

# Guarding Against Network Failures

## How to Ensure the 'Always-On' Business

### Introduction

You need your network to run your business. In today's competitive business environment, few businesses can afford a branch location to go off-line, let alone the headquarters or data center location. If your network goes down, your business is impacted. The question is by how much. Unfortunately, many small- to medium-sized businesses don't know the answer to that question—until the network goes down.

Network outages—depending on their severity—can affect a single branch location or the entire business. Above and beyond direct dollar costs, downtime has a negative impact across your business:

- Productivity loss by employees
- Damaged reputation among customers and suppliers, as well as banks and financial markets
- Revenue loss, including direct revenue loss, billing loss, lost future revenue, and compensatory payments
- Impaired financial performance, including revenue recognition, cash flow, lost discounts, and payment guarantees
- Associated expenses, including temp employees, equipment rental, overtime costs, and travel expenses.

While even short network outages are detrimental, the impact of larger disasters and outages can be insurmountable for some businesses. A study by the American Red Cross found that 40% of small businesses never reopen after a major disaster. The reason—lack of planning and preparedness. Similarly, a U.S. Department of Labor study asserted that “93 percent of companies that experience a significant data loss will be out of business within five years.”

Developing a disaster recovery strategy is a critical undertaking for any business, small or large. And, as more and more enterprise-critical business applications are run over public and private networks, the importance of backup connectivity and network resiliency is moving to the forefront.

### Increasing Network Reliance

Frame relay, MPLS, broadband IP VPN, and private leased line T1 networks are very common landline WAN technologies deployed by businesses today. The landline WAN infrastructure is subject to many types of failures and outages that translate into failed communications, reduced productivity, and ultimately lower revenues. The major reasons for network downtime are technical and equipment failures, such as enterprise hardware problems, provider's equipment, bandwidth saturation, and cabling. The landline network is a complex collection of many devices dispersed throughout a geographical region. The sheer number and different types of devices make it vulnerable to outages. Furthermore, any interruption along the communication path between two locations can result in operational loss.

In addition, natural disasters such as floods, tornadoes, hurricanes, and fire can disrupt the network. The damages caused by these natural disasters can disable the network for several days before service is restored. For example, according to a Hughes survey of small businesses located in the Gulf Coast region, in the aftermath of Hurricane Katrina, 37 percent of those surveyed were without broadband service for more than five business days and 25 percent of those businesses reported losses of over \$25,000 due to their lack of Internet connectivity.



Human factors, such as cyber attacks, viruses, and sabotage pose additional threats to the network availability. Contrary to common belief, viruses can also attack and disable network devices; not to mention, manmade accidents that can bring down your network. Careless construction crews or vehicle accidents can take down communication infrastructure, such as utility poles along the roadside.



Many networks do not have backup and disaster recovery plans in place and even those that do, may not have complete separation between the primary and backup networks. More often than not, companies discover these flaws only after a disastrous outage has occurred. What is your backup strategy?

## Path Diversity – A True Backup Solution

Today, businesses need to have redundancy designed into their network for when their landlines fail. Often, network operators attempt to provide backup by deploying redundant landline circuits within their network (shadow T1s, for example). This approach, however, still leaves the network exposed to the risk of a single carrier failure, which will bring down primary as well as backup circuits. This approach also effectively doubles the cost of network provisioning. Another approach is to procure communication services from different service providers (AT&T, Verizon, etc.), believing that this will provide redundancy and path diversity throughout the network. However, since carriers use the same rights of way (along railroads and tunnels), service interruptions occurring along these segments can affect all carriers.

In addition to common rights of way, landline service providers use the same central offices, so outages originating from the central office affect them all. This applies also to frame relay and MPLS service providers, such as AT&T, and Verizon. According to Jay Pultz, Networking Vice President and Research Director for Gartner Group, the weakest link in a landline communication network is the local access facility that connects an enterprise site to a point-of-presence (PoP) at the central office of the common carrier. Hence, a redundancy plan utilizing different landline carriers does not, by default, provide an enterprise with true backup capability.

A broadband satellite-based solution for backup provides the redundancy to your landline network through a true physically diverse wireless communication path. The satellite network **completely bypasses** your primary landline infrastructure, providing a reliable, flexible, fast broadband backup path. An end-to-end connection can be made independent of wires, cables, and fibers by installing an antenna on your company's rooftop. In case of a business location change or an emergency that causes damage to the facility, it is easy and quick to set up an antenna at a different location and resume network connectivity. Moreover, satellite-based solutions provide ubiquitous high bandwidth backup paths and are more cost effective than many landline alternatives.

Satellite-based communications have been in operation for decades, providing reliable primary and backup services for a range of industries. In the financial services sector, a number of banks, brokerage houses, and financial services companies have been using broadband satellite communications for their primary service, or as the disaster backup to their landline network. The retail, hospitality, and retail petroleum industries have been using broadband satellite-based networks to connect all of their remote locations.

## HughesNet® Broadband Backup

Hughes is the world's largest broadband satellite network provider with over 30 years of experience. We can provide you with a flexible, reliable backup solution for your landline network that is truly path diverse. With our satellite-based solutions, you can back up your entire network or just a few critical locations.

HughesNet Broadband Backup provides:

- Protection against landline disruptions
- A true, path-diverse broadband connection via satellite
- Increased network uptime
- Flexible service options to meet your business needs
- Professional installation
- Plans as fast as 2.5 Mbps

One way to look at HughesNet Broadband Backup is as **business insurance**. What would you pay to ensure that you have a truly diverse wireless broadband backup connection to carry your mission-critical data when your landline fails?

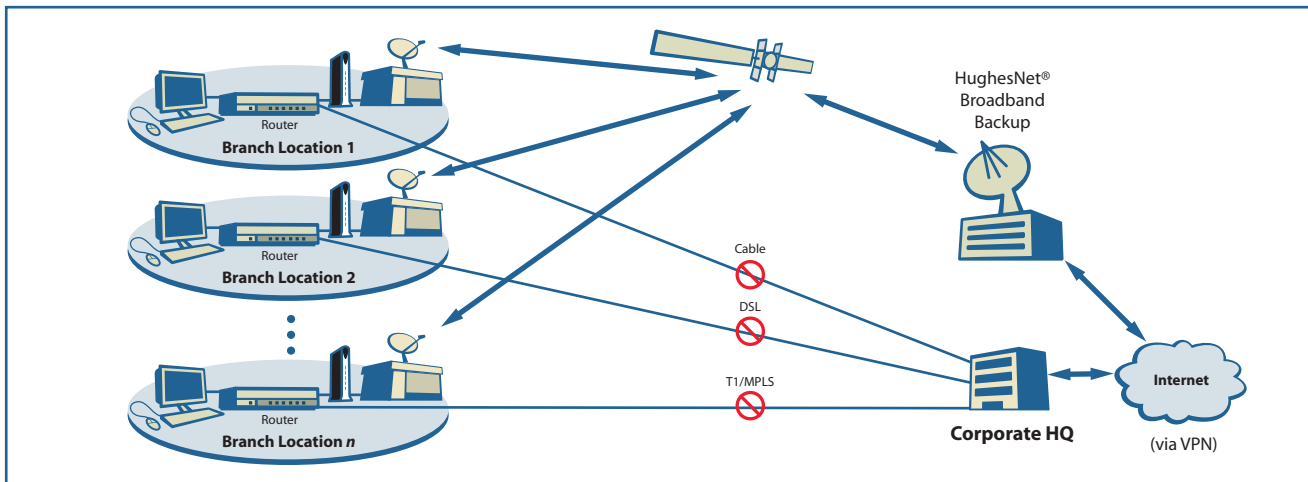
## How to Ensure the 'Always-On' Business

HughesNet delivers high-speed broadband access over satellite to backup your existing landline broadband connection. Each business location must be in the contiguous U.S. and have a clear view of the southern sky.

A HughesNet certified installer will connect the satellite modem to your LAN to ensure you have broadband connectivity. The satellite modem will link to a small .98 meter satellite antenna that is mounted, typically, on the roof of your commercial building.

Once the installer has verified the broadband connection, a 2-port (dual port) WAN router (customer supplied) will be required to facilitate the failover/backup to satellite when the landline connection fails. The router also will automatically return to your primary landline connection once it is restored. Your business is now protected and you no longer have to rely only on your landline provider to keep your business on-line. See the diagram below.

Protect your business with a broadband back-up solution that keeps your business online with dependable, diverse-path connectivity. Whether your locations are on DSL, cable, or T1 landline connections—HughesNet has you covered.



HughesNet Broadband Backup not only provides you with a truly diverse network backup, but also has the potential to reduce traffic load on your primary landline network, provide additional value-added services, and reduce overall network costs. You can leverage the backup network for some of your current applications requiring high bandwidth or multicasting, such as browser-based applications or multimedia content delivery. Satellite has proven to be the most cost-effective and efficient mode for multicast applications.

Your satellite backup network can be utilized for providing these solutions to your remote sites at very low additional cost compared to transporting them over a landline-based network, such as frame relay or MPLS.

## **The HughesNet Business Solutions Suite**

---

In addition to broadband backup, Hughes has additional small- to medium-sized business solutions designed to meet the growing needs of your business. The HughesNet Business Solutions suite includes broadband Internet access to provide business-grade broadband access via satellite, and a Virtual Private Network (VPN) solution to provide secure networking among your locations. With HughesNet, small businesses can now have business-grade broadband Internet access at speeds comparable to DSL and cable, wherever they are located. As long as you have a view of the southern sky, you have broadband! Find out why over 60,000 small businesses are enjoying the benefits of HughesNet Business Solutions for their businesses. Put the power of broadband in your business.

**For more information, contact Hughes at 1-877-337-3880, or visit our Web site at [www.smb.hughesnet.com](http://www.smb.hughesnet.com).**

## **Proprietary Statement**

---

All rights reserved. This publication and its contents are proprietary to Hughes Network Systems, LLC. No part of this publication may be reproduced in any form or by any means without the written permission of Hughes Network Systems, LLC, 11717 Exploration Lane, Germantown, Maryland 20876.