

**Making the Case for Satellite:
Ensuring Business Continuity
and Beyond**

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Ensuring Business Continuity and Beyond

Ensuring business continuity is a major concern of any company in today's technology driven world. When networks go down, productivity and performance come to a virtual standstill. Additionally, related financial losses can mount quickly, causing businesses to miss revenue goals.

Looking beyond business continuity, companies are also exploring new ways that technology can enhance performance and productivity in their everyday business operations.

This white paper looks at how satellite operators can combine the business continuity proposition with other service offerings to effectively sell into the enterprise market space.

Background

The primary objective of recovery planning is to enable organizations to survive a disaster or loss of connectivity and maintain normal business operations. There are many ways to achieve this goal and businesses have to find a balance between the costs and risks associated with a particular method and level of redundancy protection.

Most businesses have redundant systems in place as part of an overall recovery plan, but these systems are often vulnerable to the same conditions that impact primary systems because they depend on the same infrastructure. If the underlying network supporting both systems is adversely affected, the resulting downtime can be extremely costly.

A viable business continuity solution must be capable of:

- **Bi-directional broadband**
The backup system must be able to handle typical primary network volumes with bandwidth on demand to support a variety of different applications, including real-time applications like voice and video with a guaranteed level of service.
- **Seamless connectivity**
Immediate and automatic transition between primary and redundant networks must be maintained to support mission critical systems and be available anywhere and anytime regardless of location or weather conditions
- **Remote Location Capability**
Support for cost-effective temporary and remote sites located outside of high-speed terrestrial network connectivity.
- **Application and Expansion Scalability**
Quick and easy deployment of additional location to support expansion, as well as support new and existing corporate applications
- **Security**
The network must have secure transmission of sensitive corporate data and support VPNs.

Redundant Satellite Network and Benefits

Until recently satellite wasn't considered a viable option for system redundancy due to both cost and functionality. However, advances made in satellite technology generally, and by iDirect specifically, have made IP-over-satellite a very cost-effective solution for companies that want to ensure total business continuity under any circumstances

But perhaps more importantly, satellite eliminates the constraints imposed on businesses by the largely wired world and its benefits go far beyond simple redundancy. Leveraging satellite-enabled broadband makes good business sense for companies that want to extend their reach, improve efficiency and protect their business assets.

The inherent efficiency and flexibility of a pure IP over-the-air solution offers satellite providers with a real opportunity to compete cost-effectively with traditional wire line providers. Satellite technology can meet all of the requirements an organization has for business continuity but also can provide benefits above and beyond a terrestrial solution:

- ◆ **Always-connected, global redundancy**
Satellite systems that operate independently of traditional terrestrial networks to provide seamless end-to-end high-speed business continuity over the air that is available under any conditions, anywhere in the world.

- ◆ **Remote Location Connectivity**
Satellite can cost-effectively provide remote office locations with the same speed, connectivity and service that densely populated regions on fiber networks have. **Gap service**
Satellite can provide interim connectivity for all voice, data and video applications at construction or other temporary sites when permanent landline facilities are not yet up and running.

- ◆ **Application Management**
Satellite can effectively deliver single- to multi-point services such as distance learning or video conferencing to one or thousands of locations with a single satellite broadcast.

The iDirect Solution

The iDirect solution provides bi-directional broadband with seamless connectivity, ensuring an organization's business critical systems are securely supported regardless of the location or environmental conditions. iDirect's satellite solution will meet the business continuity plan's requirements for a redundant network with a scalable and reliable solution design. Easy to install networking equipment allows for a robust, cost-effective solution.

Bi-directional broadband

One of the main features of the iDirect Intelligent Platform is its inherent flexibility making it a very cost-effective solution. A single chassis can seamlessly support multiple networks, topologies and satellite bands. Most importantly, it can support multiple customer profiles and connect thousands of remote sites.

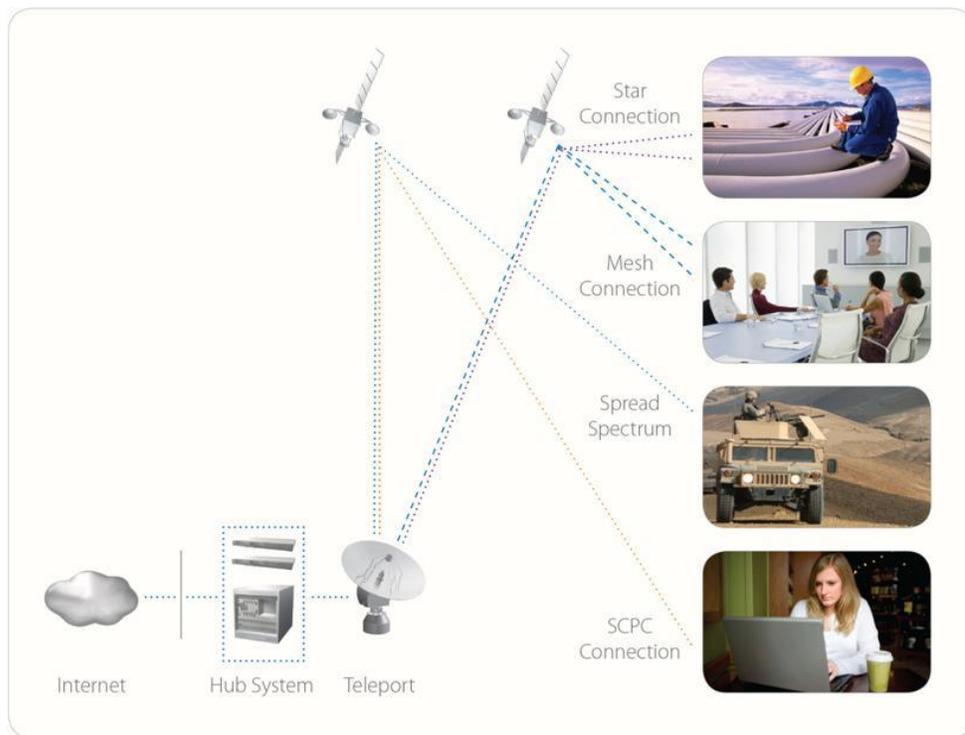


Figure.1: iDirect's Flexible Platform

A single chassis supports iNFINITI TDM outbound with data rates up to 20 Mbps per line card as well as DVB-S2/ACM with data rates up to 156 Mbps on the outbound. Each line card can be configured in 1 kbp increments providing customers with extremely granular options for meeting their bandwidth requirements and assuring optimal system efficiency. Additionally, the iDirect solution reduces the satellite bandwidth required to serve remote locations by grooming bandwidth across a wide geographic footprint. A fully deployed chassis can accommodate mesh, star, SCPC or hybrid networks and any mix of C, Ku, extended-C and emerging Ka radio bands. It can also support any mix of broadband applications including voice, data, video and the full complement of IP applications.

Sharing equipment costs across multiple customers provides significant savings for satellite operators, not only at the hardware level, but also in terms of system operations and support. In turn, these savings allow satellite providers to offer service at price points that more effectively compete against traditional providers.

From a single iDirect platform, satellite operators can offer real private networks dedicated to a single customer and shared networks where multiple customers share the same frequency. They can even sell unused hub space to a third party provider, who, in turn, can set up a virtual network offering.

iDirect's family of hubs offers up to 51F interfaces and up to 20 slots. Networks can be grown one line card at a time to optimize network utilization as illustrated in the diagram below.

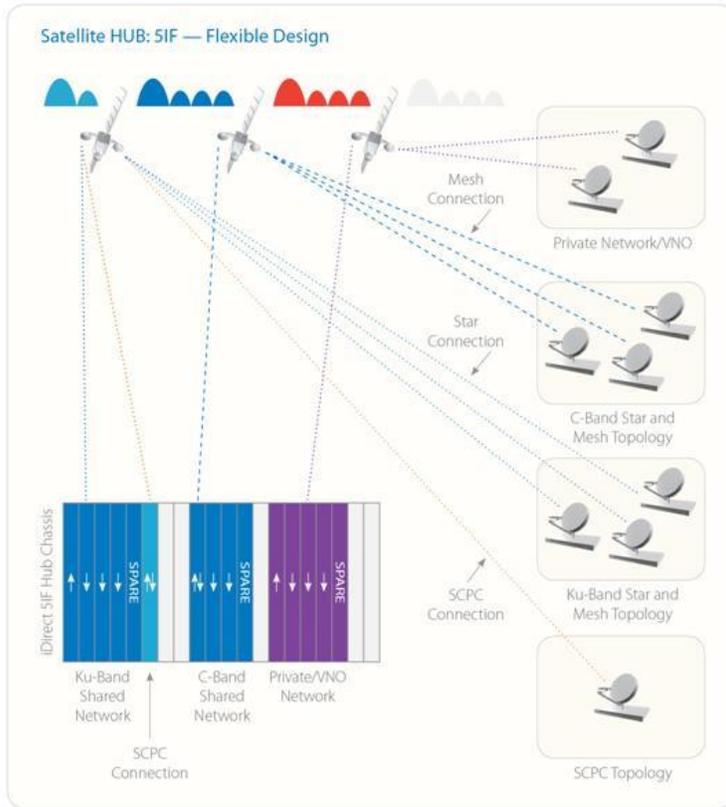


Fig.2: Multiple, Scalable Network Configurations

The ability to tailor bandwidth and support more users with the same amount of bandwidth provides both satellite operators and their customers with a cost-effective option for delivering the full complement of broadband services over the air.

Seamless Connectivity

The iDirect system integrates IP networks that span the world, combining terrestrial, wireless and satellite communications to provide seamless access to voice, data and video applications. It also works seamlessly with existing networks providing full access to all business applications and services. Intelligent routing and dynamic allocation of bandwidth make sure that delay sensitive traffic like voice and video is given priority and performance matches that of the traditional landline connections.

Specifically, several times a second, iDirect's D-TDMA algorithm allocates bandwidth dynamically based on criteria such as the queue depth, the CIR configuration, QoS and prioritization requirements, and any rate limiting established at the designated sites. The parameters of each network can be configured to match the quality requirements of individual customers.

To integrate the system into an enterprise LAN all that is needed is a standard Ethernet 10/100 Mbps LAN interface. Once connected, all operations related to the satellite service can be configured, monitored and controlled from a central location. Service can even be customized to meet individual site requirements.

Easily turn up temporary or remote locations

iDirect's family of satellite remotes provides different levels of functionality to accommodate individual business needs. Each model incorporates all the hardware and software needed to support customer applications at the requested level of service. And each compact, one-box terminal includes a satellite modem, IP router, TCP optimization over satellite, QoS/prioritization and optional AES encryption. iDirect's remotes are user-friendly and reliable, enabling remote locations with little or no technical expertise to easily set up the system.

Application and Expansion Scalability

As businesses grow, iDirect can support expansion with every step, including adding new sites and supporting any HTTP application while simultaneously supporting data, voice, and video. iDirect allows new locations to easily connect with VLAN. iDirect can effectively support single- to multi-point services to all locations globally, including distance learning or video conferencing applications.

In addition to introducing system wide efficiencies and savings into the satellite operators' business model, the iDirect platform also offers an elegant solution for system wide upgrades. Updates and future technologies can be integrated into the platform and to all remote locations via software or firmware upgrades from a central location. In every case, satellite operators and their customers are only required to know one platform and user interface. This approach allows the integration of new solutions with minimal disruption, training requirements and interoperability issues.

Security

iDirect security features include support for real private networks, remote authentication, and end-to-end 802.1q VLAN support with QoS and acceleration. For enterprises that require encryption, iDirect's Link Encryption encrypts everything over the satellite, at the same time allowing for TCP acceleration to be performed on TCP traffic. This is unlike other IPsec architectures that defeat TCP acceleration and thus are subject to severe throughput issues. iDirect's Link Encryption comes with dynamic key exchange that provides a very high level of security within the network, which also provides application QoS that ensures specific application performance.

The Key to Cost Effective Deployment

The true opportunity for satellite providers comes from understanding the challenges businesses face and bundling services together that address their specific business needs.

For example, a large retail chain with dozens of outlets beyond the fiber edge can use satellite to seamlessly integrate remote locations into the larger company network with full access to all available applications. This same retail company can leverage its existing satellite service to provide full system redundancy across its entire operations. If there is a regional outage or its entire network goes down, the satellite system will automatically detect the outage and take over operations for the affected area.

In this case the company is already paying the satellite service fee to connect its remote locations. There is little or no additional cost associated with using the satellite service for system redundancy as well. In fact, ensuring complete business continuity only requires minimal additional capital investment for remote satellite routers at outlets whose primary systems are on the terrestrial network.

Conclusion

iDirect provides high-speed IP communications via satellite that is completely independent from the existing terrestrial infrastructure, making it the ideal solution for companies that want to ensure business continuity under any conditions.

However, the real value proposition for satellite operators comes from demonstrating how satellite can seamlessly integrate with terrestrial networks to extend the reach, power and performance of existing company operations. By understanding the unique challenges that businesses face and bundling satellite services to address those challenges satellite providers can make significant inroads when competing with traditional providers in the enterprise space.