The rise and rise of Teleports and SuperPOPs

From humble beginnings as state-owned satellite earth stations, teleports have become the information hubs of the knowledge economy and, given society's increasing reliance on information, their importance is likely to grow. Much of the industry's future success, however, depends on the actions of its regulators now.

Stephen G Tom, **World Teleport Association**

Commercial teleports started as satellite earth stations at the dawn of the satellite age. They were generally built and operated by government-owned or controlled telephone companies. Due to their susceptibility to microwave interference, early teleports were usually built in very remote or rural locations. These initial teleports were th e link between the terrestrial telephone networks and the fledgling satellite fleet operated by INTELSAT. Since the early teleports were generally state-owned monopolies, the ownership structure resulted in high prices, poor service, slow growth and a lack of innovation. However, the US 'Open Skies' policy effectively signalled the end of satellite monopolies in the US, and the subsequent growth of the satellite industry drove the development of the ground station business.

The term 'teleport' was coined by the Port Authority of New York and New Jersey as they conceptualised the New York Teleport on Staten Island. The founders of the New York Teleport suggested that every modern-day city had an airport, a seaport, and a railport in the form of a railway station, and in the information age, every city should have a 'teleport' as a hub for telecommunications commerce: 'the weightless cargo'. At that time it was believed that broadband access would be concentrated in these expensive hubs. No one envisioned the distributed nature of the internet or the possibility that a city might have several high volume, high bandwidth service hubs called SuperPOPs.

What did teleports become?

Although state-owned teleports continued to focus primarily on international telephone traffic, commercial teleports became the intermodal hubs of the broadband world. Acting as electronic gateways connecting satellite, fibre optic, and microwave circuits, privately-owned teleports provided outsourced services for broadcasters, cable programmers, and public and private data network providers.

Initially, the content of the satellite transmissions was telephone traffic, broadcast video and audio. Now, teleports are also critical nodes on the internet backbone, key hubs for internet-via-satellite systems, and providers of telephony and internet service to underserved regions. For a time, there was a battle of technologies as fibre proponents tried to prove that fibre was a better technology and satellite engineers made an all-out effort to prove that satellite was better. As it turned out, fibre clearly won in terms of capacity, while satellite won in terms of its strength in multipoint distribution and relative ease of deployment.

With the advent of new satellite technologies such as on-board processing, spot beams enabling frequency re-use, and Ka-band, satellite combined with global fibre optic networks is resulting in hybrid fibre and satellite solutions that hold the promise of providing information access and entertainment delivery at levels never before envisioned.

The focus has changed from, 'which technology is better?' to 'what is the better way to integrate technologies in order to create a more elegant and effective means of information management, information access, and distribution of entertainment?'

What is the future for teleports?

Teleports are evolving from satellite/terrestrial transmission hubs, into content management and distribution centres or super points-of-presence (SuperPOPs). As integrated broadband telecommunication hubs, teleports now support a vast array of technologies. No longer merely satellite communications facilities, they bring together many forms of communications services in one location. These include internet backbone access, server collocation, video streaming, digital content management, wireless network interfaces, and fibre optic network interfaces. As teleports become

SuperPOPs, their very nature evolves from that of a satellite transmission facility to a variety of forms, including carrier hotel, and collocation facility.

In addition to the above, driven by economic development factors and business information requirements, SuperPOP features and capabilities are being incorporated into community infrastructure designs. The line is blurring between specialised telecommunications hubs and contemporary communities. In other words, communities are expanding their scope to embrace the new utility – telecommunications – as not only an enabling tool, but as a competitive tool in the global innovation economy. This is not because of a passing fad. It is a realisation that in a world becoming more dependent on information, a citizenry cannot survive and prosper without ready access to large volumes of information. Likewise, communities cannot survive and compete economically without the ability to access and contribute information.

The existence of SuperPOPs, and associated broadband infrastructure, is a leading indicator of an economy's 'e-readiness'. The demand for SuperPOPs is driven by a locale's rate of adoption of the internet, the rate of broadband network deployment to business customers, and the rate of broadband network deployment to residential and small office/home office (SOHO) customers. According to *The Economist* and the consulting firm Pyramid Research, the top ten 'E-Ready' countries are: the US, Australia,

the UK, Canada, Norway, Sweden, Finland, Denmark, the Netherlands and Singapore.

Taking this a step further, the key indicator to watch is the penetration of broadband connections. It was the miscalculation of the timing for installation of broadband last-mile connections that impeded the adoption of applications that rely on fast connections. One does not want to watch long-form streaming video on a dial-up connection. In fact, it is still painful to watch video on a so-called high-speed connection. In simple terms, it is taking a lot longer than we thought to have anywhere near ubiquitous high-speed internet access in homes and offices. This delay in broadband installation has been the death knell for many companies whose technology is dependent upon fast connections to the end-user. However, this doesn't mean that ailing firms had bad products or services.

SuperPOP demand drivers

Despite the current economic downturn, there are a number of demand drivers that SuperPOPs should track in the future. According to Telegeography, a telecom publishing and research firm, over half of the nations in the world depend on satellites for international connectivity. Even as fibre-optic networks expand to embrace more of the globe, the economics of satellite communications and wireless communications are well-suited to dealing with emerging economies, relatively small rural populations, and areas lacking in local telecommunications infrastructure.

Between 1998 and 2001, DTT Consulting reports that internet-related satellite traffic grew 185 per cent per year. Critics point out that the growth curve has slowed significantly. That may be true. However, new wireless and satellite innovations in last-mile connectivity will boost traffic as products are adopted in the marketplace.

Global broadband satellite revenues are projected to rise from $200 million in 1999 to $37 billion in 2008 according to Pioneer Consulting. Although these projections were issued prior to Lockheed Martin's decision to cease investment in the Astrolink project, and to withdraw from the telecommunication services market, the trend is still valid. The combination of satellite, fibre-optic, and wireless technologies will eventually open up significant new markets.

Let us examine the other end of the broadband pipe, the user end, for a moment. In mid-1998, the trend was already moving towards greater mobility for all communications. Now, in addition to the continuing evolution of mobile voice technology, mobile phones and other handheld devices are beginning to gain access to the internet and other broadband services.

We have only begun to see a growing awareness and demand for mobile computing with a variety of wireless network systems supporting personal area networks (PANs), local area networks (LANs), and wide area networks (WANs) coming to market. The next step may be portable wireless display screens for watching television

programming. Recently, Sony announced the release (in Japan only, so far) of a new portable touch-screen TV display called 'AirBoard', which allows the user to wander around their home 'untethered'.

SpectraRep is working with US television stations to develop a new broadband distribution network using some of the digital television channel capacity that has been assigned to them. This wireless network holds the promise of being the next mechanism for delivering broadband content to the office and the home. It is being positioned as a low-cost and ubiquitous broadcast information delivery system, a perfect evolution of the television application.

On another wireless front, the tower (cellular, two-way, broadcast, and so on) business is flourishing. The field is dominated by two players worldwide, Crown Castle International and American Tower Corporation (owners of teleport operator and WTA member Verestar). This 'vertical real estate' or teleport play is yet another example of how wireless and mobile communications are creating new business opportunities. In a recent issue of *NYSE Magazine*, Ted B Miller, CEO of Crown Castle International said: 'The future will bring a convergence of voice stream, video and data into one medium – a handheld device, instead of one tethered to a wall'.

Meanwhile, the next major turning point in internet development is going to be a shift in the internet model that will facilitate a truly interactive network. In other words, instead of a network based upon 'clicks' activating requests for information, the internet will become an interactive broadband network that establishes connections in real time when real-time interactivity is important. This will take the place of the current 'request/reply' model that was originally designed to facilitate the sharing of document files.

Whether any of the foregoing statistics, speculation, and projections are exactly accurate is not critical. As the telecom and technology sectors recover from the dot.com crash, important realities are being recognised. Companies are beginning to realise that they must have customers, they must make a profit, and they must manage creatively without abandoning traditional business disciplines. Although this may seem obvious, we only need to look at the past two to three years in the technology sector to find numerous examples of companies that ignored all of these 'obvious' requirements. Investors are also beginning to understand that shareholder value is not merely a matter of the price of the stock. A high share-price is not

necessarily an accurate indicator of value, if the company is functionally 'sick' and incapable of performing in the long run.

What does this mean for teleports and SuperPOPs?

Teleports and SuperPOPs that properly heed the call to respond to market demands will be rewarded on a number of fronts, including:

- Significant increases in traffic
- Opportunity to add value by offering a broader range of services
- New revenue sources
- Opportunities to innovate
- Increases in the efficiency and profitability of the business

What are the obstacles?

There are obstacles facing those who seek to profit from the opportunities described above. Regulatory paralysis is the single most significant impediment to realising the economic potential of the information economy. Without progress on the regulatory front, there will be continuing delays in last-mile deployment because business models will not work without a proper regulatory environment. If the last mile continues to be the 'choke' point, businesses that are dependent on a robust broadband end-user will wither and die.

Additionally, continuing the consolidation trend while relying too heavily on 'spreadsheet management' (a single-minded belief in managing by the numbers) and acquisitions without direct management attention to operations, customer service, and employee relations, will result in ineffectual behemoths (and has) selling off unprofitable parts of their companies in an effort to 'get healthy' and to focus their business.

In our rush to grow companies, the acquisition tool is frequently deployed without considering strategy carefully enough. Michael E Potter writes in 'How to Profit From a Downturn' in the December 10th, 2001 issue of the *Wall Street Journal*:

'This is the moment to rediscover strategy, and an opportunity to scrape off the barnacles acquired during the last expansion. The essence of strategy is defining how a company is unique and how it will deliver a distinctive mix of value. Strategy is about aligning every activity to create an offering that cannot be easily emulated by competitors. Now is the time for companies to be honest about where they have, or could have, real competitive advantages, and reallocate resources accordingly'. Far too often, companies attempt to grow through acquisition, without delineating a sound strategy and following up with sound management practices.

The path forward

The teleport and SuperPOP marketplace will prosper if the regulators create an open market. Not a market without regulation, but an open market with reasonable and predictable rules, applied equally to all.

This type of market fosters healthy competition and this competition results in competitive pricing, innovations, and speed – things get developed and implemented quickly. It is a win-win situation, as companies are rewarded for understanding customer needs and using technology wisely. It is a win-win as communities and governments understand the needs of citizens and facilitate access to technology that helps people live better, more productive, and healthier lives.

Growth by acquisition must incorporate tried and true business disciplines. Lessons learned during acquisition sprees of the past few years have taught us the importance of good business plans, sound management, and a precise and timely knowledge of the marketplace. This is not to suggest that consolidation strategies are inappropriate.

However, consolidation moves for the sake of expansion, and 'management by spreadsheet' while foregoing the discipline of strategic thinking and active management, will almost certainly result in underperformance, if not outright failure.

Conclusion

So what does all this mean for teleports, intelligent communities, and the next generation of telecom providers? It suggests that WTA's founders were indeed visionary, as they forecast the convergence of teleports and communities into the information hubs of the knowledge economy. The value of bringing community planning and telecommunications infrastructure and services together, in order to promote economic health and to foster productive human interaction is becoming more apparent daily. From LaGrange, Georgia in the US to the town of Sunderland, UK and many other communities around the world, concrete results have been achieved through innovative integration of telecommunications planning and community planning, focused on economic development goals. However, effective convergence cannot be realised without continuing regulatory liberalisation and changes in the way that companies grow through acquisition.

WTA's member organisations are leading the way and stand to reap the benefits of the convergence of telecommunications and community development. The challenge for our members, and for the entire telco industry, is to apply our technologies, to innovate in policy-making, and to evolve our businesses so as to take full advantage of ever-changing market demands and opportunities. ∎

) About the author

Stephen G Tom is the chairman of the World Teleport Association and president of Teleport Consulting Group International, LLC. He can be reached via e-mail at: stephen@teleportconsulting.com or telephone: +1 508 833 8625. Find out more about the World Teleport Association at www.worldteleport.org and the Intelligent Community Forum at www.theintelligentcommunity.org.