Business Continuity White Paper

January 2011

Introduction
In today's demanding business environment, few companies can afford having a key facility or branch location go off-line, or face service interruptions at headquarters.

If the network goes down, your business is impacted. The questions that more senior executives are asking their IT managers… "to what extent will we be affected?" and "how can we best minimize our risk?" Unfortunately, many businesses can't confidently answer these questions.

Outages can affect a single branch location or an entire business. While direct costs can be measured[1], downtime can also result in productivity losses, damaged reputation among customers and suppliers, and even adverse impact with lenders and financial markets.

Short-term outages can often be managed, but the impact of a longer term disruption can be crippling. Many networks do not have backup and disaster recovery plans in place and those that do may not have complete separation between the primary and backup networks. More often than not, companies discover these weaknesses only after a disastrous outage has occurred.

This reality has led government regulators and senior IT professionals to encourage businesses to develop disaster recovery strategies and business continuity plans. The good news for many companies is that, as more and more enterprise-critical applications are run over public and private networks, the importance of backup connectivity and network resiliency is gaining management focus and increasing levels of funding.

Causes of Network Outages
Frame Relay, MPLS, broadband IP VPN, and private leased line T1 networks are common, land-based WAN technologies deployed by businesses today. This infrastructure is subject to many types of outages that result in failed communications, reduced productivity, and ultimately lower revenues. The major reasons for network downtime often involve equipment failures such as enterprise hardware problems, bandwidth saturation, and fibre or cable cuts. The landline network is a complex collection of infrastructure including wireless and microwave towers and many devices dispersed throughout a geographic region. The sheer number and different types of devices make a terrestrial service area vulnerable to outages. Furthermore, any interruption along the communication

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[1] Various studies on network outages have identified direct revenue loss, billing loss, compensatory payments and impaired financial performance, including revenue recognition, cash flow, lost discount, payments and the potential for additional expenses such as temporary employees, equipment rental, overtime costs, and travel expenses.

path between two locations can result in operational loss. In addition, natural disasters such as earthquakes, floods, tornadoes, hurricanes, and fire can disrupt or disable the network, sometimes for several days or even weeks before service is restored.

Further threats can come from deliberate acts in the form of cyber attacks, viruses[2], and sabotage, or from accidents and other unintended events, such as construction crews or vehicles taking down communication infrastructure.

Issues with Landline backup Networks

There is growing acceptance of the need to have redundancy designed into a network, but relying on terrestrial service providers can still leave considerable risk. When a current network operator attempts to provide backup by deploying redundant landline circuits (shadow T1s, for example), companies are still exposed to the failure of a single carrier which can bring down primary as well as backup circuits. This approach also effectively doubles the cost of network provisioning.

An alternative is to procure communication services from different terrestrial providers which, in theory, should result in redundancy and path diversity throughout the network. However, since carriers often use the same rights-of-way (along railroads and tunnels), service interruptions occurring along these segments will affect all carriers. Along with the practice of using common rights-of-way, landline service providers often use the same central offices (CO), so outages originating from that CO affect all customers. This applies equally to frame relay and MPLS service providers

It is important to keep in mind that 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 CO of the common carrier. Hence, a redundancy plan utilizing different landline carriers does not, by default, create true backup capability.

Satellite – A True Backup Solution

A satellite-based backup solution provides the redundancy to your landline network through a true, physically diverse wireless communication path. The satellite network **completely bypasses** the landline infrastructure, giving your business 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 or **relocate** an antenna at a different location and resume network connectivity.

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[2] Contrary to common belief, viruses can also attack and disable network devices.

Satellite-based solutions provide ubiquitous high bandwidth backup to any number of sites and are more cost effective than many landline alternatives. The reliability and ease of implementing satellite-based networks for primary and backup services has been well established across a range of industries. In the financial services sector, a number of banks, brokerage houses, and advisory firms have been using broadband satellite communications for their primary service, or as the disaster backup to their landline network. Gas stations along with retail and hospitality companies have been using broadband satellite-based networks to connect all of their remote locations for the last two decades.

Telesat's iMpaCT® Broadband Backup

To address the growing needs of Canadian businesses for reliable and cost effective network back-up, Telesat has been implementing a solution called **iMpACT,** a broadband satellite-based service that is *flexible* – select the sites you need, *robust* – can serve virtually any bandwidth requirement, and *resilient* – truly path diverse.

Telesat's iMpACT service provides:

- Protection against landline disruptions
- A true, path-diverse broadband connection via satellite
- Coverage of entire network across Canada
- Increase network uptime
- Flexible service options to meet your business needs
- Always On/Available
- Secure, Private Network
- Professional installation
- End-to-end management
- Operation & Maintenance

Telesat's iMpACT not only provides a truly diverse network backup for mission-critical applications, but also has the potential to reduce traffic load on your primary landline network, support additional value-added services, and reduce overall network costs. Customers can utilize the iMpACT network for current applications that require high bandwidth or multicasting, such as browser-based services or multimedia content delivery. Satellite has proven to be the most cost-effective and efficient mode for multicast applications, especially for networks with multiple/geographically dispersed sites.

Your satellite backup can be used for providing high bandwidth services to your remote sites at very low additional cost compared to transporting them over a landline-based network, such as MPLS or T1 circuits.
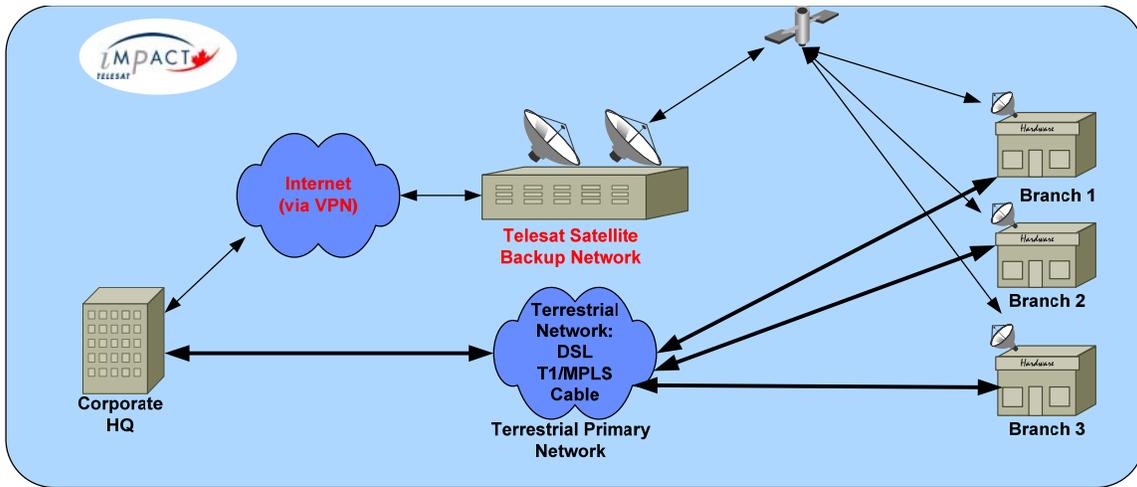
Figure 1: Satellite Backup Configuration

iMpACT Back-up Network Implementation

Telesat's iMpACT service delivers high-speed broadband access over satellite to back-up existing landline connections. Each business location must be within the Anik F2 satellite footprint which covers all of Canada and continental U.S. (see Figure 3), and have a clear view of the southern sky. A Telesat certified installer will connect the satellite modem to your LAN to ensure you have broadband connectivity. The satellite modem will link to a small satellite antenna (0.74 meters) that is mounted, typically, on the roof of your building. Once the installer has verified the broadband connection, a 2-port (dual port) WAN router will be required to facilitate the failover/back-up-to-satellite. The router also will automatically return to your primary landline connection once terrestrial service is restored.

Figure 2: Satellite Earth Station Equipment

With iMpACT your business will be protected and you will no longer have to rely solely on your landline provider to keep your business operational.

iMpACT Service: Satellite Footprint

The iMpACT service is carried on Telesat's Anik F2 satellite on the Ku-band. The service can be offered essentially anywhere in Canada and in the continental U.S. Telesat's Anik F2 satellite footprint is illustrated below.
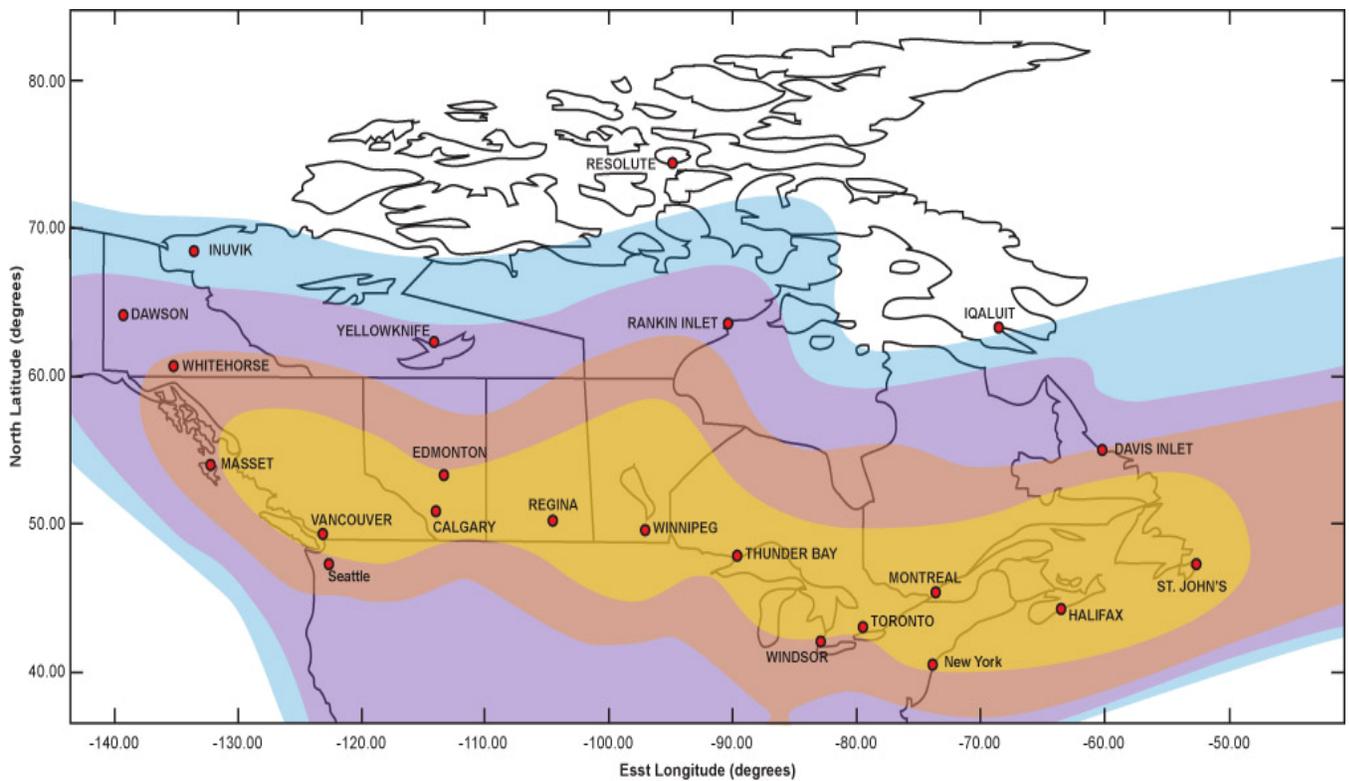

Figure 3: iMpACT Satellite Footprint

Estimated Antenna Sizes:	
Yellow	0.74m
Brown	0.98m
Purple	1.2m
Blue	1.8m

Telesat is Canada's largest broadband satellite network provider with over 30 years of experience in Very Small Aperture Terminal (VSAT) services.

We invite your inquiries on iMpACT – a broadband back-up solution that keeps your business fully online with dependable, diverse path connectivity. Whether your locations are on DSL, cable, T1 landline, fibre or MPLS networks -Telesat has you covered wherever you need service.

For more information on Telesat's iMpACT service, please contact:

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