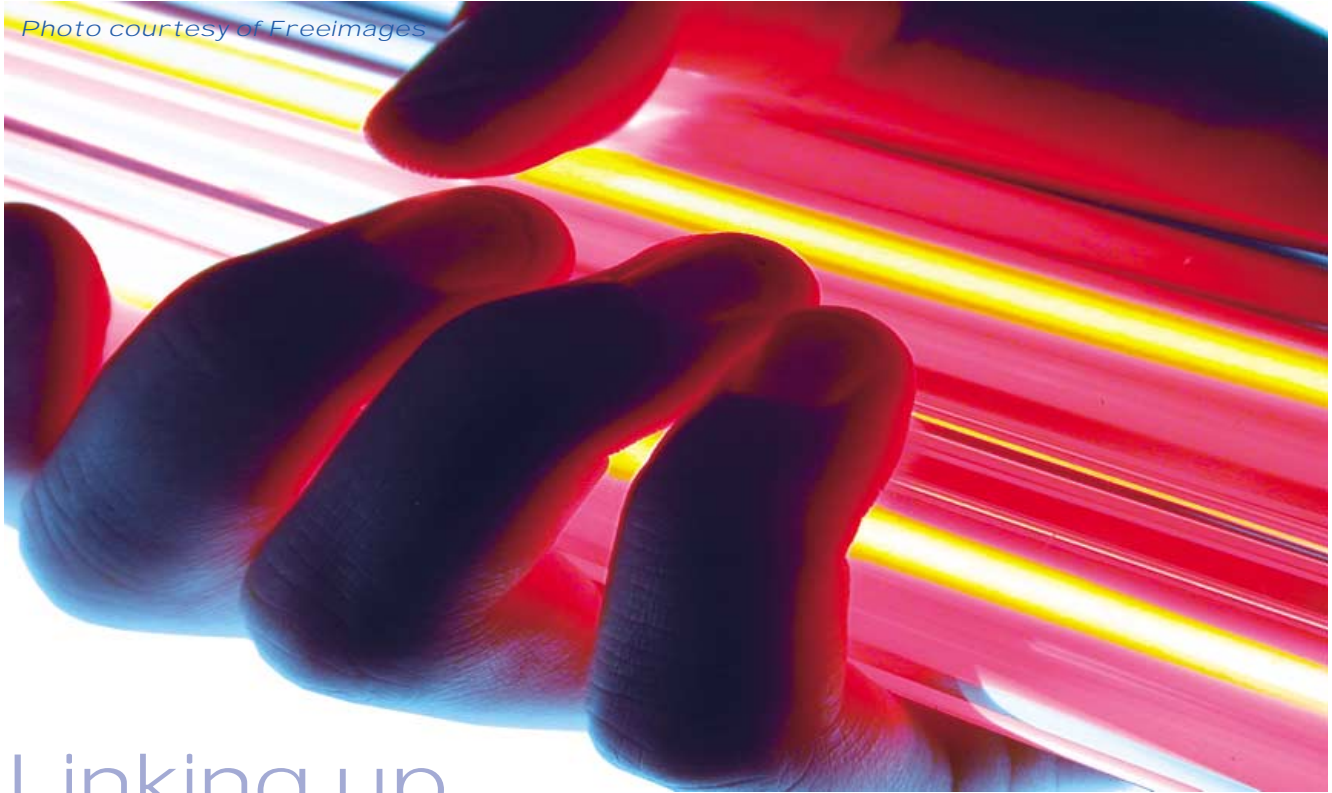




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Linking up the back of the net

With competition from fibre and cable fiercer than ever, are Internet backbone services still a profitable business to be in for satellite operators? **Philippa Smyth**, Correspondent of *Satellite Evolution Asia (SEA)* investigates.

► **What a difference** can a year make even in a proverbially long-cycle sector such as the satellite industry! No more than a few months ago media and analyst reports were awash with what was then the latest industry buzzword: hybrid terrestrial-satellite services. Against this backdrop, it was not unreasonable to assume that the way forward for the satellite industry would be to join forces with terrestrial operators pursuing vertical integration strategies to present customers with a unified, seamless solution. Then, the Intelsat-PanAmSat deal was announced just days before going to press, sending this landscape into pieces.

What the agreed merger of the two satellite giants demonstrates is the fact that satellite operators seem set on horizontal rather than vertical integration. In fact, while the latter is by no means excluded, there is a clear sense that we are likely to witness further consolidation moves amongst satellite operators.

During a conference call attended by your correspondent, which was held just days after the announcement of the merger between the two companies, the Chief Executive Officers (CEO) of PanAmSat and Intelsat stated their case (see article *Global Operators* in this issue). They openly admitted that they saw the new company to be in competition with fibre carriers and that the merger would provide them with the muscle needed to compete with terrestrial operators – even on crucial elements such as price. In other words, what David McClade, CEO of Intelsat, and Joseph Wright, CEO of PanAmSat,

seemed to say is that they see satellites as a valid alternative tool to terrestrial technologies for the provision of point-to-point services. So, is Internet backbone services still a profitable business to be in for satellite operators? Can they fend off the competition coming from terrestrial operators such as fibre or cable companies?

The business

The question as to whether satellites are a valid alternative to terrestrial operators is more than an academic argument, and one that goes back to the very nature of the satellite business. It is no secret, in fact, that satellites were originally conceived and designed for point-to-point applications such as data communications and telephony. However, as time went by terrestrial technologies slowly eroded satellites' advantage in these applications, while satellite operators diversified into broadcasting and multicasting. While satellites have remained in use for applications such as Internet backbone services, at one point the general wisdom seemed to be that they are a complement rather than a competitor to terrestrial technologies. This line of thought, however, appears to be clearly dated as the Intelsat-PanAmSat deal demonstrates: industry leaders still believe that satellite can compete on a playing field with fibre for the provision of point-to-point services. Or so it seems to be.

Asked about the possibility that fibre and other terrestrial technologies would eventually replace satellites in point-to-point applica-

tions, Stefan Kollar, Commercial Director of Russia-based operator Intersputnik, acknowledged that satellite operators have to compete with long-distance, international fixed line operators (above all fibre-optic lines). However, he was also keen to point out that: "Regardless of the extensive use of fibre, the core task of satellite communications is to provide the last mile solution. Besides, satellite communications is irreplaceable in adverse geographical conditions (large water spaces, mountain ranges, deserts, etc.) where the deployment of ground technology is either impossible or faces significant economic, technical and ecological challenges."

Ken Loke Siew, Director of Sales, Enterprise Solution, SES Americom, reinforced this message: "Fibre has not eliminated the need for satellite bandwidth. In fact, recent natural disasters that took place all over the world have increased the demand for satellite bandwidth."

Loke then went on to examine the situation in the Asia-Pacific region: "In Asia fibre accounts for 65 per cent of the traffic; the remaining 35 per cent is still dependent on Very Small Aperture Terminal (VSAT) networks. Classic domestic point-to-point markets for satellites are China, Cambodia, Bangladesh, the Philippines and Indonesia."

"Satellites have a market because fibre and terrestrial technologies address only metropolitan areas and certain countries. Fibre penetration and backbone delivery into rural and developing countries have been hampered by cost, limited reach and unstable environment (be it in terms of infrastructure or natural elements)."

Loke went on to say that in the Asia-Pacific region satellite still retains 35-40 per cent of the market share for Internet Protocol (IP) applications, while video over satellite commands around 90 per cent of all video traffic in the region.

In other words, experts seem to agree that satellites do have a market in the delivery of Internet traffic, especially into rural areas and developing countries where terrestrial service is unreliable. But are satellites and IP really compatible? After all this is a long-standing question in the industry. In this sense, Kollar does not seem to be in any doubt: "Lately, there have been a lot of arguments regarding TCP/IP efficiency when used in a geostationary satellite environment. The truth is that thousands of Internet users are linked to Network Access Points (NAPs) connected to the Internet backbone via satellites. These networks operate quite efficiently. Signal latency related to the nature of satellite transmission is caused not only by the physical environment but also by the number of intermediate points between the client and the server. And most users would not seriously doubt when choosing between satellite backbone connection using two routers instead of terrestrial network numbering ten or more ones."

Loke added to this argument by saying that recent developments in technology have helped address this issue: "The TCP/IP technology built-in to the new systems developed by iDirect and ViaSat, for example, have eliminated some problems related to satellite delay. For VoIP, on the other hand, improvement of the codec and smaller bandwidth required have helped improve the quality." He then went on to say that in an environment and countries where you have a unreliable infrastructure provider, there is no doubt that it is best to use a generator and power up your own VSAT to have an IP connection to the rest of the world.

So how has IP changed in any way the point-to-point market for satellites? According to Loke, IP has brought greater efficiency to the system. Traditionally, satellites have been used for applications where voice and data traffic are separated and each is allocated a fixed amount of bandwidth. With IP these have been combined, opening the way to greater efficiency also brought by the use of IP compression.

Kollar, on the other hand, is keen to point out that IP has changed the fundamentals of the game: "IP-based satellite solutions have made it possible not only to change from point-to-point to Virtual Private Network-based (VPN) meshed networks but also to offer a

variety of applications and afford customers unprecedented flexibility in using the required spectrum, volume and quality of services. Owing to satellites, new applications (IPTV or VoD) that require multicasting technologies can reach vast geographic areas with very high quality of service."

In a nutshell, IP has opened a wealth of opportunities for a plethora of different possible customers: Internet Service Providers (ISPs) of different Tiers, Small Office/Home Offices (SOHOs), Internet cafes, global and regional corporate networks [for VPN and Supervisory Control And Data Acquisition (SCADA) applications], public institutions, governmental agencies, the maritime sector, and many more possible customers.

So what is the future of Internet backbone services via satellite? To answer this question we need to take a step back and try to identify the underlying trends in the Information and Communications Technology (ICT) industry. All analysis of the digital TV and Internet sector show that their merging is inevitable to a certain degree. Today, the information transmitted on the Internet is already of a broadband nature, as it contains a huge amount of data, graphics, audio and video files.

New real-time applications that require fast transmission of large information flows are emerging: Internet TV and radio broadcasting, audio- and videoconferencing. Kollar points out that this convergence is leading to a future where the Internet backbone market can only but prosper: "Households will soon have the chance to be equipped with a single information channel that bundles together the Internet, telephony, TV and public utility service monitoring. High growth rates of Internet traffic, the development of advanced services like IPTV or VoD, will require enhanced data transmission rates. This trend will stimulate further development of new data transfer technologies via satellite and new industrial standards to support IP-based broadband satellite services – such as IPoS, for example.

"In this sense, two major trends prove that the Internet backbone market has a bright future. The first one is the demand for faster downloads of the multimedia Web content. The second one is the gradual merging of TV, phone and Internet applications."

Asked about the future of Internet via satellite as a business for the operators, Kollar commented: "Most satellite operators' businesses continue to grow today at healthy rates, due largely to increased use of transponders for Internet backbone connectivity. Intersputnik is no exception. Today, more than 200MHz of the operational capacity of our satellite system is allocated to Internet services."

Loke, however, seemed to be of the opinion that the pressure on the market coming from prices will eventually lead to some sort of market adjustment: "Market prices will stabilise at a level when some satellite companies and providers will be forced to consolidate," he commented.

A backbone for Asia

As the numerous quotes in this article show, industry leaders appear to believe that Internet backbone services via satellite have a rosy future, and there is no doubt that the Asia-Pacific region will be one of the markets presenting the most remarkable opportunities to operators.

In this sense, Kollar commented: "Transpacific cables are landing in main coastal cities to serve large telecoms hubs. However, in the Asia-Pacific region only a few countries have direct transpacific connections and even those may not be able to meet the bandwidth demand that is projected to grow at over 40 per year driven by Triple Play services." In other words, growth in demand is expected to outstrip supply.

But there are also other reasons why Internet backbone services via satellite can be expected to thrive in the region: the need for last-mile connectivity in remote areas and the difficulty to meet the required infrastructure and maintenance to support digital wireline and wireless connectivity even in large cities. ■