

The New Route to Internet Access Backup

How 4G/LTE is Making Route Diversity Affordable for Any Size Business

What would happen if your business lost its Internet connection? For many companies, it would be a disaster that would cripple their ability to communicate and transact business with customers, suppliers, employees and partners. Stunning advances in IT and telecom have created opportunities and capabilities that were only far-off concepts just a few years ago. The benefits they have provided to businesses are extensive, but they have also created an increasing dependence on staying connected. In spite of this, a surprising number of companies and organizations do not have true route diversity for their Internet connections. The key reason is the significant cost of creating a completely independent backup system with dual entrance facilities from a second Internet provider. The emergence of 4G and LTE wireless capabilities are making real route diversity viable and affordable for any size business.

YOU MIGHT HAVE BACKUP BUT DO YOU HAVE ROUTE DIVERSITY?

Many companies provision a backup/redundant Internet connection, but few actually achieve true route diversity. There is a critical difference. Almost all telco carriers and cable providers share the same route to deliver their services through the local loop – between your business and the carrier’s central office. If there is an equipment failure or damage to that local

route, your Internet connection will fail. Such failures account for more than 90% of all outages.

Relying on a backup Internet connection that uses the same route will only protect you from failures that occur in the provider’s network on the other side of the central office. This is better than no backup at all, but it will not be effective in the vast majority of failures. For complete backup protection you need true route diversity from a different carrier using a different route. The traditional method of doing this is through landlines and usually requires additional poles, excavation, wires, repeaters and other expenses that can quickly add up to tens of thousands of dollars. Alternatively, some businesses have experimented with wireless connections, but up to now, slow speeds and high latency have made this option less than optimal.

With the rollout of 4G/LTE, the situation has changed, making wireless an excellent option for achieving true route diversity and an affordable Internet backup system.

WHY ROUTE DIVERSITY MATTERS

Utilizing the full power of IT and telecom capabilities is vital to remaining competitive, achieving maximum efficiency and minimizing costs. A central and growing component of an effective IT/telecom system is a reliable Internet connection. Without it, an array of business activities that must function in a real-time environment are lost, such as:



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Vital Internet connections through landlines are vulnerable to disruptions from a variety of factors related to:

- Physical damage to local loop cables caused by weather, traffic accidents, construction, vandalism and other events.
- Equipment failure of the local loop switches, circuitry and components.
- Network failures caused by equipment and system problems occurring outside the local loop.

Regardless of the cause, the result can be a devastating shutdown of your business.

INTERNET BACKUP STRATEGIES

As companies have recognized the importance of backup Internet connections, many have implemented strategies for providing a second source if the primary Internet connection goes down. These

options have offered various levels of effectiveness and practicality.

Different Carrier, Same Route

This is the most economical approach because it does not require additional poles and repeaters, extensive excavation and other expenses. The backup service is delivered to the business from the same central office traveling the same route as the primary service. But both could go down at the same time. A second carrier using the same route, does not provide true route diversity, and only protects against carrier network failures, which account for just 10% of the outages.

Traditional Approach to Route Diversity

True route diversity can be achieved by building dual-entrance facilities. This is accomplished by provisioning two different carriers using separate routes for their lines, which then enter the business through widely separated access points (usually on opposite ends of the building). While this is an effective solution, it is also an expensive one that is only affordable for larger companies and organizations.

Wireless Carrier Route Alternatives

For businesses that cannot afford dual-entrance facilities, there have been wireless options for



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providing their backup Internet access. These options have challenges and shortcomings, as well.

- **Satellite** – obtaining service through a satellite connection is more economical, but has limitations due to its high latency (data transfer time), relatively low bandwidth and vulnerability to weather disruption.
- **Traditional Mobile Broadband** – a lower cost solution, but also too high latency and too low bandwidth to be practical for many business applications – especially multimedia streaming and real-time data flow. Unreliable signal strength throughout the building can also be a major issue.
- **Fixed Wireless** – direct wireless connection from the business to a tower provides good quality service, but it requires uninterrupted line-of-site availability, which is sometimes impossible to achieve. Weather disruption can also be an issue.

While one or more of these options has provided businesses with a more affordable (yet marginal) solution, they have fallen short of creating a high-quality, seamless backup system for Internet connections. Then came 4G/LTE.

HOW 4G/LTE IS CHANGING BACKUP STRATEGIES

For years wireless companies have battled to gain an advantage by offering higher speeds and greater coverage. The progression from 3G to 4G/LTE, however, has crossed an important threshold by increasing the speed of data transfer enough to make it practical for businesses. It is now possible to

wirelessly connect virtually any application or system across the Internet and achieve good or excellent results. This creates an important and invaluable opportunity for companies to implement a high-quality, affordable backup system with true route diversity.

The Advantages of a 4G/LTE Backup System

When considering a 4G/LTE backup system you should compare it to both a route diverse landline and the other alternatives discussed above under Carrier Route Alternatives.

- **Speed** – 4G/LTE now has download speeds of 10-20 mbps and 5 mbps uploads; that is 10-20 times faster than 3G and more than adequate for most needs.
- **Wireless** – not dependent of poles, wires or landline hardware associated with the vulnerable local loop.
- **Lower Latency** – 4G/LTE has a latency of less than 50 ms, which is required for real-time video streaming and voice.
- **Data and Voice** – good for Internet and VoIP backup redundancy.
- **Coverage** – 4G/LTE has improved in-building penetration.
- **Footprint** – national coverage is good and growing.
- **Installation** – completed in a few days, compared with 60-120 days for dual-entrance facilities.
- **Simplicity** – simple to set up and requires very little hardware.

The Components of a Wireless Backup System

There are two ways to set up a wireless Internet backup system:



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Mobile Hotspots – this is the simplest, lowest cost approach. All it requires is a device with mobile hotspot capability, which enables Wi-Fi connections with individual computers. A typical mobile hotspot device can connect with 5 or more users. (Your office PC's will also need to be capable of utilizing a Wi-Fi connection). No network wires or equipment is necessary. However, mobile hotspots have a lower level of security and there is no firewall. They are good for less sensitive content and applications that do not require security credentials or compliance.

4G/LTE Routers – for companies that need higher security or find Wi-Fi to be impractical for their buildings, this is a good choice. The signal is received by 4G USB cards in the router and then distributed through your existing network. It is much more secure because it goes through your firewall. It also offers auto failover, which seamlessly transfers from your primary Internet connection to the wireless backup system and back again as necessary. To accommodate different numbers of users, varying numbers of USB cards can be added. This also allows load balancing to optimally handle varying data flow. CradlePoint, Cisco, Adtran, and others market different models of 4G/LTE routers.

WHO SHOULD USE 4G/LTE INTERNET BACKUP

4G/LTE wireless Internet backup is well-suited for small and mid-size companies that rely on their Internet connections to do business. It is excellent for the vast majority of their regular activities and applications. It may not be

the best solution for extremely large data usage because wireless carriers charge on a measured usage basis. Unlimited data is a thing of the past. Their maximum plans are currently 10 gigabytes (at time of publishing), which means you pay a much higher rate if you exceed the plan limit. Extensive streaming of video, music and multimedia may exceed the current plan, and that can quickly become cost prohibitive for everyday use.

The first step in determining if you should install a 4G/LTE Internet backup connection is to perform a complete assessment to determine how much lost Internet connectivity would cost your business. Be sure to consider direct and indirect costs, such as lost opportunities, decreased productivity, dissatisfied customers and more. Depending on your business, the cost of even a four to eight hour outage could far exceed the expense of the backup connection.

CONCLUSION

Ongoing IT and telecom advancements concurrently offer big opportunities and real challenges. One of the most critical issues to address is your increasing dependence on services, applications and functionality that you access through the Internet. As technology continues to progress so will that dependence. The time to ensure that you have a reliable, cost-effective backup system, with true route diversity, is now. 4G/LTE may be the ideal solution. Find out, before it's too late.

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