

As the business of Internet via satellite keeps growing all over the world de facto reshaping the entire satellite sector, Stephen G Tom, Chairman of the World Teleport Association (WTA), explains how teleports are taking up the role of 'Super Points-Of-Presence' (SuperPOPs) for Internet via satellite.

Taking up a new role

in the information flow

TELEPORTS, AS WE HAVE traditionally known them for years, are the 'intermodal hubs' of the broadband world. In other words, they are gateways that connect satellite circuits with terrestrial fibre optic and microwave circuits.

Bridging the gap between land and sky, teleports allow broadcasters, cablecasters, and public and private network operators to outsource a non-core function that is critical to their businesses.

Teleports deliver time-sensitive television and radio programming to audiences around the globe. They provide remote and underdeveloped regions with high-quality Internet and enterprise network connections. For nearly three decades, they have pioneered in the export and import of the weightless cargo: information.

In recent years, though, a new breed of teleports, the Super Point-Of-Presence (SuperPOP), has emerged in the telecoms industry. SuperPOPs are integrated telecommunications hubs, supporting a vast array of technologies and services. The key difference between a traditional teleport and a superPOP is the fact that fibre optic network connectivity at SuperPOPs is as important as satellite connectivity.

Naturally, SuperPOPs have evolved from teleports. As the Internet and Internet Protocol (IP) traffic started to impose itself in the telecommunications industry, teleports began to expand their service offerings to include Internet backbone access, server collocation, video streaming and content distribution.

But what is driving this evolution? The answer to this question is simple: it is the fast worldwide rise of the Internet. During the early years of the Internet, the US was the content hub for the world with over 90 per cent of Internet content and users in the country. The following evolutionary step for the Internet



Image courtesy of PhotoDisc

came when other industrialised nations began to take it up, linking to the US Internet backbone. Today, new European and Asian content hubs are developing apace, while caching and content distribution schemes are effectively stimu-

lating the development of SuperPOPs around the world. As deregulation allows privatised telecom activities in emerging economies, SuperPOPs will begin to appear as the contemporary version of teleports.

Trends in teleport demand

Although statistics focused specifically on teleports are sketchy at best, statistics about the satellite services market as a whole are optimistic and bode well for the teleport industry and SuperPOPs.

Broadband satellite services will reach shooting star status if estimates from Cambridge, Massachusetts-based research firm Pioneer Consulting pan out. The US consultancy expects revenues from broadband satellite to rise from US\$200 million in 2001 to a whopping \$37 billion in 2008. North America will be the

largest market, with the Asia-Pacific region claiming second place.

But beware of overly optimistic forecasts, particularly in the near term. The use of satellites for Internet-related services has indeed grown dramatically, as Robert Bell, Executive Director of WTA, points out: "The industry has seen unprecedented growth in Internet services since 1998, with some companies reporting sales growth of 50 per cent per quarter for Internet-related transmission." However, Bell cautions that the much-touted Internet developments such as video streaming and content distribution

networks have not lived up to the expectations of Wall Street or the user communities. He points out that the key obstacle remains the limitations of the last mile in industrialised nations. Besides, he is also quick to caution that video streaming is pretty much a North American phenomenon at this time.

It appears that we still have a satellite and teleport Internet industry in its infancy - where the money will continue to be made by providing backbone connectivity for the foreseeable future. Therefore an effort must be made to slow the commoditisation of these services by of-

Buildings are getting smart

Courtesy of the WTA, Asia-Pacific Satellite takes a look at 'intelligent buildings', ie, constructions that conjugate modern architectural features with broadband connectivity.

Developers of intelligent buildings view broadband telecommunications as an essential tool for attracting tenants in fast-growth industries that have a strong demand for facilities. While there is no standard engineering or architectural definition of 'intelligence' in a building, typical features include:

- High ceilings that allow room for the construction of the raised floors required for data centre cabling;
- Industrial-grade flooring able to support heavy equipment loads;
- Heavy-duty HVAC systems to provide heat-producing electronic equipment with a stable temperature environment;
- Redundant access to multi-megawatts of electric power, with backup batteries and generators to insure uninterruptibility;
- High-capacity risers that permit optical fibre runs by multiple carriers from redundant sources; and
- Adequate rooftop space, with convenient access to in-building fibre or other communications circuits, for wireless local loop, conventional cellular and satellite antennas.

Access to telecoms facilities and services
Developers of intelligent buildings differ in their approach to providing tenants with access to telecommunications facilities and services. In some cases, developers authorise one or more companies as exclusive service providers for their tenants, and these service providers frequently create value-added services for the building, such as online access to building management services and Web-based 'shopping malls' where tenants gain online access to local retailers and services.



Telecom Centre Building. Photo: WTA

In other cases, developers specifically aim to create a 'carrier-neutral backbone', which offers tenants a broad selection of service providers, but controls how those providers access in-building facilities in order to prevent disruptions.

Intelligent buildings were first developed in the 1980s, but really boomed in the 1990s. Currently, the demand for intelligent buildings seems to be on a constant rise all over the world.

1980s: first developments

Intelligent buildings were first constructed in the 1980s, but failed to develop a critical mass in the real estate industry. One of the most successful projects was The Teleport, a development of the Port Authority of New York and New Jersey on New York City's Staten Island, which opened in 1985.

A founding tenant of The Teleport was Telehouse International Corporation, which created what would today be recognised as the first commercial collocation facility, where companies located their computers and telephone switches in order to have access to both local and long-distance networks at low cost.

1990s: telecom hotels

Despite this early success, by 1990, most developers had dismissed the intelligent building concept as a marketing 'gimmick'. However, less than a decade later, intelligent buildings had become the hottest play in real estate, because of the unexpected success of the model pioneered by Telehouse in 1985.

Telehouses, also known as telecom hotels, Internet data centres or hosting centres, experienced explosive growth beginning in 1998. Driving development was the exponential growth of Internet traffic and the inability of incumbent local telephone carriers to provide enough space at their central offices for all of the equipment that competitive service providers wanted to install. With a broadband connection into a central office (for local connectivity) and another broadband connection to a Tier 1 Internet backbone carrier, telehouses provide the equivalent of collocation space at a facility outside the central office or backbone carrier's facility.

Twenty-first century: accelerated pace of development

Today, companies including real estate developers, telecommunications carriers, information technology companies and new startups continue to develop telehouses at a furious pace.

Currently, Telehouse International itself operates three telehouses in New York City, one known as the New York Internet Exchange. Growth in this marketplace is very strong: the city of London had about 1 million square feet of telehouse space in mid-2000, and was forecast to have 10 million square feet by 2007, while New York City saw 4.9 million square feet purchased or leased for telehouse space in the 18 months from mid-1998 to the end of 1999.



The Stanley earth station. Photo: Hongkong Telecom

fering value-added features, such as those that can be offered by a SuperPOP.

Continuing expansion of satellite fleets all over the world and the ordering of replacement satellites suggests continued confidence in satellites as a communications and broadcasting medium. This activity creates more channel capacity as new technologies, such as Ka-band and on-board processing, make satellites more efficient. Likewise, just as the Internet industry has accepted satellite as an important part of the global infrastructure, SuperPOPs at teleports are evidence of the satellite industry's acceptance of fibre optics. In fact, hybrid satellite/fibre solutions are now very commonplace.

What lies ahead?

Where is the telecoms industry headed then? On 23 September 1999, in an address to the World Economic Development Congress (WEDC) William E Kennard, then Chairman of the Federal Communications Commission (FCC), provided much insight into the future when he said: "What we must recognise is that the great worldwide networks that will drive the Internet around the world will not be built by governments. They will be built by the private sector. That is why we must champion private investment. The private sector has invested over \$600 billion to build these networks since 1994. And that is only the beginning."

But why is that the private sector will play such a central role in the development of the Internet worldwide networks? This is because today, about 97 per cent of the world's Internet us-


ers are in high-income countries, which account for only 15 per cent of the world's population. That means 85 per cent of the world still has no access to the 'information highway'. As of January 1997, the Asia-Pacific region had 6.3 per cent of the Internet hosts in existence, Latin America and the Caribbean, one per cent and Africa, less than one per cent. The imbalance could not be more evident: in other words, there are more Internet hosts in New York City than in all of the African continent.

Essentially, this means that many exciting technological developments lie ahead in telecommunications. But for all the satellites, SuperPOPs, wireless Internet

access, and new transmission technologies, the keys to success everywhere in the world will rest on how we handle two things: regulatory and market issues.

Conclusion

Experience has demonstrated time and time again that a deregulated telecommunications environment fosters healthy competition and the development of new services. This is not to suggest that we should advocate no regulation, but to point out that an open market environment, guided by reasonable rules, has succeeded in the past and will succeed in the future.

When AT&T was challenged by MCI and eventually broken up, the US ended up with a more advanced network, more competition, lower prices, and more consumer choice. Under these conditions the market will reward those who use technology wisely, and show that they understand their customers by meeting their needs and exceeding their expectations. Today we are all challenged to take the lessons of the past to make the most of the future. 

Stephen Tom

Tel: +1 508 833 8625

Fax: +1 508 833 6520

E-mail: stephen@teleportconsulting.com

Website: www.teleportconsulting.com

Contact the World Teleport Association at:

Tel: +1 212 825 0218

Fax: +1 212 825 0075

E-mail: wta@worldteleport.org

Website: www.worldteleport.org



More satellite dishes at the Stanley earth station. Photo: Hongkong Telecom