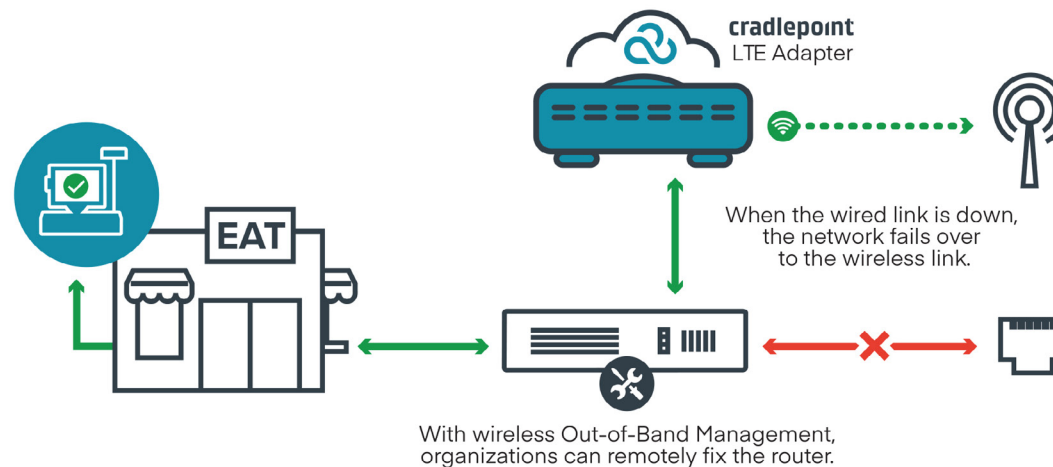
The speed of today's Gigabit-Class LTE rivals that of most wired broadband services, which allow organizations to configure most if not all applications to continue running even during failover.

An LTE adapter offers seamless LTE integration into networking and SD-WAN infrastructure, protecting against network outages.

Cloud-Managed OOBM Addressing Router Failure

With a direct connection from the console port of the LTE adapter to the primary router, IT staff can connect to the router over the air, even if IP and Ethernet are unavailable or not functioning on the primary router.

With Cradlepoint's OOBM capabilities, administrators can diagnose and/or fix the problem without leaving the office, rolling a truck, or paying for slow and expensive POTS lines.

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LTE Adapter

When the wired link is down, the network fails over to the wireless link.

With wireless Out-of-Band Management, organizations can remotely fix the router.

T-Mobile Retail Stores Prevent Downtime with Cellular-Based Automatic Failover

Cradlepoint's cloud-managed cellular WAN adapters keep POS connected

Challenges

T-Mobile has 5,000+ retail stores that depend on connected devices and business-critical applications, including Point-of-Sale (POS) systems and digital signs. The need for WAN link diversity was apparent, but running additional wires to thousands of stores wouldn't be cost-effective or logistically prudent. The IT team needed a failover solution that would be easy to stand up and manage from anywhere.

Solution

To enable seamless failover, T-Mobile tapped into their own highly available cellular broadband network and deployed Cradlepoint's NetCloud Service for Branch, delivered through Gigabit-LTE edge adapters that easily integrate into existing network architecture by backing up wired connections and primary routers.

Benefits

Network disruptions no longer derail operations at T-Mobile's flagship stores. When a wired primary link goes down, the network now automatically switches to a cellular link — keeping important applications and IoT devices online. Through Cradlepoint NetCloud's centralized network management dashboards and features, the IT team can easily configure failover adapters at all locations from anywhere.

> " When we deployed Cradlepoint solutions in our retail stores, the results were immediate. We experience increased availability as we saw our network take over when the primary transport link went down."
>
> **T-Mobile Operations Department**

Day-1 Connectivity

Many retailers regularly open stores with strict deadlines in order to meet revenue and business goals. These businesses can't afford the uncertainty and delay of waiting for the installation of wired lines for network connectivity. So, how do new retail stores get Internet access quickly?

## ⚠ Main Challenge: Waiting for Wired Line Installation

Benefits of LTE for Day-1 Branch Network Connectivity

Setting Up Cellular Broadband Immediately

With cloud-managed all-in-one branch routers featuring embedded high-performance LTE as the primary link, IT teams ensure day-1 connectivity at new locations — without having to wait for a wired link. With this solution, businesses can open locations on schedule without the network holding them back. Later, once the wired connection is up and running, the organization can use that same multi-WAN primary router to either load balance between wired and wireless links or use the wireless link for failover.

Deploying and Managing the Solution from Anywhere

Some wireless solutions can be set up even without IT staff on location. Cloud features for zero-touch deployment provide secure Internet access immediately. A store manager can get the router up and running within just a couple minutes.

GRAND OPENING

Cradlepoint
All-in-One Router

LTE

Broadband
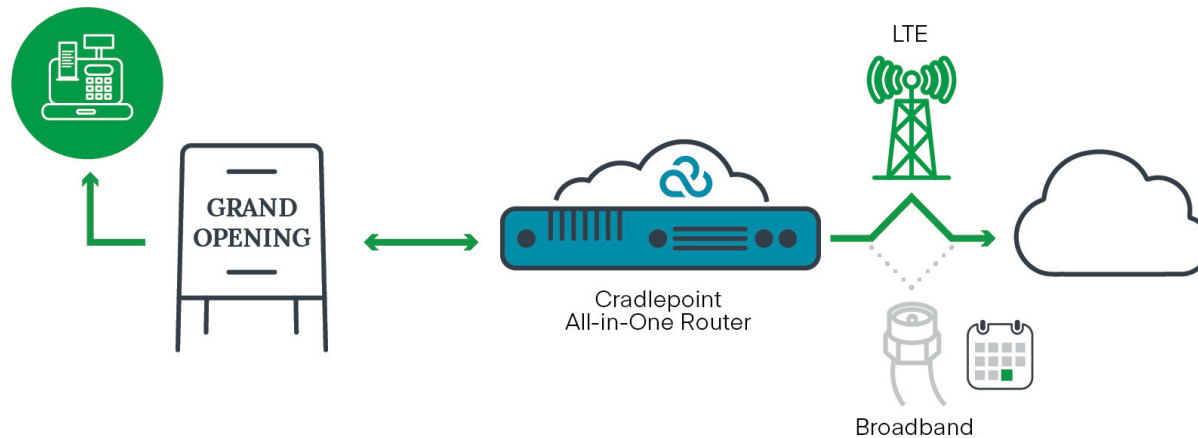
PANDORA Jewelry Used LTE for Instant Connectivity Prior to Opening

Retailer Used Cradlepoint's NetCloud Service and Routers to Save at least $50,000

Challenges

When a labor dispute within a local ISP threatened to derail opening day for a new PANDORA Jewelry store, the retailer sought a solution that would temporarily replace the need for wired Internet. Failure to open would have cost the company penalties and forced them to miss out on huge holiday shopping revenue.

Solution

PANDORA leveraged Cradlepoint's NetCloud Service for branch, delivered through purpose-built LTE-enabled routers. Because of the ubiquity of cellular coverage, the company was able to create a reliable, secure connection for its stores without waiting for wired broadband.

Benefits

PANDORA had immediate cellular broadband access while the IT team waited for wired lines to be installed — enabling the store to open on time and to save at least $50,000 in potential losses. Later, once wired broadband was available, the Cradlepoint router configuration was changed to leverage LTE for instant over-the-air failover.

> "
> Being able to open meant we were able to build the awareness necessary to maximize holiday sales. Just missing opening our doors by a few weeks could have cost us more than $50,000 in sales and expenses."
>
> **Ashley Walther,**
> manager of PANDORA's Park City Center store

Pop-Up Store

Pop-up retail is increasingly important for serving customers in innovative new ways and a wide variety of settings. This trend toward temporary retail — everything from farmers markets to seasonal storefronts — is driving the need for instant connectivity that is secure, easy to deploy anywhere, and can be monitored and managed without sending IT professionals to each site.

## ⚠ Main Challenge: Unavailable or Unreliable Wired Connectivity

Benefits of LTE for Pop-Up Network Connectivity

On-Demand Wireless Access

Many retailers ensure reliable pop-up connectivity through cloud-managed LTE-enabled branch routers. With the ability to set up secure, highly available cellular connections and initiate Wi-Fi through the same endpoint, companies have the flexibility to set up retail services such as POS anywhere, anytime, and incredibly fast.

Standardized and Consistent WAN Pricing Everywhere

LTE is a plug-and-play option that standardizes a company's pop-up WAN costs across the entire country, with reliance on one or two network operators instead of a different ISP in each town.

LTE

Cradlepoint
All-in-One Router
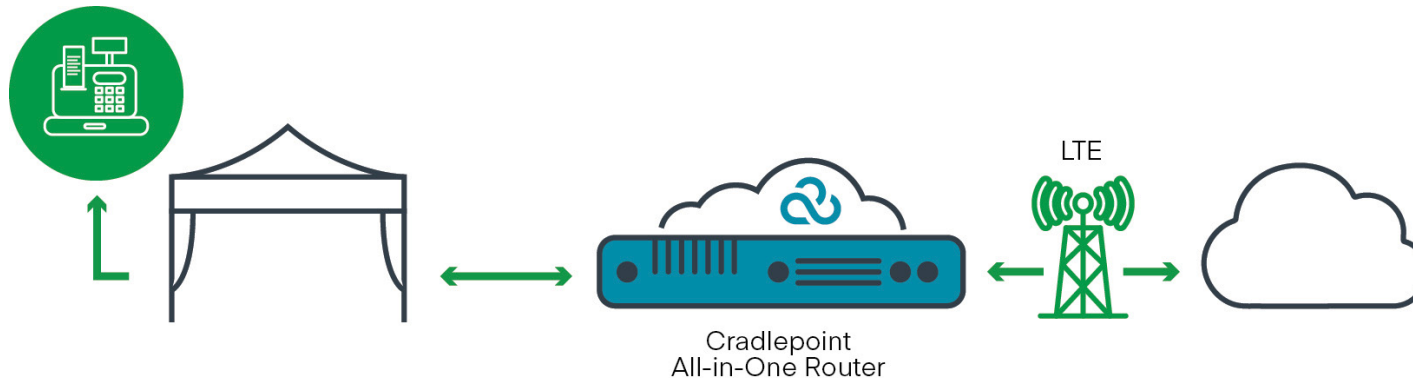
LTE Enables Flexible Pop-Up Retail at Major Sports Events

Company Quickly Sets Up Mobile Stores Anywhere — with Centralized Troubleshooting

Challenges

MainGate sets up its merchandise trailers, kiosks, and mobile stores for temporary, pop-up retail at many major sports events year-round. With so many locations and situations to plan for — and with such a limited time to sell at each event — constant, flexible connectivity for POS services is vital.

Solution

MainGate deployed Cradlepoint NetCloud Service for Branch, delivered through LTE-enabled edge routers. It's a comprehensive, all-in-one solution that supports both wired and wireless connectivity; includes a built-in firewall and Wi-Fi access point; and is centrally managed by the IT team, with no need for on-site troubleshooting.

Benefits

Cradlepoint solutions allow MaintGate to easily set up the best, most cost-effective WAN configuration at each location — with plug-and-play functionality and simple remote management. Compared to more expensive WAN options such as satellite, LTE is quite cost-effective. In fact, Cradlepoint helped MainGate reduce its per-device data costs by 50 percent.

> " Some of our events are in the middle of nowhere. We needed a reliable solution that worked everywhere."
>
> **Dan O'Reilly,**
> IT Support Supervisor, MainGate

Store Within a Store

Many big-box stores or large facilities such as airports invite third-party stores such as kiosks, retail shops, and tax preparation companies onto their premises — but with an understanding that these invited guests will bring their own network. Keeping other businesses completely off the main WAN is the best way for the larger venue to keep its network secure and avoid unpredictable bandwidth demand.

⚠ Main Challenge: Quickly Getting a Physically Separate Network Within a Larger Store

Benefits of Bringing Your Own Network with LTE

Easily Deployed Network

Businesses preparing to open a store within a larger location can get Internet access — and a secure connection to corporate headquarters — through cloud-managed plug-and-play LTE routers.

Remote Visibility Into and Control of Distributed Networks

With LTE and a full-featured cloud management service, IT professionals at headquarters or managed service providers can remotely monitor WAN conditions and data usage at each location — saving money and fixing issues much more quickly.

Built-In Information Security

Even without any access to the main store's network stack and security applications, the store-within-a-store can protect important customer and company data through an all-in-one branch router with a built-in firewall and support for cloud-based security services — providing peace of mind for both the big-box store and the smaller enterprise.

LTE

Cradlepoint
All-in-One Router

3rd Party
Store

Big Box Store   Primary Router   Broadband
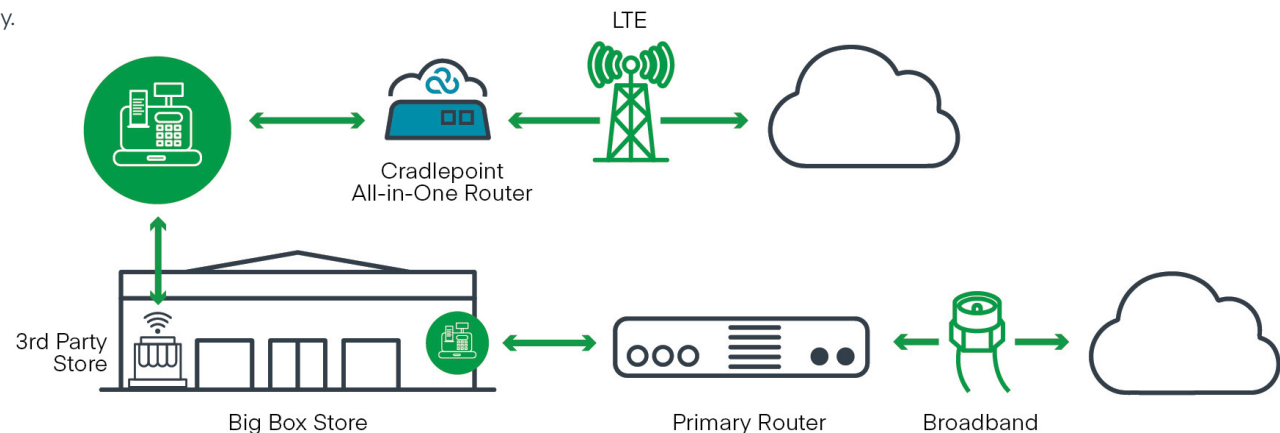
LTE Separates Jackson-Hewitt Tax Services from Big-Box Networks

Cradlepoint's NetCloud Service Enables Easy-to-Deploy 'Bring Your Own Network'

Challenges

During tax season, Jackson-Hewitt tax preparation kiosks in big-box stores throughout Georgia need Internet access and phone service immediately, but they aren't allowed to connect to the host store's network — and deploying a wired line at each location is complex, expensive, and a lengthy process.

Solution

These Jackson-Hewitt tax preparation areas leverage Cradlepoint's NetCloud Service for branch to provide the cellular-based connectivity the employees need — without the provisioning or installation hassles of DSL or cable.

Benefits

LTE allows Jackson-Hewitt to get its kiosks up and running in less than an hour, with one carrier instead of a different ISP in each town — and without any need for third-party assistance. Built-in features enable the information security they need, along with total physical separation from the larger store's network.

> "
> I walk in with everything I need. With the Cradlepoint router, in less than an hour, the kiosk is up and running and ready to go. No waiting."
>
> **John Beazle,**
> Franchise Owner, Jackson-Hewitt

SD-WAN Branch

In retail environments, the continued influx of IoT devices, mobile workers, cloud-based apps, direct-to-Internet traffic, and technology-expectant customers has made high availability and excellent agility — along with data security — more important than ever. Companies are looking for multi-WAN, highly automated SD-WAN routers at the edge of the network.

⚠ Main Challenge: Meeting Broad Branch Needs Without Expanding the Networking Stack

Benefits of Integrating LTE and SD-WAN Through One Edge Solution

Simplified Branch Infrastructure

Some SD-WAN routers offer built-in LTE, multi-WAN functionality, easy VPN setup, Wi-Fi, routing, and a firewall while supporting the network reliability, remote visibility and control, automation, and application performance available through software-defined networking technologies.

Automation for Better Application Uptime and Performance

Using business policies to automate path selection and network traffic choices is imperative for businesses that can't afford for certain applications to falter due to wavering signal strength or heightened latency.

Centralized Management of Network Functionality at Many Sites

With the sheer quantity of network applications running in most branches, cloud monitoring and troubleshooting features — including automated alerts — provide the only way to cost-effectively manage WAN conditions at widespread locations.

Cradlepoint
All-in-One Router

LTE

Fiber

DSL
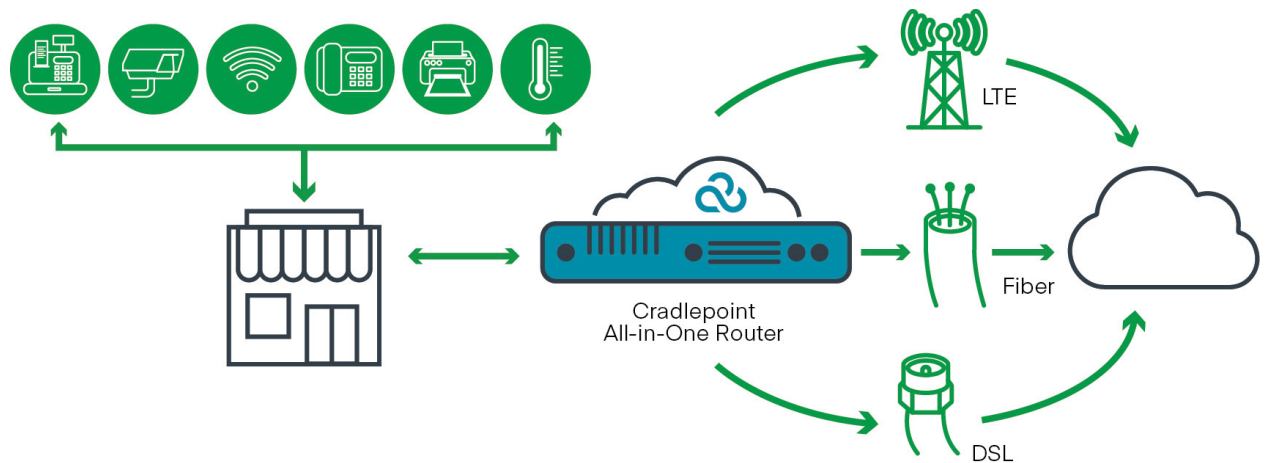
Self-Storage Company Relies on Centrally Managed LTE at Widespread Sites

Life Storage Uses All-in-One, LTE-Enabled SD-WAN Routers for Highly Flexible Connectivity at Tech-Heavy Facilities

Challenges

Life Storage has nearly 750 self-storage centers, all of which rely on connections for many tools and service, including an access system for doors and gates, a security system featuring video surveillance, multiple computers, VoIP phones, and even POS. WAN failover was a must, but adding consumer-grade LTE solutions to existing infrastructure wasn't working well.

Solution

At every new facility, Life Storage began deploying Cradlepoint NetCloud Service for Branch, delivered through all-in-one SD-WAN routers featuring embedded LTE. This includes built-in Wi-Fi, VPN functionality, and a firewall, along with cloud-based network analytics and centralized management, configuration, and troubleshooting.

Benefits

This comprehensive SD-WAN solution enables day-1 connectivity at each location, then allows simple, centrally managed configuration changes from headquarters once wired lines are available for the primary WAN. Failover is based on preset business policies; a wired WAN outage automatically triggers failover to the wireless link, allowing all of those connected devices and services to continue operating without disruption.

"

From a network management perspective, what we used to pay in a month we now basically pay for the entire year with NetCloud. When you multiply that over hundreds of stores, the cost savings are huge."

Jeff O'Donnell,
VP of Information Technology, Life Storage

Primary Wireless Branch

Traditional, legacy networking products are no longer sufficient for many of today's hyperconnected retailers. With hundreds or thousands of stores to manage and too much riding on WAN uptime, lots of companies no longer want to simply add LTE solutions to their already extensive hardware stack. Instead, they are looking to replace their aging, wired-dependent systems with a streamlined approach.

⚠ Main Challenge: Exorbitant Cost of Managing Dozens of ISPs

Benefits of Using Multiple Cellular Links Through All-in-One SD-WAN Solution

Sizable Cost Savings on Data Plan Management

Replacing dozens or even hundreds of regionally based wired ISPs with one or two LTE network operators enables retailers to shed third-party data plan management contracts that can cost in the millions of dollars per year.

One Solution Replacing Several

Some wireless edge networking solutions with built-in LTE modems now offer SD-WAN functionality, easy VPN setup, Wi-Fi, routing, a firewall, and cloud-based security services such as web content filtering and IPS/IDS.

These solutions make it difficult to justify higher-priced and less-flexible legacy products.

Centralized Management of Network Functionality at Many Sites

Retailers with many branches understand the difficulty that IT groups face when trying to track connectivity conditions and security issues all over the map. Cloud-based network management tools provide a way to eschew third-party truck rolls and extended downtime in favor of detailed analytics and centralized monitoring and troubleshooting.

Carrier 1

Cradlepoint
All-in-One Router
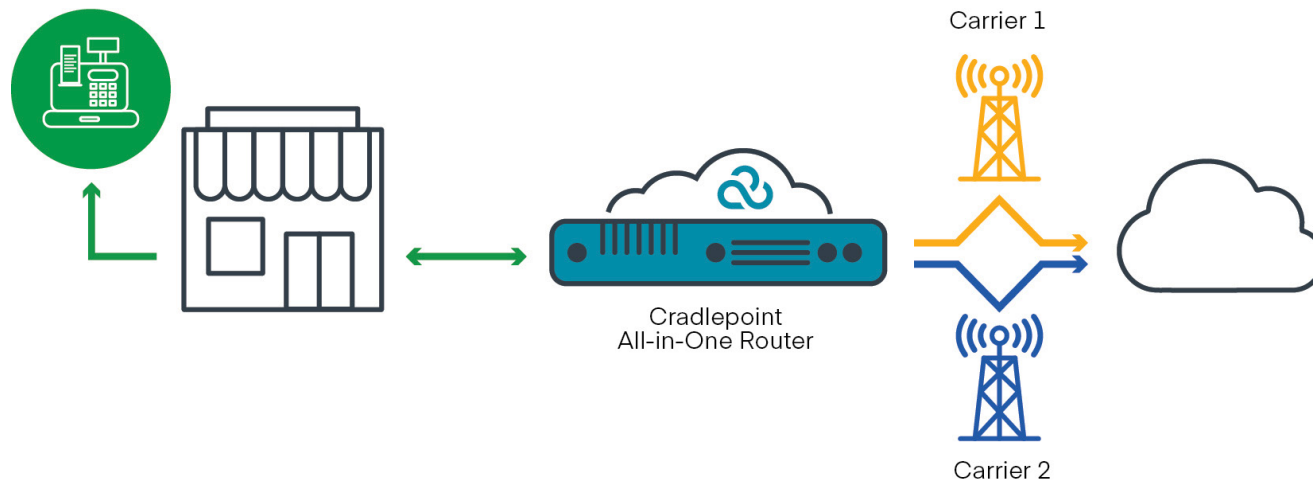
Carrier 2

Fortune 500 Retailer Ups Uptime and Cuts Costs with Cellular-Only Setup

Large Company Replaces Wired WAN with Multi-Carrier LTE Architecture

Challenges

A nationwide retailer was looking to go all wireless in hundreds of stores that require reliable WAN connectivity for POS, security cameras, hand-held scanners, VoIP phones, laptops, tablets, and more. Too often network outages and router failures in these stores were halting business and necessitating expensive on-site troubleshooting. Also, the company had been using more than 70 ISPs for wired broadband, which cost millions of dollars per year to manage.

Solution

This large retailer now deploys Cradlepoint NetCloud Service for Branch in every store, delivered through two wireless edge routers — each of which has a built-in firewall and an LTE modem accommodating a SIM card from a different network operator. With one all-in-one router set up as primary and the other as secondary, the retailer leverages multi-carrier, wireless-to-wireless failover along with VRRP for router redundancy.

Benefits

With Cradlepoint solutions, this well-known retailer no longer needs wired connectivity at its branch stores. A wireless-only architecture has reduced network downtime because of the ubiquity of LTE networks and the flexibility of wireless edge solutions. The company also is saving millions of dollars per year thanks to less network downtime, simplified data plans, centralized solution management, and drastically lower hardware costs.

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Interactive Kiosks for Shopping and Services

Many retailers now use kiosks to make their products and services more accessible. Many of these accept credit card payments, which is convenient for customers but challenging for IT teams that need to move the kiosks intermittently, protect cardholder data, and remotely manage connectivity.

⚠ Main Challenge: Unavailable or Unaffordable Wired Connectivity

Benefits of LTE Solutions for IoT at the Edge

Flexible and Cost-Effective Connectivity for POS

No matter what type of WAN source is most reliable, cost-effective, and agile in each setting, Cradlepoint's IoT routers with an embedded LTE modem and support for wired broadband keep kiosks' applications and ability to process credit card payments running 24x7. Retailers can quickly set up new kiosks with confidence that the network will always maximize their ability to serve customers.

IoT-Tailored Protection of Sensitive Payment Information

Cradlepoint's NetCloud Service for IoT and wireless edge routers include robust features and capabilities that help organizations protect customers' payment data and other information. Cradlepoint's NetCloud

Perimeter feature allows IT teams in just a few minutes set up a private overlay network — useing Software-Defined Perimeter technology — to completely isolate and hide information over the public Internet.

Centralized Management of LTE Connectivity for Widespread Locations

With Cradlepoint's feature-rich cloud management platform, companies can set up alerts notifying them of WAN outages and signal fluctuations. When an issue arises, the corporate IT team can remotely determine the root cause — and often fix the problem — without ordering an expensive truck roll.

Cradlepoint NetCloud
Service for IoT
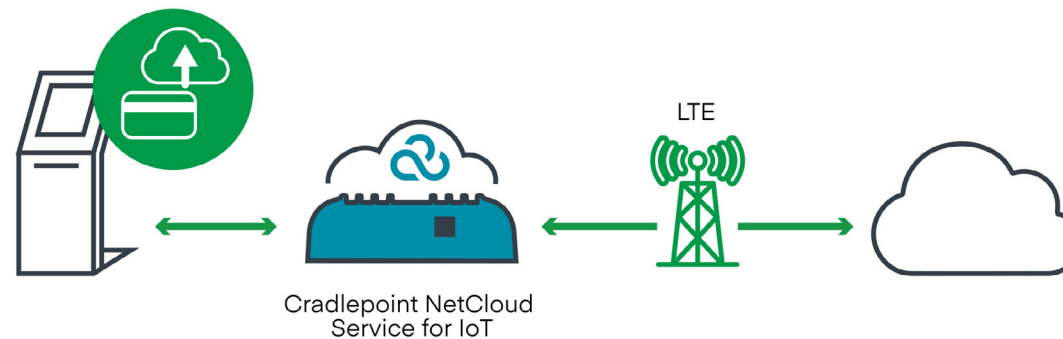
Discover the Right Solution for Your Retail Needs

Learn More About Cradlepoint's LTE-Enabled Wireless Networking Solutions

Cradlepoint NetCloud Service, delivered through edge networking endpoints with built-in LTE, unlock the power of wireless connectivity for unwavering access to applications such as POS, customer Wi-Fi, digital signs, supply chain tools, and much more. There's a Cradlepoint solution for all of your retail scenarios, including failover and OOBM, day-1 connectivity, pop-up networks, store within a store, SD-WAN branches, primary wireless locations, and kiosks.

EXPLORE SOLUTIONS ›

Learn more at cradlepoint.com

Explore the Benefits of Cradlepoitn NetCloud

Watch a Brief Demo Video About Cradlepoint's NetCloud Service

Watch this brief video to see how network managers and IT professionals can use Cradlepoint solutions in three real-life situations: building a reliable network, setting up a secure network, and proactively responding to network issues. NetCloud Manager, Cradlepoint's cloud management platform, provides a single service to deploy and manage all Cradlepoint LTE networking endpoints.

WATCH DEMO ›