Satellite Services in Latin America

by Clayton Mowry, Director, Satellite Industry Association, USA

Abstract

A host of new mobile and broadband satellite services are poised to capture millions of new subscribers in a region where consumers have shown a nearly insatiable desire for cutting-edge wireless technology. The shear size and geography of Latin America is tailor-made for broadband satellite systems, which will radically change the cost of last mile connections in rural and suburban areas. They could also provide access to the global information infrastructure and change the way countries in the region communicate.

Stretching from Mexicali to Tierra del Fuego and dominated by two languages, the marketplace for communications services in Latin America and the Caribbean encompasses nearly 475 million people. This vast, 20 million square kilometre region is woefully underserved by wired telecommunications networks, making it from many people's point of view an ideal market for satellite services. Delivering a broad range of voice, video, and high-speed data to the region's 44 countries, the Latin American market for satellite services has experienced a double-digit growth over the past five years. In 1997 alone, revenue for leased satellite capacity in the region topped US$775 million, a 14% increase over 1996.

The driving force behind record satellite revenues has been the rapid increase in demand for new multi-channel video and data services. By comparison, traditional switched voice and fax services via satellite have only grown 1-2% per year but have remained a steady performer for the better part of the decade. A host of new mobile and broadband satellite services are poised to capture millions of new subscribers in a region where consumers have shown a nearly insatiable desire for cutting-edge wireless technology.

While economic concerns throughout the developing nations in Latin America will mean slower growth in the short term, long term prospects for communications satellites serving the region predicts a rapid growth.

Market Drivers

Deregulation, privatisation and competition describe not only what is happening in the broader telecommunications industry across Latin America, but also events in the satellite industry. Not surprisingly, the Latin American satellite marketplace targets mainly the strong economies of Argentina, Brazil, Chile, Mexico, Paraguay, Peru, Uruguay, and Venezuela. These countries make up almost 90% of Latin American economic power, influencing market trends throughout the region. The above mentioned countries are at the forefront of the global movement to liberalise services and allow foreign direct investment in telecommunications networks. The fall of regulatory barriers and promotion of international partnerships by countries such as Argentina, Chile, Mexico and more recently Brazil will help to engender change in other Latin countries.

Deregulation

The World Trade Organisation (WTO) Agreement on Basic Telecommunications Services signed in February 1997 provided the other major boost for new satellite services across the region. The Agreement between 69 countries covered 90% of the world's telecommunications revenues. Market

opening offers on satellite services and facilities came from 48 countries with six pledging access for selected services. Fifteen Latin countries were among those pledging to open markets in the next five years including: Antigua and Barbuda, Chile, Dominican Republic, El Salvador, and Guatemala in 1998; Peru in 1999; Argentina, and Venezuela in 2000; Mexico in 2002; and Jamaica, Grenada, Trinidad and Tobago in 2004.

GMPCS MoU

In the mobile satellite arena, an agreement by the United Nation's Geneva-based International Telecommunication Union (ITU) is removing barriers for a host of new satellite companies. The Global Mobile Personal Communications by Satellite Memorandum of Understanding (GMPCS MoU) has 107 signatories to date, including 52 governments. Latin American country signatories include Argentina, Brazil, El Salvador, Honduras, Mexico, Peru and Uruguay.

The GMPCS MoU provides a template for countries enabling them to set up regulatory systems that will allow mobile satellite phones and user equipment to move freely across borders and receive type-approval in various countries. The landmark arrangement will allow existing mobile satellite systems such as Inmarsat and new services including Iridium, Globalstar, Ellipso and ICO, to enter the market quickly while giving consumers the ability to roam freely.

Satellites Make Sense For Latin America

In Latin America, several factors create a natural fit for satellites. The region's large rural population spread out across vast geographic areas and tied together by two basic languages - Spanish and Portuguese - is a perfect market for a range of satellite services. Basic telephony, DTH multi-channel video and high-speed data are rapidly becoming high-growth markets for satellites serving the region.

Satellites offer both complimentary and competitive services to terrestrial cable, wireless and wired networks. In some areas satellites utilise their unique characteristics to provide superior services at lower prices, while in other areas satellites have difficulty competing with highly reliable and proven terrestrial technologies.

For example, satellite cannot and will not compete in many areas of basic telephone service. Satellite technology is not well suited to carry local telephone service - particularly in highly populated areas. The distances and cost of the service do not justify its usage. Similarly, long distance traffic between two or several cities over high capacity point-to-point fibre networks will always beat satellites on price and quality.

Satellites are distance insensitive. The nature of satellite technology affords consumers in rural areas the same service at the same cost as consumers that live in densely populated areas. So while it may not make economic sense to provide fibre optic, cellular or even basic telephone service to many small towns and villages across Latin America, it does make sense to provide satellite service. Satellite technology can be profitable serving a smaller percentage of rural, suburban and urban consumers in several countries across the region, at a fraction of the cost it would require to provide the same products on the ground.

Direct-To-Home
Historically, home satellite television in Latin America meant large three to four metre dishes and a limited offering of quality programming. Two competing Direct Broadcast Satellite (DBS) services: Galaxy Latin America (GLA) and Sky Latin America are making large investments and strategic partnerships to establish a foothold across the region.

Florida-based GLA is backed by Hughes with three major partners: MVS Multivision (Mexico), the Cisneros Group (Venezuela), and Televisao Abril (Brazil). Sky Latin America is one of Rupert Murdoch's News Corp. satellite ventures with its own set of powerful stake holders including: Televisa (Mexico), Globo (Brazil's largest broadcaster) and Tele-Communications International (TCI).

GLA began to offer service on its Galaxy III-R satellite, utilising 24 Ku-band transponders for its initial service offering - 12 for Spanish language programming and 12 for Portuguese. Since the launch of the Galaxy VIII-I, December 8, 1997, another 32 115-watt transponders were brought into service - 16 serving Brazil and the Southern Cone (with Spanish and Portuguese broadcasts) and 16 serving the remainder of Latin America. Co-located with Galaxy III-R the new Galaxy VIII-I offers 43 channels of pay-per-view programming, 102 channels of video, and 66 audio channels. A remaining 27 channels are available for other new digital services. GLA currently serves Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Trinidad, Mexico, Panama, and Venezuela.

Of the roughly 90 million TV households across the region, there is potential for satellite systems to serve 10 million DTH subscribers in the next decade. GLA is off and running. With the addition of 36,000 net new subscribers in the third quarter, total DIRECTV subscribers in Latin America were 423,000 as of September 30, 1998.

Sky Latin America expects to have over five million subscribers by the year 2005, 60-70 % of the estimated 10 million households which are expected to be linked up by then. The Sky venture is operated and branded under three different names and corporate partnerships: Innova in Mexico, Netsat in Brazil, and Sky Latin America in the rest of the region. The company is hoping to establish strong brand identity tailored to each local market.

Sky first launched service using 12 dedicated transponders on the Sat-Mex Solidaridad II satellite. The service upgraded to 12 new transponders on PanAmSat's PAS-5 satellites providing a total of 144 channels of digital programming. Sky has also leased 36 transponders of additional capacity on PAS-6.

Competition in Fixed Services
Competition among traditional fixed satellite service providers has increased dramatically in recent years across Latin America. National operators such as SatMex, Embratel (Brasilsat), and Nahuelsat are now fully privatised with significant foreign investment. Intelsat, the International Satellite Treaty Organisation (ISTO) is also moving deliberately towards privatisation. Intelsat's first move was to spin off 5 of 24 satellites including two that serve Latin America, the Dutch based venture New Skies.

The rest of Intelsat is expected to become privatised over the next five years, spinning off smaller entities with satellites in several orbit allocations. Competition in fixed satellite services across Latin

America also comes from private operators including PanAmSat, Columbia Communications, and large capacity resellers such as Impsat, and Globecast.

Intelsat
The International Telecommunications Satellite Organisation (Intelsat), a non-profit treaty-based entity formed in 1964, currently has 10 of its 19 satellites on-orbit serving the Latin American region. Of the 140 member nation owners, there are 21 in the Latin region including: Argentina, Bahamas, Barbados, Bolivia, Brazil, Chile, Columbia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica; Mexico, Nicaragua, Panama, Paraguay, Peru, and Trinidad and Tobago.

SatMex
The privatisation of national satellite operating companies throughout the region began in Mexico. Since 1990, the Government of Mexico has made efforts to liberalise their telecommunications sector by selling state-owned companies and establishing an independent regulatory body. In 1997, 75% of Satellites Mexicanos (SatMex) was sold to a joint venture between Loral Space and Communications and Telefonica Autrey for US$688 million. The Government of Mexico retains 25% of SatMex, while Loral owns 49% and Telefonica Autrey will own 26%.

SatMex currently operates three satellites - Morelos II and Solidaridad I & II. SatMex 5 replaces Morelos II this year providing 24 C-band and 24 Ku-band transponders of new capacity. Slightly over one third of the existing SatMex capacity on-orbit serves television markets, one quarter for voice and data, and the remaining for radio, mobile, and distance learning services.

Embratel
The government of Brazil opened its domestic market for DTH satellite services two years ago to allow competition in the market for multi-channel television. Empresa Brasileira de Telecomunicacoes (Embratel), operator of the Brasilsat satellite system, was privatised last year along with Telebras the domestic telephone company. The new owner, US long distance giant MCI Worldcom, inherits three relatively new satellites, 80 earth stations, and a large base of customers.

The Brasilsat B1 satellite was launched February 28, 1994 followed by B2 on March 28, 1995. These two satellites increased the national service coverage previously based on Brasilsat A1 and A2. The Brazilian satellite telecommunications system now consists of four satellites: A1, B1, B2 and B3. Brasilsat B3 was launched February 4, 1998 and B4 is scheduled for launch at the end of 1999.

PanAmSat
PanAmSat, the world's largest private satellite company, established itself in Latin America in 1988. The company's founder, Rene Anselmo, envisioned a market for video distribution of Spanish language programming throughout the region. Today PanAmSat is the major supplier of video distribution and direct-to-home satellite services in the region.

PanAmSat operates seven satellites over Latin America in the Atlantic Ocean Region including: Galaxy XI, PAS1, PASlR, PAS3, PAS5, PAS6, and PAS 6B. The system supplies a combined 86 transponders of C-band capacity and 162 Ku-band transponders of capacity to the region. PanAmSat satellites are the

platform for both DTH platforms in the region.

Nahuelsat

Nahuelsat was formed May 27,1993, as a joint venture providing satellite communications in Argentina and Latin America. That year, Nahuelsat began to offer satellite capacity in Argentina, Chile and Uruguay, operating two older interim satellites – the Nahuel 1C and the Nahuel 2C. These two satellites were decommissioned in January 1997, following the launch of the new Nahuel 1. The tracking, telemetry and control of the system are handled from the company's ground station, in the Benevidez Province of Buenos Aires.

Nahuelsat S.A. is now a 100% privately-owned company. Its shareholders include Daimier Benz Aerospace, Aerospatiale, Alenia Aerospazio, GE Capital Global Satellites, the International Finance Corporation, Publicom S.A., BISA Group, Banco Provincia Group and Antel of Uruguay.

Competition In Mobile Services

Below the geostationary satellite arc at 22,300 miles, several of the new mobile satellite ventures are looking to compete in the realm of low-earth-orbit (roughly 400-700 miles above the earth). The so called 'Big LEOs' -Globalstar, Iridium, ICO Global Communications, Ellipso and Constellation Communications - will provide competing hand-held voice and data services throughout Latin America. Service will be provided to dual and triple mode phones only slightly larger than standard cellular handsets.

Iridium launched service on November 1, 1998 from its constellation of over 66 satellites. The system will provide voice, data, and paging services all over the region. Globalstar will be the second to market this service in 1999, with ICO and Ellipso to do the same by 2000, and Constellation in 2001.

Several Mobile Satellite Service providers have already announced plans to operate in the Brazilian market, including Iridium and Globalstar. Iridium signed an agreement with the eight 'Band-A' cellular operators to provide international roaming via satellite through its network. Globalstar plans to offer satellite mobile phone service in Brazil by June 1999, and ICO by 2000. ICO has contracted Brazil's Globo to build a ground station in Rio de Janeiro.

These new systems will compete with the recently completed Inmarsat 3 constellation of geostationary satellites. The Inmarsat system introduced the first global Personal Satellite Communications systems (PSC) dubbed 'Planet l' which is now available worldwide (except in the US) through US signatory, Comsat. Planet 1 notebook computer-sized terminals, manufactured by NEC, can process voice, fax, and data calls from almost anywhere.

Industry watchers also expect heated competition in the data-only messaging and e-mail services market from the new 'Little LEO' satellite constellations. ORBCOMM's constellation of 28 satellites is already in service and other providers - E-Sat, LEO One, and Final Analysis - are scheduled to launch global service sometime after 2000.

The Future is Broadband

Within the next five years Latin America will see a new realm of high-speed broadband satellite services. Over a dozen companies backed by major corporations and international partnerships already have ample radio spectrum, orbital locations, and preliminary licenses to move forward with their systems. These new satellite constellations are aiming to bring fibre optic-type connections to individual users anywhere on earth. Systems will be capable of providing TI or faster connectivity via small dishes attached to homes and offices.

Both low-earth-orbit and geostationary orbit broadband systems are in development. In the LEO arena, a start-up company named Teledesic has partnered with industry heavyweights Boeing and Motorola. Operating in the higher frequency Ka-band, Teledesic plans to provide service from a large constellation of 266 satellites. SkyBridge, backed by Alcatel and with investment from Loral among others is looking to provide a similar service with a more basic satellite design sharing spectrum in the Ku-band.

In the higher geostationary and medium earth orbits, major satellite companies including Hughes (Spaceway), Lockheed Martin (Astrolink), GE American Communications (GE Star), Loral Space & Communications (Cyberstar), and several others, may work in partnership with the LEOs to provide different types of services for various customers.

Broadband systems are due to be launched in the 2001-2002 time-frame. Most operators are targeting terminal costs below US$1000 and usage charges rivaling terrestrial systems.

Conclusion

Once launched, these systems will radically change the cost of last mile connections in rural and suburban areas where running fibre or high-speed cable is not economical. The systems hold promise for remote towns and villages currently cut off from the global information infrastructure.

The sheer size and geography of Latin America is tailor made for these broadband satellite systems. Ultimately, they could radically change the way countries in the region communicate.