



Aftermath of a Hurricane. Photo courtesy of FEMA.

A common aim

As technology moves on and the communication industry changes and evolves, more and more companies are looking towards satellite as a complement to terrestrial networks. Helen Jameson finds out more.

There is a change afoot in the satellite industry in so far as it is moving towards working more closely with its long-standing competitor – terrestrial. In this era of convergence, the word 'hybrid' is becoming much more common. The emergence of new technology in the case of Mobile TV and IPTV and even digital signage and cinema means that there is a call for the two types of connectivity to work together to produce a high quality end result. There are plenty of reasons why the two should work together. It's a case of convergence.

What is terrestrial?

Terrestrial or wireline connection mean that data is transmitted as analogue noise over a telephone connection and this connectivity is limited to 56Kbps – also known as dial-up. Cable modem technology uses shared segment cable TV infrastructure to deliver broadband. DSL uses copper phone lines to transmit broadband over the existing infrastructure to both consumers and business. Then there is Frame Relay that is typically delivered over leased lines and pro-

vides a mesh or point-to-point connection with a guaranteed maximum or minimum data rate. These are the 'traditional' types of connectivity that every IT manager in the land is familiar with.

What is different about satellite?

On the other side of the coin there is satellite – VSAT in particular. VSATs receive signals for geosynchronous orbit, are configured in a hub and spoke fashion and can have just one site up to thousands of sites situated anywhere in the world. It is ubiquitous, cost-effective and reliable and as popularity of satellite services has grown, a combination of both satellite and terrestrial hybrid networks is being considered by many. The network can easily be tailored to requirements and the result is seamless. Satellite networks offer high compression, high reliability at lower cost – and anywhere in the world.

Times are much harder financially than they were at the turn of the century and companies are looking for cost-effective ways in which to reach all of their customers. Organisations are also looking for ways in which to bridge the digital divide and new developments



have seen the advent of Mobile TV and IPTV.

Satellite communications and the benefits they bring are now much more widely recognised. They have come to the world's attention in the aftermath of disasters such as the Asian tsunami, hurricane Katrina and the recent China earthquake. Satellite has extensive benefits that terrestrial does not. However, instead of working against terrestrial connectivity, satellite will work with it thus combining to achieve highly efficient and failsafe communications.

Cellular backhaul

Growth in demand for satellite-based cellular backhaul services has been driven by the rapid roll-out by mobile operators of coverage for urban and rural areas out of the reach of terrestrial networks. This market is currently one of the strongest in terms of satellite bandwidth. Communications companies are learning to accommodate both cellular connectivity and satellite connectivity into their networks. Cellular base stations can cover the first mile of communication, whereas satellite covers the last mile and reaches places where cellular cannot. A good example of this is demonstrated in the way in which Ericsson has integrated its mobile technology with new satellite transmission capabilities to offer satellite cellular backhaul solutions for cost-effective ground connectivity. The offering has been developed through close cooperation with industry leading satellite technology providers, as well as through adapting Ericsson core products to maximise the cost-effectiveness of transmission links. Ericsson has been able to develop a satellite solution to meet each specific customer's business demands.

Ericsson Satellite Cellular Backhaul solutions:

- Are engineered to provide full feature functionality as well as high performance and reliability;
- Comply with global standards for interoperability;
- Include access transport solutions fully integrated with Ericsson's new IP portfolio including Local Connectivity Feature (LCF); and
- Support the full range of telephony and data services, including GPRS/EDGE services.

The new techniques and voice compression used within the frame-

work of cellular backhaul solutions via satellite have moved on to a great degree and enabling those who have not previously been able to access mobile technology to do so. Cellular backhaul is helping to bridge the Digital Divide but is it being taken seriously as a long-term solution, not simply a temporary solution for use in the aftermath of a disaster, for example. Cellular backhaul helps countries meet their Universal Service Obligations – an important aspect of bridging the communications divide. Satellite continues to break down the barriers and is sure to continue to be extremely popular in those countries where lack of infrastructure means that mobile technology is just not available or backhaul using E1/T1 lines is too costly.

Business continuity

Loral Skynet's suite of satellite-based Contingency Services is designed to help businesses and government organisations minimise IP-data network interruptions caused by large-scale natural disasters such as hurricanes, as well as protect against the everyday outages that frequently occur in multi-path terrestrial network links.

The Contingency Services capability is very comprehensive, providing world-class continuity and emergency restoration network solutions. These services assure the survivability of terrestrial networks via an automatic and seamless transfer of IP-data traffic to satellite connections. Skynet Contingency Services include:

- SkyReachSM Ensure: A business continuity network solution designed to provide pre-planned, continuous network connectivity for all vital business and government functions; and
- SkyReach SAVER (Satellite Access by VSAT for Emergency Recovery): An emergency restoration network solution designed as a disaster recovery option where a rapid response mechanism is built into a network to minimize downtime and loss of production.

Both of Skynet's Contingency Services leverage its SkyReach family of IP-based communications services using Skynet's Telstar satellite fleet and a global fibre network. They provide low-cost, high-availability network connectivity backed by custom-tailored Service Level Agreements (SLAs). Unique aspects of Skynet's Contingency Services include:



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- A contingency network that has been sized to provide greater guarantees for the bandwidth customers need, when they need it. Unlike many other offerings that use a shared and oversubscribed model to support business continuity and emergency restoration services, Skynet's solution provides greater assurance for actually delivering these services at the time of crisis;
- SLAs that are responsive to demanding customer requirements – providing assurances for failover services in less than one minute and recovery services in less than one hour; and
- Flexible and robust offerings that meet a broad range of scenario-driven customer requirements for dedicated as well as dynamic usage or volume-based billing so that customers only pay for what they use.

Hybrid network for Piedmont's Digital TV

Italy's Piedmont Region, together with Eutelsat have recently announced the signature of a Memorandum of Understanding to leverage satellite technology to accelerate the availability of digital services for all of Piedmont's citizens irrespective of their location.

At the end of 2007 Eutelsat launched a new-generation satellite broadband service called Tooway, which can extend broadband to consumers located beyond range of high-speed terrestrial networks. Tooway is provided using capacity on Eutelsat's HOT BIRD 6 and EURO-BIRD 3 satellites and on-ground infrastructure operated from the SkyPark teleport in Turin managed by Eutelsat's affiliate Skylogic. The Tooway service delivers an affordable 2Mbps service to consumers and is totally independent of terrestrial connectivity.

In order to develop its WI-PIE programme (Wireless Piemonte), the Piedmont Region, in collaboration with CSI-Piemonte, TOP-IX, CSP and IRES, is committed to bridging the digital divide throughout its territory by the end of 2008, with a guaranteed availability of broadband connectivity for all citizens.

The Region is officially including Eutelsat's satellite technology as a complement to ADSL and terrestrial wireless technologies in order to achieve full broadband coverage of all 1,206 communities for consumers and enterprises.

The Piedmont Region is also committed to raising awareness of the availability of broadband access and will initiate promotional activities to stimulate demand for innovative and high added-value digital services.

The Memorandum of Understanding between the Piedmont Region and Eutelsat also includes the objective to collaborate on developing Digital Terrestrial Television (DTT) and to extending reach of DTT channels throughout the region via satellite. The Region plans to position itself at the forefront of the full range of advanced digital services and, together with Eutelsat, will work with regional research bodies and centres to develop experimental and highly innovative activities to ensure that new services emerge.

"This Memorandum of Understanding underscores the recognition by the Region of Piedmont of the fundamental value of satellites for overcoming the digital divide and their ability to operate as a complement to terrestrial networks," commented Giuliano Berretta, CEO of Eutelsat Communications. "This follows on from the decision taken by the Region in 2005 to leverage satellite to deliver broadband connectivity to local government departments. Following an international tender that was awarded to our Skylogic affiliate and to COLT, the contract to achieve this objective was subsequently extended beyond government departments to Alpine shelters. Our new cooperation will enable the Region to reach its objective to be the first in Italy to build a fully digital environment for all its citizens."

"Broadband access today represents an essential tool for ensuring competitiveness of a region and delivering quality of life for citizens," said Andrea Bairati, Member responsible for the innovation policy of the Piedmont Region. "Through the actions undertaken within the framework of the Wi-PIE programme almost 1,100 communities in Piedmont (covering more than 99 percent of homes and enter-

prises) will have the possibility of always-on Internet access by the end of 2008 using XDSL or wireless technologies. Satellite technology will enable us to achieve our objective of full regional coverage by resolving the challenge of extending broadband infrastructure to areas with sparse population density and to more remote locations."

ISDF – a call to work together

Mobile Satellite Ventures (MSV) have selected Colorado-based consulting services firm, Cadence LLC, to lead the design, architecture and development of MSV's pioneering Integrated Services Delivery Framework (ISDF).

The ISDF is a "partner-ready platform" that will enable MSV to seamlessly and cost-effectively deliver innovative new content-driven applications and services across its next generation integrated 4G satellite-terrestrial network. The platform will solve the most critical issue facing the communications industry – reducing the time to market and costs associated with the delivery of converged services across an evolving communications value chain.

MSV is Redefining Wireless Communications through its development of a hybrid satellite-terrestrial communications network, based on MSV's patented ancillary terrestrial component (ATC) technology. The company expects its next-generation network will provide seamless, transparent and ubiquitous wireless coverage of the United States and Canada to conventional handsets.

MSV plans to launch two of the most powerful commercial satellites ever built that will enable this network to support communications in a variety of areas including public safety, homeland security, aviation, transportation and entertainment, by providing a platform for interoperable, user-friendly and feature-rich voice and high-speed data services.

The ISDF will enable MSV to rapidly provide transparent and interoperable wireless broadband services across its North American network through conventional handsets. The ISDF will also support MSV's unique wholesale business model by supporting a new category of virtual mobile services resellers who will also rely on MSV for operational management and support. Third party providers of complementary content and services will be drawn to MSV's network because of the ease with which new converged communications applications and associated business models can be created and deployed.

"MSV is implementing one of the most forward-thinking approaches to the classic OSS/BSS issues caused by today's convergence of networks, technologies and industries," said Drew Caplan, Chief Network Officer of MSV. "MSV believes that by taking a services-centric approach that encompasses both the network and IT domains, we can create competitive advantage in terms of supporting third party providers of services and speeding time to market."

"Cadence has extensive background in wholesale business model development and execution, as well as in Service Oriented Architecture (SOA) and business transformation. Cadence has been able to uniquely combine many years' of collective experience in wholesale telecom markets, with a comprehensive understanding of, and practical experience with, SOA," said John McCawley, CTO of Cadence LLC.

"By combining the latest in IT architecture methods with a thorough understanding of the issues facing today's service providers, Cadence has implemented a completely new approach to OSS/BSS infrastructure that will allow MSV to reach the vision described by many telecommunications analysts as 'Telco 2.0'," he continued.

A common cause

Both satellite and terrestrial networks have a common aim and that is to deliver voice, data and video communications to wherever they are needed. The point is that terrestrial networks often need the assistance to reach their destination. It makes sense that one should help the other instead of being seen as 'opposing' technologies. A combination of the two can work extremely effectively together. ●