

Achieving Full Internet Redundancy A Complete Guide for Your Business

Broadband service providers deliver high-speed internet access through various means. From wireless to wired, the pros and cons for each category have been extensively discussed in numerous papers and articles. However, the fact that the two can be combined together to create a fully diverse and fully redundant internet connection is often overlooked.

In this guide, we explain how partnering your wired circuit with a wireless solution can increase your broadband reliability and uptime.



What is Internet Redundancy?

Internet redundancy is the combination of a primary internet solution with the support of a backup circuit in preparation for an unlikely outage. With nearly every modern business reliant on maintaining a stable internet connection, the need for a backup connection more critical than ever.

If the primary connection experiences sudden downtime, the backup connection automatically kicks into action and keeps operations online. Redundant solutions are provided in various ways, utilizing diverse internet access options to ensure business continuity.

Risks of Not Having Business Internet Redundancy in Place

Downtime

Although internet service providers (ISPs) do all they can to keep your connection up and running, sometimes events occur that make it impossible to avoid a primary circuit outage. For many businesses in today's online environment, this means that productivity is throttled or stopped entirely. Having a backup circuit in place as part of a full redundancy setup ensures business continuity and eliminates issues associated with primary circuit downtime.

Loss of Production

Downtime often causes a significant loss of production. Employees in healthcare and construction industries, for example, require constant access to important data that could be lost and unobtainable in the event of an outage. A redundant solution can help back up this information and prevent the loss of important data.

Financial Cost

When a primary network outage takes place, the financial cost immediately begins to add up. This occurs due to lost hours for workers that still need to be paid, lost business from prospects and customers unable to complete orders as well as the cost of repairing and restoring the network in a timely fashion. The combination of these problems caused by the lack of a backup plan represents a major risk for a business.

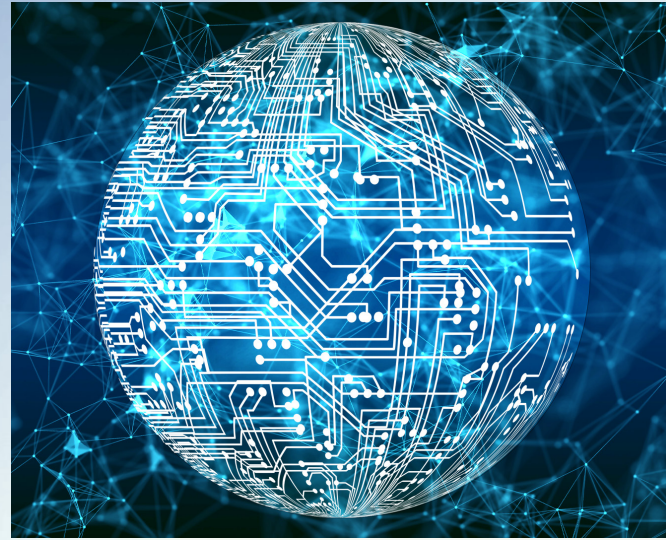
The Unknown Cost

The lack of internet redundancy impacts the ease with which potential customers can reach your business. Not being able to answer the phone or respond to live chat messages on your website can lead to lost prospects, lost sales, and negative reviews. This can lead to a poor perception of your organization and result in the loss of potential business.

The Need for Redundancy

Full redundancy should be a priority for all businesses. For most businesses, a redundant internet connection ensures operations can continue as normal. This continued broadband connectivity is the link to your customers, your brand, your operations, your data, and your revenue. This is especially true for businesses that rely on e-commerce.

Communications networks have evolved dramatically in the past couple of decades. From shared internet access options like cable, to dedicated lines such as fiber, customers have many wired choices for their broadband needs. All these wired solutions, however, have one thing in common - they are laid in conduit beneath the ground. Most wired operators lay cables or fibers in specific paths under roads across the country. Because of the difficulties in construction and coordination with cities and local authorities, most operators either share the same conduit or lay their cable in their own conduit which are bordering other conduit. These issues result in long lead times for wired operators in areas where they do not have an existing presence.



The Common Threat for Wired Networks

As mentioned previously, the proximity of buried conduit and cable runs for legacy wired telecommunications operators make them all vulnerable to the same physical accidents and natural disasters. Local construction or a similarly intrusive event can damage all conduit and cables in that area disabling the networks of multiple carriers in that area.

Completion of the construction and cleanup operation after such an event will be lengthy and cause long outages for the affected buildings - even those located several miles away if they share the same pathways. Therefore, the concept of providing redundancy for critical enterprise networks by adding multiple wired providers is not logical. In case of any natural or man-made accidents or events, having multiple wired connections is often pointless to keeping your connection going.



How to Implement Internet Redundancy with Fixed Wireless

One way that businesses can effectively implement redundancy is to install a fixed wireless circuit as a primary or backup option in combination with a wired solution. In a fixed wireless network, a base station, or Point of Presence (PoP) uses microwave technology and a clear line of sight to supply high-performance broadband internet access.

Since the medium is wireless, any physical damages or changes on the ground between the base station and customer location will not affect the network. While wired solutions can be impacted by events at ground level, wireless connections remain unaffected and offer a continuous connection.



Maintain Upstream and Access Diversity

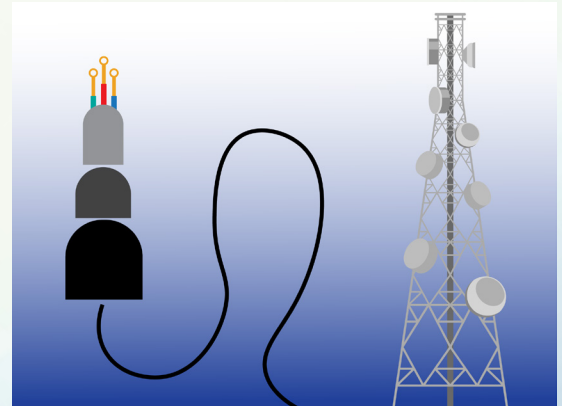
Major communications companies utilize a “multiple upstream” approach. In each city, providers’ core network connects to at least two major upstream providers, using a distributed BGP (Border Gateway Protocol) design, to provide complete redundancy for internet access. This eliminates unexpected outages due to failure from one of the upstream providers.



Utilize Diversity for Full Redundancy

Businesses looking for full network redundancy must combine their wired connection with a fixed wireless connection to create a truly redundant network with network diversity and path diversity. A fixed wireless link will bypass all surrounding street level hazards and guarantee connectivity to the network should a major outage occur for wired operators.

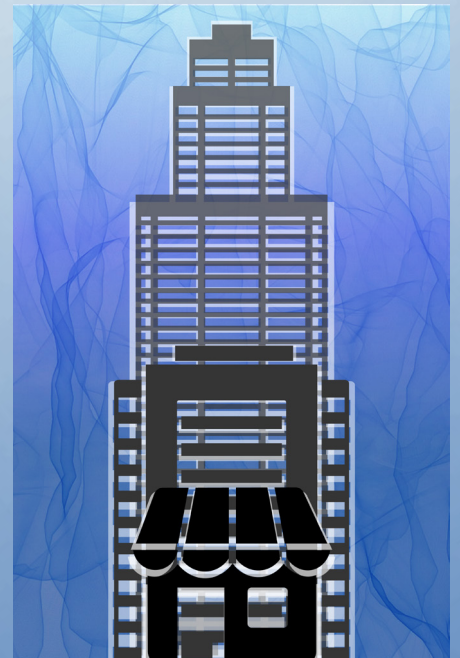
While wired providers go through the lengthy reconstruction of their network which can take days, if not weeks, a business utilizing fixed wireless as a backup will remain up and running via an auto failover link. Carrier diversity is also important because if one provider goes down for any reason, you are still connected by another provider, adding maximum reliability.



Consider the Size of Your Company

Full redundancy is made possible by using a router with multiple WAN ports that support failover and traffic load balancing. There are several brands to choose from and many factors to consider when selecting a router. You can find units with multiple WAN interfaces and each WAN port can connect to an ISP.

When selecting a unit, keep in mind the prospect of any growth that your company may experience over the next few years. Note that the throughput is the maximum inbound and outbound speed the unit can support simultaneously. For example, a throughput of 40 Mbps means that the unit is capable of 20 Mbps down and 20 Mbps up at the same time. Before purchasing the redundancy package, seek clarification from the service provider on throughput capability. It will also be beneficial to confirm that the number of NAT sessions the router can support simultaneously meets your needs without slowing down



Achieving Full Redundancy with a Failover Connection

Multi-WAN routers can re-route inbound and outbound ISP traffic in the case of a failure. By setting up failover procedures when configuring the multi-WAN router, businesses can avoid downtime since the failover procedures will kick into action and automatically reroute traffic to another healthy connection. Organizations must ensure that the router provides adequate balancing policies for the type of traffic.

IPs issued by service providers are carrier specific. This means that the loss of a primary circuit will affect IP schemes including the availability of self-hosted public facing applications such as email, VPN, collaboration portals, content servers and VoIP.



True failover or backup capabilities need to account for Domain Name System (DNS) in the network design. In the event of ISP unavailability, the DNS entries for those external IP addresses will need to redirect traffic to the IP addresses of the backup ISP. This can be configured manually or using automatic methods provided as a service by DNS hosting providers or features built into the load balancing router.

For businesses looking for maximum reliability and uptime, aggregating reliable fixed wireless and wired broadband services is ideal. Redundant broadband services, utilizing a separate and distinct fixed wireless provider plus a wired provider will ensure true path and carrier diversity, therefore increasing dependability and reliability for mission critical operations.

Understanding these issues and how to avoid them is crucial to keeping your business connected. Whether your business is fortunate to have access to fiber and fixed wireless or only cable and satellite, having a redundancy plan is a must.