Key Drivers behind the Growth in Satellite-Delivered IP Services

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The business model for the Fixed Satellite Services (FSS) industry is relatively easy to describe: operators launch satellites with X number of transponders and work to build utilization, or fill rates, on that capacity with high paying customers. When an FSS operator achieves the combination of high transponder prices with high fill rates, it leads to very favorable financial performance, as measured by EBITDA (earning before interest, taxes, depreciation and amortization) or other return on investment (ROI) metrics.

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While the FSS business model is easy to describe, it is far more challenging to execute. This has long been the case for FSS companies operating outside the leading video services markets in Western Europe, North America and parts of Asia. Strong video demand

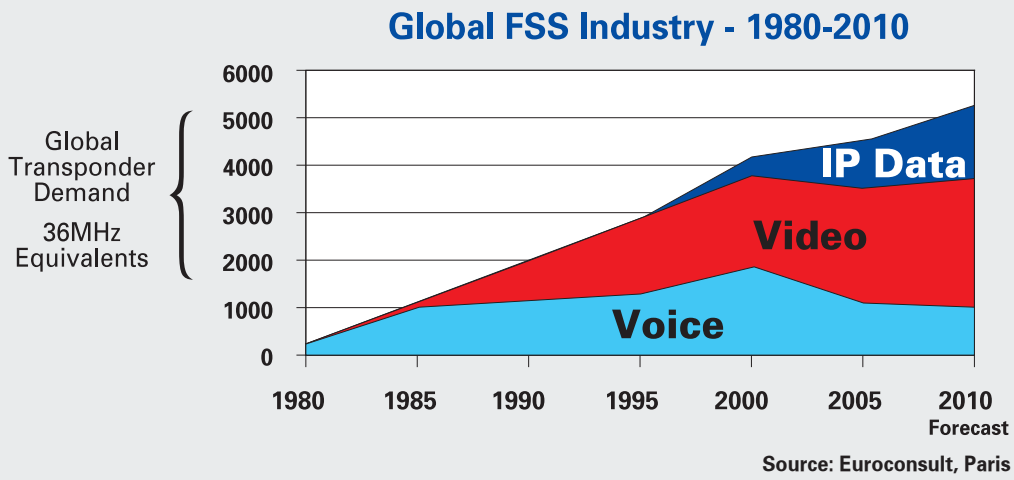

Figure 1. Global FSS Industry: 1980-2010

on "hot bird" satellites in these economically advanced regions tends to result in high transponder prices/ fill rates for select FSS companies, and correspondingly high levels of EBITDA. However, not every FSS operator is able to serve those customers and markets, and even FSS operators who are well positioned in video distribution cannot simply try to hold on to what they have. Today, even the strongest FSS companies are working to build utilization on their satellite fleet with new services that have the potential to maximize overall financial performance.

One area that is proving to be a new growth engine for the FSS industry is satellite networking using IP. Figure 1 is based on data from Euroconsult, a market research consultancy firm focusing on the satellite sector. It shows how transponder demand in the FSS industry has grown since 1980, and also shows the central role that IP data is expected to play in the industry's continued growth to 2010 and beyond.

Why Satellite-Delivered Network Services are Growing

There are a number of factors in the global growth of satellite-delivered IP networks. The ubiquity of and reliance on IP by corporate and government customers over the past 10 years has certainly been fundamental. But it is unlikely that satellite IP solutions would have come to be a core component in many of today's most capable networks unless satellite was able to deliver superb performance, the highest reliability, and deliver it cost effectively.

Many FSS companies now offer a satellite IP networking solution, as do an even larger number of VSAT service providers. Satellite IP networks tend to have various features and capabilities in common.

Loral Skynet has a unique family of services under the brand SkyReachSM – Skynet's suite of IP-optimized internetworking solutions. The main advantages of SkyReach are summarized below:

- **Delivers business grade broadband to any location allowing customers to standardize information flow and performance across their network**
  - Easily integrated into existing terrestrial infrastructure
  - Proven technology that supports primary IP applications – Citrix, SAP, Siebel, Oracle, VPN, etc.
  - "Near terrestrial" IP experience for end-users with reliability and performance backed by seamless service level agreements (SLAs)
  - Shared hub model reduces cost
  - Packaged with comprehensive network design and management
  - QoS and network security are implemented in line with customer requirements
- **Enables business continuity, backup and emergency recovery of terrestrial network**
  - Reduces network outages and resultant losses in revenue and productivity
  - Rapidly restores mission critical functions
  - Provides flexibility of an on-demand, independent network running in parallel to support testing, maintenance and other projects
- **Provides cost effective delivery of IP multimedia for corporate communications, training, software upgrades and similar needs**
  - IP multicasting and video streaming are core strengths
  - Existing WAN remains free for less bandwidth intensive applications

These types of advantages are why SkyReach has built a customer backlog of over US$30 million since its introduction in 2005, and why satellite delivered IP broadband is expected to be one of the fastest growing service areas for the FSS industry through 2010.

Global & Regional Growth of IP Broadband Satellite Networks

According to Euroconsult, there were about 1.75 million VSAT terminals in operation around the world in 2005. NSR estimates that, out of the total number of VSAT terminals deployed globally, almost 600,000 in 2005 could be classified as delivering broadband service to corporate and government customers ("multi-site" implementations as opposed to "single site" services for individuals)[1].

Reference

[1] NSR's, Broadband Satellite Markets: 5th Edition, published February 2006. NSR defines broadband as either the forward/return link having a throughput of 128 Kbps or greater

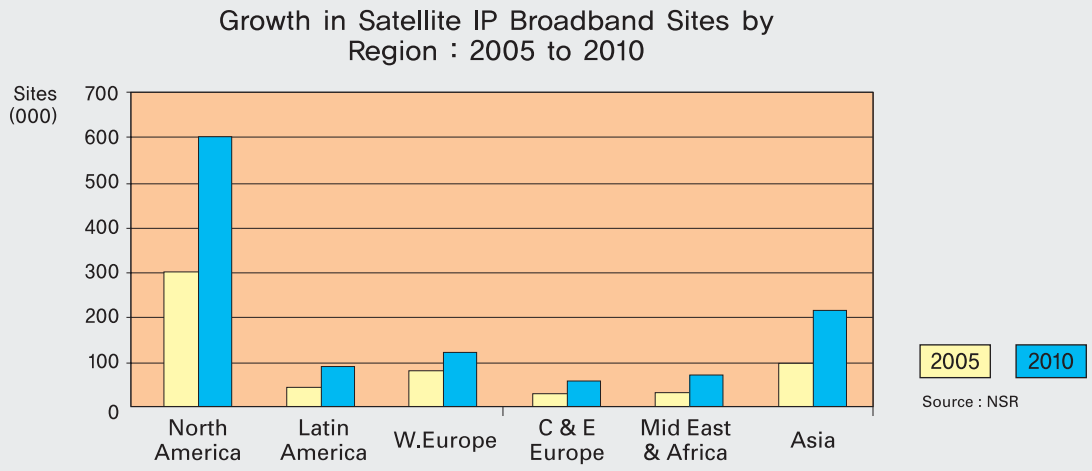

Figure 2. Growth in Satellite IP Broadband Sites by Region : 2005 to 2010

The global satellite broadband market is expected to nearly double in terms of sites between 2005 and 2010. This outlook supports the Euroconsult forecast that shows strong growth in global transponder demand for IP Data. Given the relative maturity of video services (less than 10% annual growth in transponder demand on a global basis), and the decline in voice, most FSS operators are becoming active in IP service provision.

Looking at regional trends, North America dominates the global broadband market today and its leadership is expected to remain unchallenged through 2010. This is due to the longstanding acceptance of the advantages of VSAT networks among the region's corporate and government customers. Many narrowband legacy networks in North America have been upgraded to broadband with more to follow. Most of these were originally implemented for transactional needs. Those that have transitioned to broadband are now fully capable of delivering a full range of IP services including video, voice and data.

Asia broadband sites are forecasted to show the most rapid growth of any single region, more than doubling by 2010 to over 200,000 sites, according to NSR. Given Asia's vast geography (8 time zones), and some 3.6 billion people (60% of the world's population), this still represents very limited market penetration[2]. Looking at specific applications, we are now seeing strong adoption of two-way IP VSAT systems in China for interactive distance learning. This trend is expected to continue, along with expansion of one-way services like digital signage and the potential for digital cinema in more economically developed countries, as already seen in Korea and Japan.

E-gov projects (government supported networks that bring IP connectivity to underserved sections/educational institutions) are another big driver of satellite IP services in Asia. India and China have awarded a number of these contracts for universal service to villages. Malaysia and Indonesia are also using e-gov programs to boost adoption of IP broadband via satellite. A recent example is the award to Smart Digital Communications of Malaysia. Smart is providing two-way satellite broadband to schools throughout the country using space segment on Loral Skynet's Telstar 18 satellite at 138 degrees East. Government programs like these are helping demonstrate the reliability and performance of satellite IP networks making it much easier for commercial implementations to follow.

Challenges for the Service Provider

Challenges are mostly found on the commercial and regulatory side. They are typically not operational or tech-

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[2] By comparison, North America in 2010 will have one IP Broadband commercial site for every 500 persons whereas Asia will have one commercial site for every 18,000. While there are many differences between the two regions that explain this disparity, the numbers work out to North America having a satellite broadband penetration by 2010 more than 30 times higher than Asia's, based on commercial site.

nical given the dramatic advances in satellite IP performance now available, which I've described above.

On the commercial side, contract awards for satellite IP network services are intensely competitive even with the strong demand just discussed. For an FSS operator, these contracts tend to involve more up front labor and ongoing expense versus a sale of pure transponder capacity. The fact that satellite IP networks typically do not produce the EBITDA that FSS operators and their investors have come to expect has put pressure on even large satellite services companies that have ventured into this market.

The answer is for satellite companies to be highly selective about their IP broadband opportunities. They should closely align with a company's core strengths and there may be a need to leverage complementary capabilities of a business partner. An example of this is the work Skynet is doing with Global Crossing to extend the network capabilities of their customers such as the British Council. Global Crossing has excellent terrestrial facilities but cannot reach all the land points that Skynet can with our global satellite fleet. Together we have had some major wins utilizing a combination of each company's space and terrestrial infrastructure – wins that neither of us could have achieved on our own. Skynet is now implementing and managing hundreds of satellite broadband sites for Global Crossing in Asia and around the world.

Figure 3. Loral Skynet's Telstar 18 Satellite at 138° East

There has been much discussion in the industry on how contract awards for satellite IP networks may reduce an FSS company's EBITDA margins on a percentage basis compared to levels achieved from pure space segment sales. The good news is that these same contract awards can also help build an FSS operator's satellite fill rate and lead to higher overall earnings. This should increase earnings per share and boost a company's stock price. Investors and analysts need to be educated on the benefits of satellite IP networks to overall earnings, and the exciting growth potential of this market, which many FSS operators are doing now.

As for regulatory challenges, they still exist in many Asian countries and around the world. Finding the right business partner in-country can again be an effective strategy. We also are seeing more openness in regulations as satellite technology demonstrates its value. Leaders in many countries have shown a willingness to lessen restrictions for satellite services if they believe such changes will help spur economic growth.

Implementing Skynet's IP Services Strategy

Skynet has taken a number of actions to achieve success in satellite-delivered network services. We recognized that many customers want to use satellite as an extension of their existing IP network, so Skynet formed close relationships with companies whose core business is terrestrial networking and who have strong positions in the markets they serve. Through this cooperation, Skynet and our partners have been able to combine satellite and ground based infrastructure and deliver truly seamless network solutions, regionally and globally.

In Asia Skynet is teaming with PCCW Global, one of the region's leaders in ICT. Skynet's SkyReach service in Asia is powered by an iDirect IP hub located at the PCCW Global teleport in Hong Kong. (Skynet has similar hub facilities in Hawaii to also serve Asia, one in Aflenz Austria to serve the EMEA region, and one in Virginia, USA to serve the Americas – four around the world.) The combination of Skynet's satellite and IP expertise with PCCW's terrestrial MPLS and teleport capabilities is

Figure 4. PCCW's Hong Kong teleport houses Skynet's SkyReach hub and provides access to Skynet's Telstar 18 satellite

giving our Asian customers unsurpassed resources in implementing the most advanced IP networking solutions.

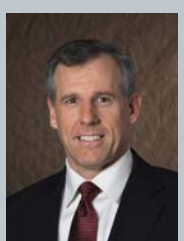
One of the fastest growing IP applications in Asia and globally is VoIP. Cost effective satellite-delivered VoIP is in high demand given the limited reach of terrestrial facilities in Asia. To meet this demand, Skynet formed a strategic relationship with Go2Call, a global leader in the VoIP services industry. Together we are now providing VoIP services in Asia to carriers, businesses and government organizations using Skynet's Telstar satellites and our SkyReach platform.

In Europe Skynet is working in a similar capacity with Telekom Austria whose teleport in Aflenz enables Skynet and our partners around the world to serve the entire EMEA region.

Conclusion

There is strong demand for satellite-delivered IP services globally, and Asia is forecasted to show rapid growth in satellite broadband sites. Skynet is pursuing these opportunities with leading terrestrial carriers like Global Crossing and PCCW, and deliverers of IP-enabled services like Go2Call. Together we are combining the reach of satellite with terrestrial connectivity to create seamless IP networks that are resulting in new revenue streams for each company that would be difficult to capture if we operated independently.

Satellite-delivered IP services may not always provide the high EBITDA levels of traditional FSS contracts, but it is clear that important contributions to overall profitability can be achieved with the right level of IP resources, expertise and business partners. Skynet has this combination in place today and we look forward to continued growth as a leading global provider of satellite IP network services.



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