

Utility and Pipeline Transport Solution Overview

Meeting Next-Generation Business Demands

Today, the utility and pipeline transport industries face growing challenges in how they manage their core operations. For utility companies, new regulations require them to upgrade their communications networks to safeguard core infrastructure and ensure their services remain always available. Investments in green energy are extending their power generation operations deep into remote geographies, far beyond the reach of terrestrial networks. And the adoption of smart grid standards requires real-time monitoring of energy load distribution across all their substations and customer locations.

Pipeline transport companies are confronting similar business pressures. They require greater visibility into operations at remote locations that are scattered across thousands of miles of rugged terrain. They need instant access to unmanned sites to address local problems remotely. And demand for increased pipeline station automation requires greater bandwidth at remote sites, surpassing what traditional narrowband SCADA (Supervisory Control and Data Acquisition) networks can support.

Broadband VSAT Networks: Higher Reliability and Availability

The need to monitor, access and protect critical remote operations is forcing utility companies and pipeline operators to upgrade their legacy communications systems. They require a next-generation network solution that can monitor real-time operational data with greater precision, handle broadband applications like Voice- or Video-over-IP and provide constant connectivity to every facility, no matter how remote.

Advancements in satellite communications enable high-speed, two-way connectivity that can support traditional SCADA applications and meet the bandwidth requirements of emerging broadband applications. In remote areas, satellite IP connectivity is the most reliable, functional and cost-effective transport technology, extending farther than alternative methods, delivering 99.8% availability and enabling data rates equivalent to terrestrial networks.



The VSAT Advantage

- Extend IP connectivity to every remote location
- Maintain real-time access to SCADA applications
- Protect physical assets and strengthen network security
- Create an alternate network path to ensure continuity of operations

With satellite connectivity, utility companies and pipeline operators can improve the reliability of their operations and cost-effectively manage remote locations.

The iDirect Satellite Solution

Direct Evolution provides organizations with a secure, private network that can instantly reach any geography and support any application. The iDirect platform delivers ubiquitous coverage to support SCADA requirements and broadband voice, data and video applications on a single network. In addition, iDirect's advanced IP-routing capabilities provide seamless integration into existing terrestrial networks and offer highly reliable back-up options for critical business applications.

Integrated Application Support

With the iDirect Intelligent Platform, utility companies and pipeline operators can support multiple IP applications through a single network infrastructure:

- Real-time data collection from SCADA network devices to monitor operations and improve decision making
- Video surveillance of remote facilities to increase

safety and security

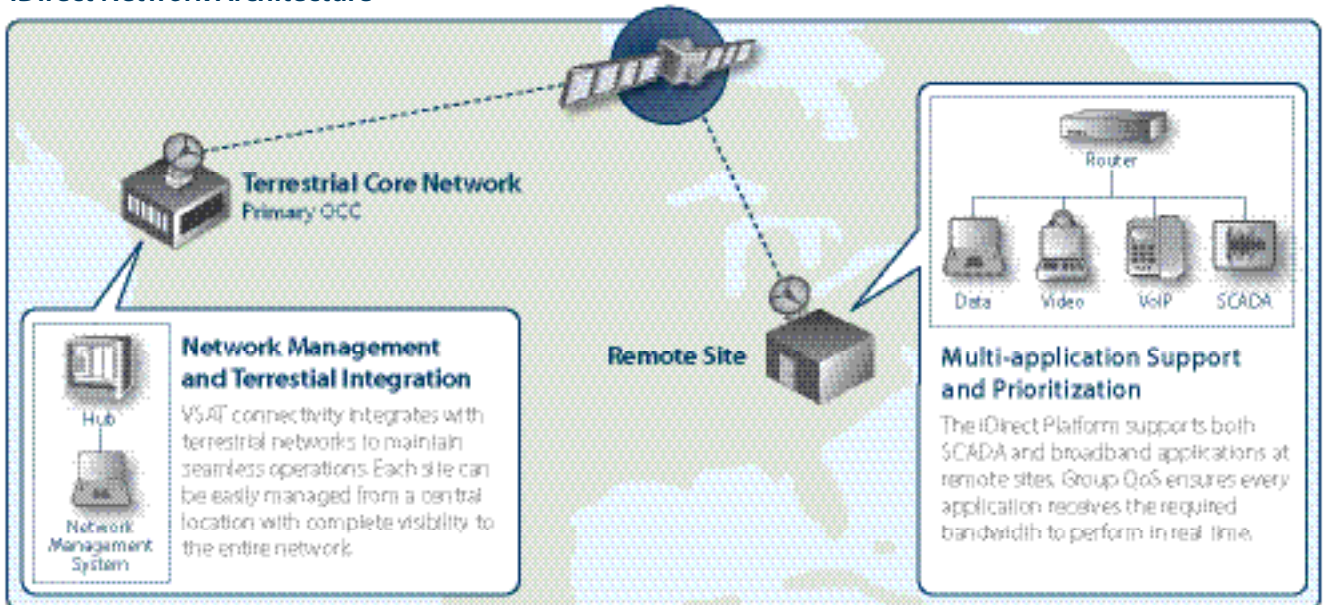
- Internet, VoIP, videoconferencing and corporate data access for technicians servicing remote stations
- An alternative network path to maintain business continuity

Real-Time Traffic Management

The iDirect platform is built on the next-generation DVB-S2 standard that delivers significant bandwidth efficiency gains over traditional satellite communications systems. This enables organizations to economically support a higher level of network traffic. Further, iDirect's unique IP-based D-TDMA protocol continually monitors real-time bandwidth requirements on a site-by-site basis and dynamically allocates bandwidth based on each location's exact needs, resulting in significant operational cost savings compared to dedicated satellite links.

When coupled with iDirect's award-winning Group Quality of Service (GQoS) feature, organizations can

iDirect Network Architecture



The iDirect platform delivers broadband IP connectivity that can reach any geographic location and support any application.

prioritize network traffic according to critical and non-critical applications and assign corresponding service level guarantees. The iDirect platform protects the response times required for SCADA applications, while never compromising quality of service for VoIP, video surveillance and other real-time data transmissions.

High reliability is ensured even during adverse weather. iDirect's Adaptive Coding and Modulation (ACM) technology automatically optimizes link quality during rain, solar outages and other conditions to maintain network performance.

Secure, Private Network

In order to meet emerging cyber threats and physical security requirements, utility companies and pipeline operators must deploy a fully secure closed communications infrastructure. With iDirect's private network architecture, organizations can minimize the risk of intrusion, helping prevent the possibility of outside tampering of critical assets. iDirect's technology makes it possible to encrypt

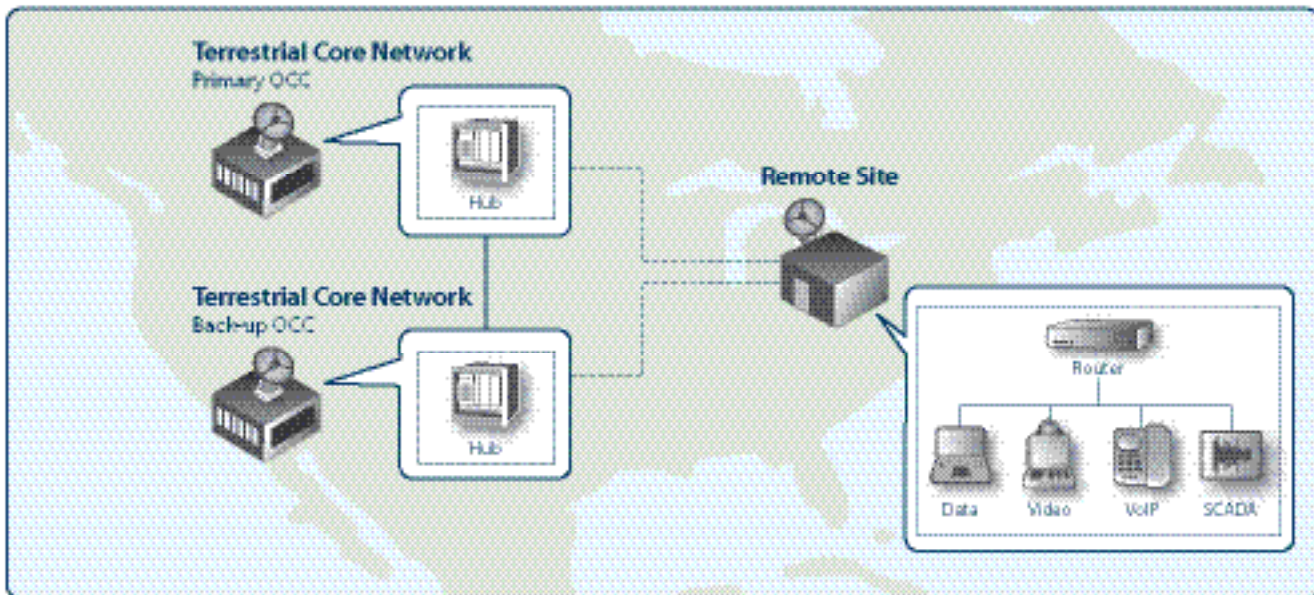
all data sent over network links using AES encryption with 256-bit keys. And with iDirect's broadband capabilities, organizations can support on-site video surveillance and other applications to meet physical security requirements.

100% Network Uptime

Because disasters and catastrophic failures cannot be predicted and can occur anywhere, primary SCADA Operations Control Centers (OCCs) are at potential risk. iDirect's geographic hub redundancy feature provides a failsafe switchover mechanism. Organizations can set up a secondary hub at any teleport location distant from the primary hub. If the primary hub goes down for any reason, the secondary hub detects the failure and automatically picks up network operation to ensure seamless functionality.

In addition, organizations can leverage satellite connectivity as an alternative path for their primary terrestrial networks. AniDirect high-speed IP satellite communications network can operate completely independent of terrestrial infrastructure and seamlessly handle critical terrestrial

Network Redundancy



Organizations can link a primary and secondary hub to ensure complete network and system redundancy.

traffic in the wake of a primary network failure.

Total Visibility, Access and Control

It's important for organizations to have the tools necessary to manage a satellite network from one central location and have a simple user interface experience. With iDirect's network management solution, organizations can easily monitor, configure and control traffic across the entire network, making bandwidth and quality of service adjustments instantly.

The iDirect platform automates nearly every aspect of an OCC and seamlessly integrates with multiple transport solutions. The system alerts users of potential trouble before problems arise. And when problems do occur, organizations can proactively detect and prevent further network degradation. In addition, iDirect's network management solution enables organizations to easily scale to new sites, applications and end users as needs evolve.

Meeting New Connectivity Requirements

New requirements across the utility and pipeline industries are forcing the migration from legacy SCADA networks to more versatile IP broadband solutions. Having the right network infrastructure is essential for utility and pipeline operators to better manage assets in remote or challenging locations.

Satellite connectivity based on the iDirect platform presents a cost-effective solution to manage growing operations and meet emerging industry regulations. Utility companies and pipeline operators can immediately establish communications infrastructure in remote geographies. They gain a single integrated network with SCADA and broadband traffic capabilities and a resilient, secure network to protect



iDirect delivers the most efficient and reliable satellite communications platform for monitoring critical assets and keeping operations running strong.

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