cradlepoint | CONTINUITY

4G Failover for Business Continuity:

Maximizing Revenue & Minimizing Risk to Your Brand

Networking Strategies for Distributed Enterprises

What would happen if during peak business hours, while sales are booming and your critical data is being updated, your company's wired Internet connection fails at one or more locations?

For many distributed enterprises with branch offices, the consequences of just a few minutes of downtime will ripple across the entire company's operations t in:

- An immediate hit to revenue from the Point-of-Sale (POS) system failure
- Non-PCI compliance leaving your organization open to security risks and fraud
- Inventory management systems become inoperable, haulting operations
- Cloud-based applications for communications, security, and data storage stop syncing
- IT service providers or other vendors step in, resulting in costly truck rolls and wasted time identifying and repairing the problem
- Damage to brand reputation and loyalty resulting in further loss than revenue alone

It's a scenario that no enterprise wants to face, but with primary Internet service providers only offering 99.5% availability standard (which equals about 4 hours of downtime monthly), the question isn't if your Internet connectivity will go down, but *when*. According to Gartner, every hour of downtime can typically cost an organization $300,000 per hour. That is why it is imperative to have a plan for business continuity in place.

A Growing Problem

Distributed enterprises can increase Internet availability by installing a T1 line or try to reduce risk by adding service redundancy. A T1 line can cost nearly ten times more than a DSL or cable line.[1] Upgrading to a T3 line will increase availability to reach nearly 99.99% ("four-nines") availability, however, such measures can be too costly to implement and maintain. T3 lines can cost at least three times more than a T1, and often negate any return on investment for business continuity.[2] All this means that as a solution for hundreds (or thousands) of distributed locations, the costs would be astronomical, resulting in only a minuscule improvement in reliability.

60% of IT executives report having to contend with network downtime at least once a month.[3]

A Solution

In contrast to wired failover solutions or redundant service, 4G LTE technology offers always-on, cost-effective connectivity. As a failover solution, wireless offers speeds fast enough to keep your network humming. The relatively low cost of 4G LTE for business continuity means a greater return on investment and scalability for multiple locations, for which other options are just simply cost-prohibitive. With a wireless 4G LTE failover solution, distributed enterprises can enjoy the same reliability and competitive advantage as large enterprises.

Organizations seeking a business continuity solution that can be trusted for always-on network connectivity should consider deploying a 4G LTE-enabled solution to ensure maximum uptime, speed-to-deployment, cost-effective scalability, and ease of management with limited IT resources.

Long lines caused by downtime will quickly drive your shoppers to competitors.[4]

Surveying the Options: Upgrades, Redundancy, and Failover

There are three options for increasing network availability and addressing the problem of a single point of failure:

1. Purchasing network technology upgrades
2. Adding wired redundancy
3. Deploying a 4G LTE failover solution

The following summarizes each option and discusses the advantages and drawbacks with each solution.

Upgrading Technology

In a technology fueled world, POTS and ISDN lines do not offer enough bandwidth or reliablity to run mission-critical applications. By upgrading from Ethernet, DSL or cable to T1, an enterprise can increase Internet availability, reducing downtime from four hours per month to fifteen minutes. However, T1 lines also do not provide enough bandwidth for most enterprises to run all of their day-to-day applications.

Adding Wired Redundancy

As mentioned before, adding wired redundancy for hundreds (or thousands) of locations can be extremely cost prohibitive, not to mention that most wired lines are laid in the same trench so the wired redundant line is subject to the same physical damage as the primary WAN connections. It is also key to note that when wired lines are damaged it can take weeks to months to repair, resulting in devastating loss to any organization.

Success Story:
American Apparel™

American Apparel is a vertically integrated manufacturer and retailer of clothing for men, women, children—and even dogs. All phases of production, from cutting and sewing to marketing and photography, are done at the company's downtown Los Angeles factory. American Apparel has more than 280 stores located throughout the United States, Europe, China, Japan, Korea, Brazil, Mexico and Australia. Its Los Angeles factory is the largest sewing facility in North America.

The original impetus to work with CradlePoint grew from American Apparel's need for a wireless failover system to guarantee uninterrupted Internet access, says Osvaldo Hurtado, American Apparel's Director of Store IT Infrastructure. The locations also required PCI Compliant Internet access to process credit card transactions, conduct time management tasks, provide email communications, and manage inventory control.

CradlePoint routers enable American Apparel to keep hundreds of its international retail locations online through wireless 3G/4G broadband backup support. The stores can also use CradlePoint routers to create private networks to company headquarters.

To manage its network of routers, American Apparel uses CradlePoint's cloud-managed network management solution, which allows American Apparel to centrally deploy, configure, and manage all of their devices across different retail stores to improve the reliability and enhance the intelligence of their network.

Choosing a 4G LTE Failover Solution

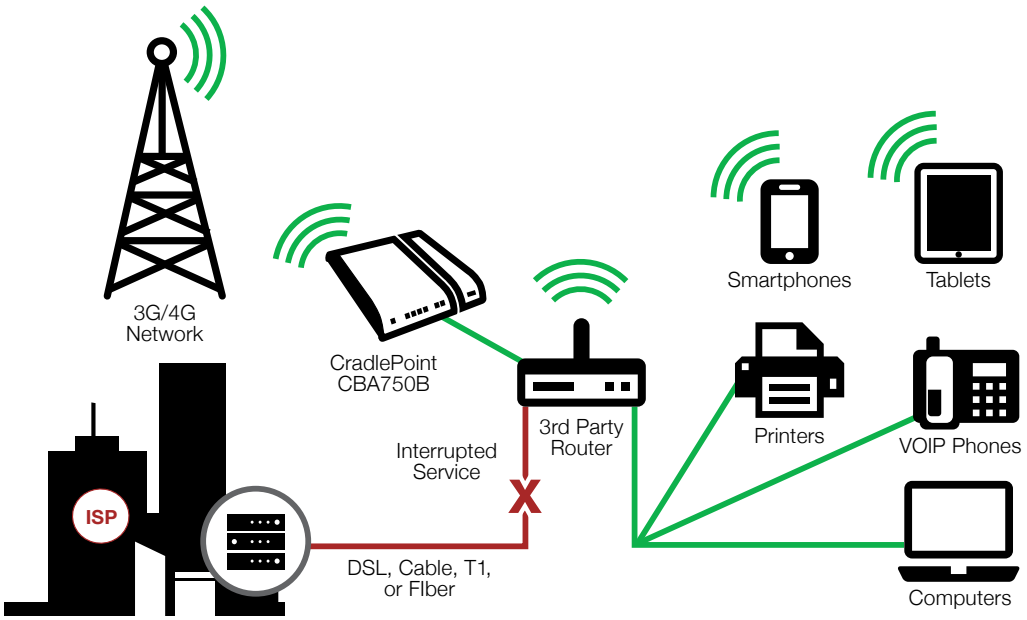
Distributed enterprises seeking business continuity solutions have unique needs, depending on geographic distribution and the number of locations requiring service. Decision makers should consider the following three criteria when choosing a 4G LTE business continuity solution:

1. **DOES THE SOLUTION OFFERS SIMPLE, SCALABLE DEPLOYMENT, MAINTENANCE AND CONTROL OVER HUNDREDS OR THOUSANDS OF DISTRIBUTED LOCATIONS.**

   Because distributed enterprises often do not staff a full IT team at each location or branch, a scalable solution should enable remote management, monitoring, and configuration in order to limit truck rolls and personnel needed to maintain the distributed network.

   Additionally, data usage is a concern for enterprises that choose 4G LTE wireless service for failover protection. Each location may have changing data needs from month to month, so a cost-effective failover solution must allow for real-time monitoring of data usage and load-balancing for maximum return on investment.

Wireless 4G Failover



2. **DOES THE ROUTER INTEGRATES WITH EXISTING NETWORK INFRASTRUCTURE, OR PROVIDES AN ALL-IN-ONE SOLUTION TO REPLACE CURRENT ROUTER AND MODEM.**

   Those enterprises seeking "overlay failover"—a solution that meshes with the existing wired primary connection—should seek an IP pass-through solution with the ability to convert the broadband signal to Ethernet.

3. DOES THE SOLUTION ENABLES VARIOUS NETWORK SECURITY ARCHITECTURES, SUCH AS VIRTUAL PRIVATE NETWORKING (VPN), CLOUD-BASED SECURITY, NETWORK SEGMENTATION, AND/OR PARALLEL NETWORKS.

Because distributed enterprises frequently transmit highly sensitive data (e.g. credit cards), and often do not have IT personnel on site with security expertise, locations can be vulnerable to data breaches.

As with the primary network, the business continuity solution should be optimized for maximum security and PCI compliance so that a primary network outage does not constitute a security risk. An ideal failover solution should have the flexibility to merge with the enterprise's existing security architecture.

Virtual Private Network: Establishing and maintaining a LAN connection through an Internet VPN requires little effort compared to traditional dedicated line solutions. With the proper encryption and authentication, the VPN architecture is a cost-effective and highly scalable solution for transmitting data securely.

Cloud-Managed Security: For organizations with little to no on-site IT support, cloud-based security provides visibility, configuration, and control over thousands of devices, anywhere in the world. Distributed enterprises should ideally deploy security solutions that combine the immediacy of on-premise management with the simplicity and centralized control of the cloud.

PCI Compliance: Organizations need business continuity solutions that are purpose-built for PCI compliant architectures.

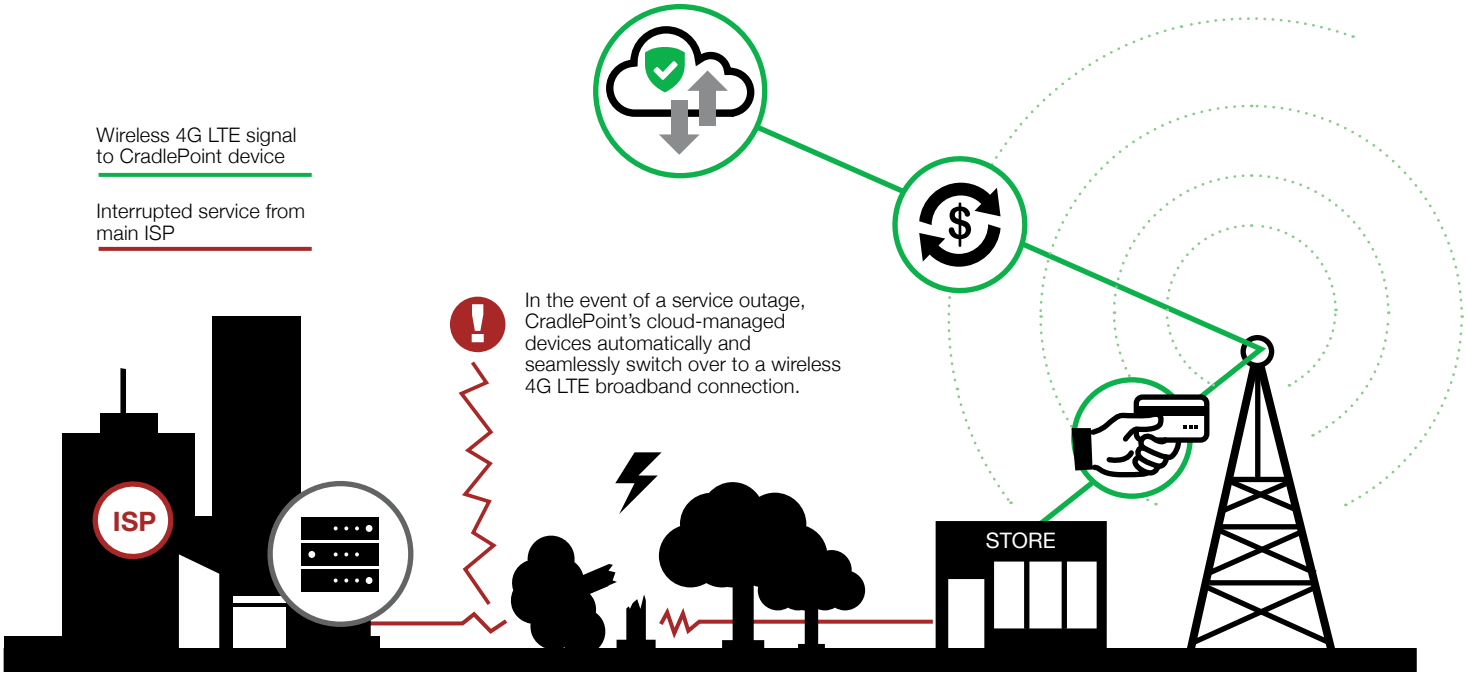
Network Segmentation: Network segmentation allows for the partitioning of the network into "security zones," or segments separated by firewalls. Properly configured segments separate applications and prevent access to sensitive data. A POS system (for example) should operate on a segment network separate from third-party applications, employee email, and public WiFi. Network segmentation is complex and requires meticulous ongoing monitoring to ensure there are no network vulnerabilities.

Parallel Networks: In light of recent incidents in which hackers have exploited misconfigurations in segmented networks, pivot attacks in monolithic networks, or phishing attacks to gain access to sensitive data, many enterprises have transitioned to parallel networks (known as air gapping), finding that situating different applications on their own respective network using 4G LTE networking solutions enables simpler, safer, and cost-effective networking for primary and failover solutions.

Every hour of downtime can typically cost an organization **$300k per hour** according to Gartner.[5]

CradlePoint Solutions

CradlePoint is the leader in 4G LTE networking solutions for business continuity. CradlePoint solutions incorporate the key requirements for failover, creating the flexibility to protect any organization. In the event of lost connectivity, CradlePoint's cloud-managed devices automatically failover to a wireless 4G LTE connection. Any system connected to the CradlePoint device continues to operate at 4G LTE speeds, keeping your network humming and your customers and employees happy.



CradlePoint Benefits

Cloud Management

Enterprise Cloud Manager, CradlePoint's network management and application platform, makes it possible to rapidly deploy and dynamically manage networks at geographically distributed stores and branch locations from a single remote location, even across different hardware platforms and implementations. Because Enterprise Cloud Manager allows IT to perform remote diagnostics, upgrade firmware, and configure devices remotely, organizations can enjoy better return on investment resulting from reduced truck rolls and personnel needed to keep the network functioning, up-to-date, and secure. Enterprises can ensure optimized data usage with real-time monitoring, load-balancing, and proactive usage alerts.

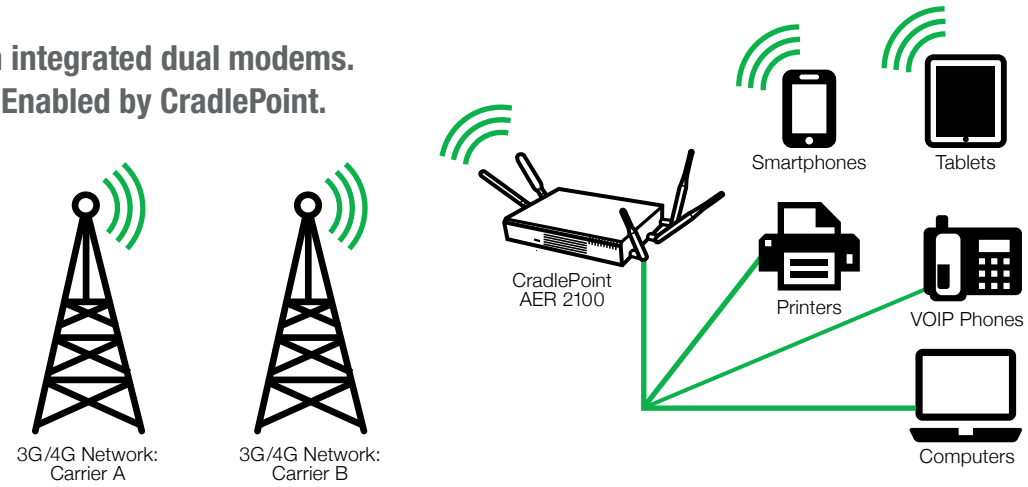
WAN Diversity

As a cloud-managed solution, CradlePoint balances the strengths of wired and wireless networks through WAN Diversity™—the convergence of 4G LTE, Ethernet (DSL, Cable, T1, MetroE), and WiFi as WAN, all delivered through a single networking device.

Using dual modem technology, enterprises have the ability to:

- Deploy multiple wireless backup connections to help ensure up to 99.999% uptime
- "Cut the wire" for combined high-speed 4G LTE networks from diverse carriers
- Load balance and add burst bandwidth for peak periods

“Cut the Wire” with integrated dual modems.
Failover Protection Enabled by CradlePoint.



Distributed enterprises able to implement a completely new infrastructure will require a solution that provides for the company’s wired and wireless needs in one device, preferably with an integrated modem, to maximize the efficiency of the investment.

Security

CradlePoint’s stateful firewall and cloud-based management software are designed to mitigate security risks and maintain PCI compliance within all types of network security architectures.

Virtual Private Network: Establishing and maintaining a LAN connection through an Internet VPN requires little effort compared to traditional dedicated line solutions. With the proper encryption and authentication, the VPN architecture is a cost-effective and highly scalable solution for transmitting data securely.

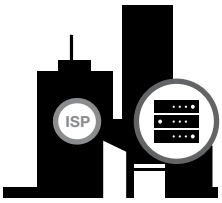
Cloud-Based Security: CradlePoint Solutions are cloud-enabled for rapid deployment, dynamic management, and enhanced intelligence. Through a RESTful API, CradlePoint has integrated cloud-based security solutions for web filtering and anti-malware into Enterprise Cloud Manager, giving IT the ability to inspect web traffic with near-zero latency. Enterprise Cloud Manager’s user interface and analytics help automate security configurations and checklists, such as PCI DSS 3.0 compliance, required for processing credit card information.

Threat Management: CP Secure Threat Management is a comprehensive intrusion prevention and detection system (IPS/IDS) that is powered by Trend Micro’s industry leading DPI engine. Deploy instantly via CradlePoint’s Enterprise Cloud Manager to defend against evasion attacks, improve network availability, and protect sensitive data.

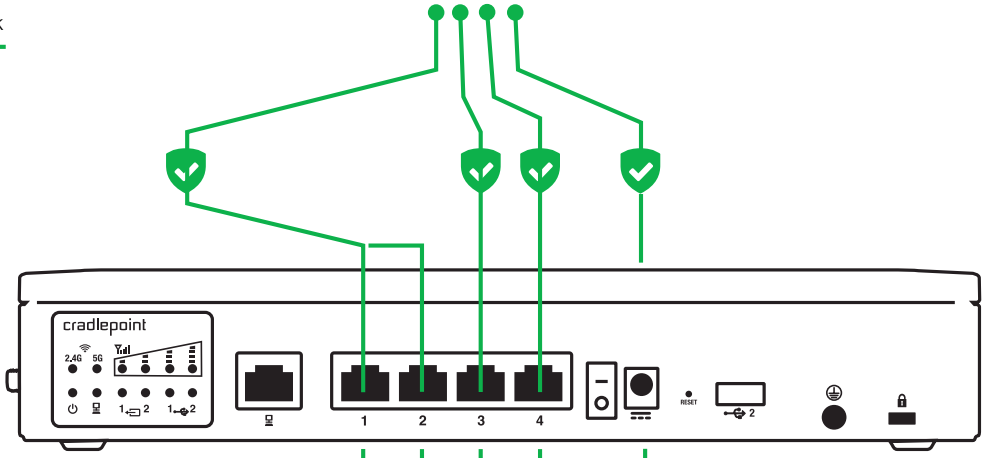
Segmented Networks: Enterprises that rely on network segmentation can improve ease of security configuration with Ethernet ports and WiFi SSIDs that can be individually assigned to specific network segments.

Parallel Networks: CradlePoint 4G LTE solutions make it possible to set up individual cost-effective air gapped networks, while still maintaining centralized management through the Enterprise Cloud Manager platform.

Creating Secure Zones Through Network Segmentation



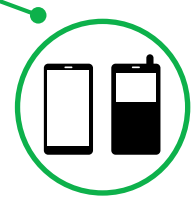
Secure Segmented Network



WiFi & Applications

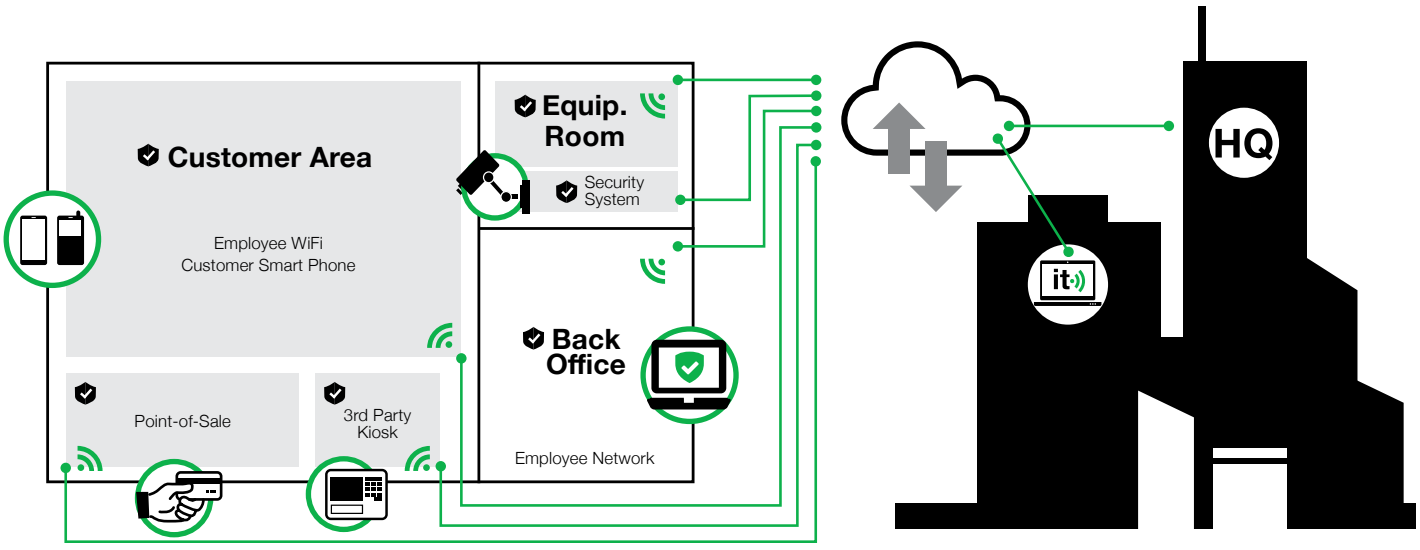
Credit Card Processing

Vendor Applications



Customer WiFi

Parrallel Networks Administered by One Source



Integrated Modem

CradlePoint's integrated business series routers combine power and flexibility with dual embedded business-grade wireless WAN modems for a fully-integrated business continuity solution.

Ease of Use

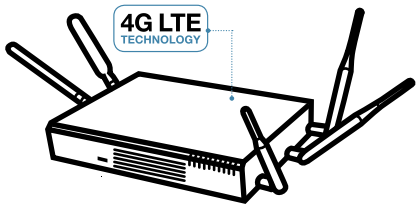
CradlePoint solutions offer plug-and-play simplicity to enable speed to deployment and ease-of-use. CradlePoint solutions are ready to start working right out of the box with all major carriers and most secondary carriers in the United States, Canada and Europe.

> **"90%** of the issues with land-line disruptions are in the last mile, so when your primary land-line goes down, chances are that your secondary land-line—the one you're using for redundancy—will go down, too."
>
> —Constantin Koutrias, Systems Administrator, Blinds to Go

Products

CradlePoint AER 2100

Combines routing, WAN Diversity™ (wired + 4G wireless), advanced security, private network support, and high-performance WiFi in a platform that can be deployed, managed, and optimized via CradlePoint's Enterprise Cloud Manager.



CradlePoint AER 2100

KEY FEATURES

- Optimized for WAN Diversity™ with integrated wired and wireless 4G WAN (including private network support)
- Dual-band dual-concurrent 802.11ac high performance WiFi
- Cloud-managed for zero-touch on-site configuration at installation
- Advanced edge routing and best-in-class, cloud-based security options
- Extensible and easily integrated best-in-class, enterprise applications via an Open API
- Certified 4G LTE dual modems for a "cut-the-wire" solution

Success Story:

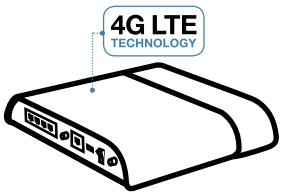
BLINDS TO GO™

Blinds To Go, a leading retailer and manufacturer of window blinds and shades in North America, was looking for a last-mile redundancy solution for POS systems in 100 retail outlets. The company specifically sought a wireless failover solution to provide continuous uptime for store transactions—with no interruptions—in the event of an outage of the primary wired source of Internet connectivity (T1/ fiber, DSL or cable, depending on location).

The company's systems administrator, Constantin Koutrias, chose a solution based on a CradlePoint mobile broadband router because of the solution's flexibility, enterprise-class security, and ease of deployment and use. To speed rollout and hold down costs, he first preconfigured the units, and then dispatched a technician to the various retail locations. "We configured everything ahead of time," notes Koutrias. "It went really quickly, because we had to create just one configuration file, then load it into each unit. We were able to configure dozens of devices in just hours. The person we sent out only needed minimal expertise. The actual installation probably took less than an hour per store."

CradlePoint ARC MBR1400

Automatic failover to wireless WAN connection when wired WAN disruption occurs, automatic failback when wired WAN connection is restored.



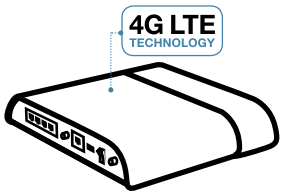
CradlePoint ARC MBR1400

KEY FEATURES

- Load balancing across multiple wired and wireless WANs for more bandwidth
- Proactive alerts when failover occurs through CradlePoint's Enterprise Cloud Manager
- 2.4 GHz or 5 GHz WiFi
- Advanced routing and security features including VPN, VLAN, WAN Affinity, and more
- Additional advanced security and routing features with an extended enterprise license:
  - OSPF/BGP/RIP, VRRP, STP, NHRP
  - OpenVPN (SSL VPN), L2TP
  - NEMO (Network Mobility) / DMNR (Dynamic Mobile Network Routing for Verizon)
  - Seamless integration with Zscaler's secure web gateway
  - WPA2 enterprise authentication for WiFi as WAN

CradlePoint ARC CBA750B

Plug-and-play overlay failover solution.



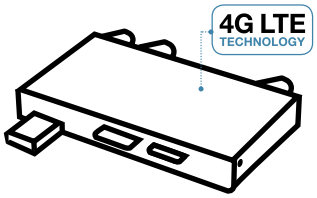
CradlePoint ARC MBR750B

KEY FEATURES

- Easy-to-use IP passthrough (4G-to-Ethernet)
- Drop into existing network for a turnkey failover solution
- Power-over-Ethernet
- No WiFi for simplified PCI compliance

MC400 for the AER 2100 Series

Dual Modem Technology fuses enterprise reliability with unparalleled agility for networking at the edge. The first modem is included with the CradlePoint AER 2100 Advanced Edge Router. The second modem must be purchased separately.



MC400 for the AER 2100 Series

KEY FEATURES

- Higher availability: cut-the-wire networking solution with 4G LTE for primary and failover
- Combine 4G LTE with dual-modem, dual-SIM, and multi-carrier functionality; Ethernet; and/or WiFi as WAN
- Future-proof your network: single versatile hardware platform supports several carriers flexibility: switch SIM cards when you've reached your data plan cap

To learn more about how CradlePoint solutions can enable your organization's business continuity needs, go to CradlePoint.com or call 1.855.813.3385 to speak with one of our solution sales representatives.

[1]BEi, "What's the difference between T1, DSL and cable?" http://www.beinetworks.com/blog/?p=615
[2]About Technology, "What are T1 lines and T3 lines" http://compnetworking.about.com/od/networkcables/f/t1_t3_lines.htm
[3]Fierce IT Security, "IT downtime from attack or infrastructure failure can cost firms more than $1M per hour. May 1, 2014. http://www.fierceitsecurity.com/story/it-downtime-attack-or-infrastructure-failure-can-cost-firms-more-1m-hour/2014-05-01?utm_medium=nl&utm_source=internal
[4]Chain Store Age 2014, "How do you know when it is time to upgrade your POS system" subsection 100% Uptime.
[5]Source: Gartner, "The Cost of Downtime" July 16, 2014. http://blogs.gartner.com/andrew-lerner/2014/07/16/the-cost-of-downtime/