

# Digital Video Content over Satellite Broadband

April 2006

*Advancing a Connected World*



## Trust iDirect Technologies for End-To-End Content Distribution

Video Content has been rapidly transitioning, over the last few years, from analog to digital format. This transition impacts all aspects of the content distribution and collection market. This transition has also created the IPTV revolution where TV content is now being packaged digitally and transferred over IP Networks. Digital content distribution over IP satellite networks is quickly replacing analog networks. Efficient techniques based on products created for Internet and private networking applications are being used to enhance transmission speed, improve reliability and dramatically reduce costs.

The ability to combine video content and IPTV on the same network as voice and data, is integral to building successful satellite IP networks to handle these new applications. iDirect Technologies is the leading Broadband VSAT Network System which provides highly reliable, secure, two-way TCP/IP transmission for high-speed, multimedia service applications on any topology: star, mesh or point-to-point (SCPC).

Whether you need voice, email, and data support in a mobile production vehicle in remote locations, or the end-to-end delivery of IP media content, an iDirect platform can ensure the security, efficiency and quality of a terrestrial broadband network, with the flexibility of a satellite connection.

## Mobile Office Connectivity on Location

When production trucks roll up to a live event, whether it's sports, entertainment or news, the first priority is two-way connectivity between the remote location and the studio. With an iDirect platform, integrated with a fly away antenna, remote trucks can have broadband connectivity in minutes, supporting voice, data and email applications:

- ◆ *Voice:* Using TCP/IP acceleration based on industry standards and a proprietary D-TDMA inbound channel, call quality is comparable to digital cellular service to ensure efficient support of logistics setup, engineering coordination and editorial communications.
- ◆ *Data:* Speeds of up to 20 Mbps enable IP Data Transfers to forward video, download graphics and imagery, and exchange content with no last mile terrestrial connectivity.
- ◆ *BackOffice:* VPN connectivity provides the same network capabilities in remote trucks as in the home office. Database access, e-mail, Internet Access, and other activities normally performed in the office are now available in any location.
- ◆ *Video Streaming:* Due to iDirect's deterministic characteristics and effective quality of service, streaming of MPEG4 video is inherently supported on the iDirect platform.

An iDirect enabled broadband connection can eliminate challenges inherent with a terrestrial data line:

- ◆ Eliminate the element of surprise are installed in the wrong place or not at all, at your event location.
- ◆ Reduce installation and usage charges: Pay for the bandwidth you use instead compared to the cost of 1 – 3 months of service for a terrestrial T1

## On Site Production and Content Distribution

The flexibility of the iDirect platform not only enables voice, data and email communication from remote locations, but can also support the end-to-end distribution of media content. The IP foundation of the iDirect platform supports requirements from streaming MPEG 4 video, to IPTV video on demand.

Due to the real time delivery of the IPTV environment, transmissions require uninterrupted and jitter-free connections. An iDirect enabled network utilizes Deterministic TDMA (D-TDMA) technology to manage time slot allocation and a proprietary protocol processor to manage data queuing, handling, segmentation and reassembly (SAR) to ensure the highest levels of packet integrity and eliminate jitter. Older technologies are based on Slotted Aloha which requires users to fight for resources on the network. When the resources aren't available they have to wait for others to release them. D-TDMA overcomes this limitation by providing bandwidth without contending for the network.

One of the greatest challenges of providing broadband satellite service is the cost of space capacity on a service providers networks. iDirect has developed one of the most efficient mechanism for transmitting data over the VSAT Network. This means you will get more throughput or more IP data per MHz of space segment significantly reducing operational costs of transporting high bandwidth video content.

iDirect networks are inherently designed with:

- ◆ Rapid Bandwidth Allocation on Demand
- ◆ MF-TDMA – provides scalability at the lowest cost
- ◆ D-TDMA
- ◆ 1.2 Spacing – delivers 14% more usable bandwidth
- ◆ Remote Uplink Power Control – significantly improves the remotes sites reliability
- ◆ TCP and HTTP Acceleration – Integrated capabilities provides high speed transfers

Leveraging the combination of standard and proprietary technology, an iDirect network is able to deliver bandwidth efficiency with minimal jitter, low latency, maximum security and flexibility.



## iDirect Hub Series

A range of universal satellite hubs provides operators with greater flexibility to deliver the highest-level connectivity regardless of application, bandwidth, satellite or network topology. The iDirect Hub Series enables broadband service over satellite that matches the quality and performance of terrestrial networks. iDirect's iVantage™, a fully integrated Network Management System allows a network operations center anywhere in the world to control and configure any of the hubs either locally or remotely.

- ◆ Implement a full Broadband TCP/IP VSAT network with the lowest capital costs
- ◆ Interface with up to five different satellites through a single hub
- ◆ Deliver a complete application suite
- ◆ Deliver real time services like Voice over IP (VoIP), IPTV, and video
- ◆ Manage network performance with iVantage™ NMS
- ◆ Use any satellite frequency C, Ku and Ka-band
- ◆ A single hub simultaneously supports star, mesh, and Point-to-Point SCPC networks

## The iDirect iNFINITI Satellite Router Series

The iNFINITI Satellite Router is a “single box” solution that includes a satellite modem, IP router, encryption, TCP acceleration, and QoS/prioritization in an easy to deploy, reliable design. iNFINITI satellite routers can deliver broadband access of 20 Mbps downstream, and 6.5 Mbps upstream while supporting all your IP applications remotely, including VoIP, internet access and video. The iNFINITI Series, consisting of the 3000, 5000, 7000 and 8000 router series are part of a family of solutions designed to meet the communications challenges of customers anywhere in the world. By providing different levels of functionality within the product lines, while insuring their interoperability, iDirect is uniquely capable of delivering the ideal solution for each customer network, or individual site based on their specific situation or challenges. The iNFINITI Series offers customers a range of options:

- ◆ AES encryption
- ◆ Mesh
- ◆ SCPC
- ◆ PCI Slots
- ◆ WIFI Integration
- ◆ FIPS 140 -2 Certified

## Conclusions

As video content transitions from analog to digital format, and networks share voice and data traffic with video, broadcasters are presented with a unique opportunity to deliver content through broadband connections, reach additional people and reduce costs. The applications within the broadcasting segment for an IP based satellite broadband connection are endless. With an IP foundation, an iDirect enabled network is uniquely suited to support the requirements of streaming MPEG 4 video, IPTV video on demand to voice and data.