WHITE PAPER

Leveraging LTE Failover for Branch continuity

Maximising Revenue & Minimising Risk to Your Brand

Effects of Network Downtime on 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 were to fail 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 to include:

- An immediate hit to revenue from the Point-of-Sale (POS) system failure
- Non-PCI compliance leaves 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 results 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 branch 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.[2] 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 branch continuity.[3] 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.

A Solution

In contrast to wired failover solutions or redundant service, 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 LTE for branch continuity means a greater return on investment and scalability for multiple locations, for which other options are just simply cost-prohibitive. With a wireless failover solution, distributed enterprises can enjoy the same reliability and competitive advantage as large enterprises.

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

60% of IT executives report having to contend with network downtime at least once a month.[1]

Surveying the Options: Upgrades, Redundancy, & 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 an LTE failover solution

1 **Source** 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

2 **Source** BEi, "What's the difference between T1, DSL and cable?" http://www.beinetworks.com/blog/?p=615

3 **Source** About Technology, "What are T1 lines and T3 lines" http://compnetworking.about.com/od/networkcables/f/t1_t3_lines.htm

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 4 hours per month to 15 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 organisation.

Leveraging an LTE Failover Solution

Distributed enterprises seeking branch 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 an LTE failover solution:

1. Does the solution offer simple, scalable deployment, maintenance, and control for 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 some enterprises that choose LTE wireless service for failover. 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.

2. Does the router integrate with existing network infastructure, or provide 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.

Success Story

IHS Markit

Company Profile:

IHS Markit is a data and information services business that caters to a variety of industries including automotive, energy, financial services, defense and maritime. They operate multiple critical sites globally with complex network requirements and stringent security specifications.

Challenge:

For the IHS Market team, central support and remote management was essential to meet their clients expectations. They needed to leverage out-of-band-management to centrally administer networks for both new builds and support cases on live services. Additionally, an Enterprise multi-factor authentication was vital for the IHS Markit support team.

Solution:

By deploying the Cradlepoint branch continuity solution with NetCloud Manager, IHS Markit saw a significant return-on-investment globally in remotely managing their network when comparing costs that would have been spent sending an engineer to troubleshoot or build new sites.

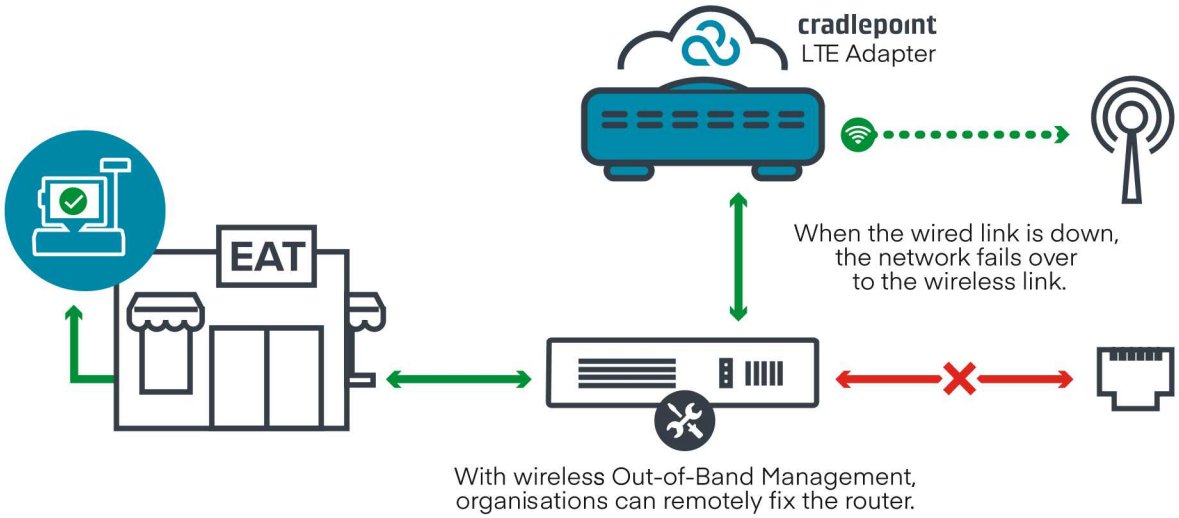
"Having an all-in-one solution with wireless failover and best-in-class security services was what drew us to Cradlepoint in the first place. Now, we can easily deploy and manage several sites with NetCloud Manager without sending personnel. From a network management perspective, the cost savings are huge."

Joe Smith
IT Director, IHS Markit

3. Does the solution enable various network security architectures, such as virtual private networking (VPN), cloud-based security, and network segmentation?

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 branch continuity solution should be optimised 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 organisations 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 centralised control of the cloud.

PCI Compliance: Organizations need branch 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.

Wireless Edge Services for Branch Networking

Cradlepoint's NetCloud Service for branch provides retailers with tailored services — including automatic LTE failover and Out-of-Band Management — delivered through purpose-built, LTE-enabled endpoints that include a limited lifetime warranty and comprehensive 24x7 support.

Branch Continuity Service

Cradlepoint's NetCloud Service for branch continuity is delivered through LTE Adapters that integrate seamlessly with existing network and SD-WAN infrastructure. Using secure wireless access, these adapters provide the ability to extend management capability to any primary router Out-of-Band, without the need for a wired connection. They are equipped with Power-over-Ethernet for flexible, unobtrusive placement anywhere to optimise cellular reception.

Branch Connectivity Service

Cradlepoint's NetCloud Service for branch connectivity is delivered through all-in-one, multi-WAN branch routers with embedded LTE — providing routing, WAN link termination and traffic management, a firewall, and cloud configuration and troubleshooting. LTE can be leveraged as the failover or primary WAN link — or both.

A Cradlepoint branch router also can serve as a backup device. If the primary router goes offline, enterprises can have instant WAN failover and router failover simultaneously through Virtual Router Redundancy Protocol (VRRP), a layer 3 protocol. The backup router automatically takes over all network duties and serves as the primary router — with the LAN and WAN uninterrupted.

Service Plans for All Networking Needs

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.

Cradlepoint's 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 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 organisations 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 at cradlepoint.com/branch-networks