



Photo courtesy of Thuraya.



## Bridging the gap

Satellite communications technology is helping some isolated and remote rural communities thrive. However, the majority of the continent is still waiting for access to simple voice services. Satellite Evolution looks at the problems faced by remote villages and the telephony solutions available to meet their needs.

**The ability to communicate has become an absolute** necessity in the modern world. It is difficult for us to imagine what it would be like to have no access to at least a telephone. Our reliance on voice communication is so significant now that it is the norm for every home and workplace to have an abundance of telephones whether they be fixed line or mobile. We would be lost without them.

However, in recent times, there has been an acknowledgement of a 'digital divide' – a chasm that exists between those who are able to access Information and Communication Technologies (ICTs) and those who cannot. This could be for a variety of reasons but two principal factors are location and affordability. Those communities living in rural areas are often isolated and suffer a lack of infrastructure. DSL or ADSL lines will not reach and are far too costly to install in such remote and sometimes inhospitable locations. However, the implications of not reaching these communities and enabling them

to gain access to at least a telephone are significant. We are all aware that knowledge is power. The advancements seen in urban areas of Asia have been incredible. Broadband penetration is high and continues to grow at a rapid rate. However, according to a recent survey, 75 percent of the population in Asia is living in rural districts and in Southeast Asia 62 percent of the population is still living in underdeveloped and isolated villages. Broadband and ICTs aside, a basic need in today's world is access to a telephone.

### Enter satellite

Nowadays, any country can ill afford to have parts of their population cut off by a lack of telecommunications infrastructure but it can be a real problem for telephone service operators to reach remote areas both financially and operationally. Satellite is often the only real solution in these circumstances. Distance is no object and does not affect its cost. It can also be deployed on a turnkey basis by one provider and ultimately can provide a voice service of the highest quality at a low cost.

### Reinvigoration of rural communities

The potential impact of installation of rural telephony cannot be underestimated. Granting an isolated community access to a telephone can open hundreds of doors and strengthen the local area economically and socially. It gives local farmers the opportunity to form strategic partnerships, to sell their produce and also to gain access to educational aids that will improve their farming techniques. Healthcare and education also improve with the ability to reach further a-field to seek advice, learn about new projects and initiatives, to link up with other communities and also to access more public services. This is of benefit locally but will eventually impact nationally. Satellite-based communications also can assure access to computers and the Internet which is so information-rich it can change people's lives by



giving them the opportunity to learn and gain qualifications and skills that they would otherwise be restricted from.

### Rural telephony in India

The latest statistics to come from the Telecommunication Regulatory Authority of India (TRAI) reveal that the total number of telephone subscribers reached 225.21 million in June 2007 compared with 218.05 million in May 2007. The overall tele-density in June increased to 19.86 in comparison with 19.26 at the end of May.

In the wireless segment, 7.34 million subscribers were added in June 2007 (compared to 6.57 million in May) registering an increase of 11.72 percent. Total wireless subscriptions totalled 185.13 million at the end of June.

These figures show steady growth in take-up of telecom services. However, the situation in rural areas is very different. The urban-rural divide in India is increasing instead of decreasing as we are seeing in other regions of the world. This is due in the most part to negligible mobile coverage in rural areas. The underlying issue is policy that must be adjusted to accommodate and ensure an increase in rural tele-density. This, however, will only be made possible when rural growth is mobile and driven by competition as in urban areas. At present there is little mobile coverage and the growth is PSU/USO driven.

The telecommunications in rural areas will remain stagnant if it is not driven by competition. TRAI recognises that networks must be extended in order to achieve higher population coverage. Once this is achieved, growth will be accelerated. Cable television subscriptions exceed fixed line subscriptions in India at present.

The problems currently facing India's lack of rural coverage are down to the fact that there is almost no mobile tower coverage in rural areas and growth is inhibited to PSU/USOs. The belief is that the creation of competition will lead to rural growth as it has in urban areas. However, the bottom line is that there is a hugely significant market in rural areas of India and there is also huge demand for telephony services. This, of course, is not restricted to India – there are thousands of rural communities across the Asian region in need of telephony solutions.

### The solutions

Inmarsat launched its LandPhone earlier in 2007 – it's first new fixed phone service. The LandPhone is a low-cost, easy to use, fixed telephony solution for use in remote locations where local networks are unreliable or nonexistent. LandPhone is accessed by connecting a standard phone to a fixed satellite terminal. With a compact and robust design, it may be easily transported to remote locations for set-up in indoor and outdoor spaces.

The LandPhone is ideal for use as a remote office phone on plantations and for the mining and construction industry. As a village phone, it meets Universal Service Obligations where alternative technologies aren't available.

It may also be used as a temporary fixed phone for displaced communities or aid or government workers in disaster situations, for emergency relief or in war zones. It is also suitable for migrant workers who require low rates to call home. The LandPhone is suitable for use in Asia, Africa and the Middle East.

### Thuraya

Thuraya's payphone solution uses satellite-based telecommunications. The solution, aimed at serving areas most in demand of telecommunication services, links remote villages and townships across Thuraya's coverage area. For many of these remotely located and scattered communities, no other telecommunications technology matches satellite telephony in cost effectiveness, rapid roll-out, convenience and accessibility. The Thuraya payphone connects far-flung areas with the rest of world affordably, contributing towards the long-term development of people living there and providing viable telecommunications services in rural areas.

## India doubles financial commitment to ITU

India doubled its financial contribution to the International Telecommunication Union from five 'contributory units' to ten, amounting to CHF 3.18 million per annum.

Announcing the increase at the ITU Council meeting in Geneva in mid September, Mr D.S. Mathur, Secretary, Ministry of Communications and Information Technology, Government of India said, "India fully supports the mission of the International Telecommunication Union to connect the world and, in particular, to develop online resources and strengthen cybersecurity. The Global Cybersecurity Agenda launched by ITU this year is a significant step in ensuring confidence and security in the use of information and communication technologies around the world."

Mr Mathur added that India would support ITU not only financially but with human resources as well. "India is at the forefront of ICT development in the world owing largely to its wealth of human capacity, which is based on our top-class educational system," said the Secretary. "We will use our growing global presence in this sector to promote ITU's work in reaching the benefits of ICT to all inhabitants of the world."

### India endorses ITU global initiatives

Mr Mathur expressed his country's confidence in ITU's management and the launch of new global initiatives, including the series to Connect the World. ICT is the driver of economic growth and employment around the world and the catalyst for improved services such as health care and education.

Dr Hamadoun Touré, Secretary-General of ITU, welcomed India's increased contribution and said it was a reflection of the spectacular growth of telecommunications in the country. He said, "I thank the Government of India for the increased financial contribution that will support ITU's commitment to connect people everywhere, especially in remote and underserved regions. By doing so, we will be able to accelerate the process of meeting the broader development goals."

Dr Touré said that a Marshall Plan for ICT is needed if we are to meet the 2015 connectivity targets of the Millennium Development Goals (MDGs). "India's increased financial support must be emulated by other Member States and stakeholders who have made commitments to connect the world in the Millennium Declaration and at the World Summit on the Information Society," Dr Touré said.

Thuraya bridges the telecommunication divide by complementing and integrating with local telecommunications networks. Users benefit from cost effective satellite telecommunication services throughout Thuraya's coverage area. The payphones operate using different card types in a wide range of applications. Users may be able to use different modes of payment featuring chip cards, scratch cards, magnetic cards, credit cards, and ultimately, SIM cards both, on post-paid and prepaid multiple payment modes.

The payphones will complement the SATEL that is an indoor docking unit that allows usage of satellite telecommunications in an indoor environment.

The two solutions provide a user with alternative means to communicate in areas cut off from any type of connection, indoors as well as outdoors.

Currently, Thuraya covers an area inhabited by some 2.5 billion people, encompassing the Middle East, North and Central Africa,



## Thailand joins ITU to build ICT capacity in Asia-Pacific

The Royal Thai Government has concluded an agreement with ITU to lead the Business Management Training Programme within the Asia Pacific Centre of Excellence (ASP CoE) Network.

With the signing of this agreement, the CoE programme has now successfully established all five Nodes in the Asia-Pacific region, as envisaged at a meeting in Bangkok last October. The other functioning nodes in the region are located in the Islamic Republic of Iran (for Spectrum Management), Malaysia (Rural ICT Development), Pakistan (Policy and Regulation) and Republic of Korea (Technology Awareness).

Under the agreement, the Ministry of Information and Communication Technology of Thailand will provide the space, facilities and resources as well as key experts for the training programme. The curriculum, which will focus on various business and financial aspects of telecommunication / ICT in the Asia and Pacific region, will be jointly developed with CoE partners. ITU will provide seed funds for the hiring of experts and their travel for a period of 18 months and will monitor and evaluate the programme upon its completion.

The agreement was signed on 6 September 2007 by Mr Sue Lo-Utai, Acting Permanent Secretary, Ministry of Information and Communication Technology of Thailand and Mr Sami Al-Basheer Al-Morshid, Director of ITU's Telecommunication Development Bureau, in the presence of H.E. Mr. Sihasak Phuangketkeow, Ambassador and Permanent Representative of Thailand to the United Nations Office and other International Organizations in Geneva, and ITU Secretary-General, Dr Hamadoun I. Touré.

The overall aim of the Asia and Pacific CoE project is to build a self-sufficient and sustainable mechanism in the region to strengthen ICT capacity through Human Resources Development.

The first training programme by this node is expected to be launched in November 2007.

Europe, Central and South Asia. Their range of solutions are aimed at maximising the flexibility of Thuraya's satellite network in a variety of applications aimed at bringing people closer.

Thuraya payphones underwent pilot testing in several countries and the positive results paved the way towards full commercial launch. The payphones are also ideal for corporate users at remote work installations enabling long stay staff to connect with their families easily.

Thuraya Satellite Payphones offer a quick, reliable and cost effective means of providing telecom access to remote and rural areas characterised by low population densities, highly scattered settlements and difficult terrains. In many instances this will be the first experience of telecommunications allowing communities to grow and prosper.

Thuraya's payphones will provide border-to-border telecommunications across Europe, North and Central Africa, the Middle East, the CIS countries and South Asia.

Thuraya offers two types of payphone solutions: The Chip Card Payphone solution and Public Call Office (PCOs). The basic Chip Card Payphone solution has many different arrangements and can be configured to fit the needs of the customers. The Public Calling Office (PCO) solution is a simple solution that can be set up quickly and easily.

The Chip Card Payphones are available in both indoor and outdoor configurations and consist of:

- A Payphone Interface Module (PIM) for Satellite access;
- A standard, chip card based Payphone; and
- The indoor unit will come with an external antenna.

A PCO Based Payphone solution will comprise of:

- Payphone Interface Module (PIM);
- PCO box with built in printer;
- One or more Extension Phones;
- The printer will generate print outs of the payment receipt/bills for the user after call completion; and
- PCO solution will come with an external antenna.

Payphone Terminal features:

- Offers satellite voice telephony and emergency services;
- Easy and cost effective to operate;
- Compact, strong and sturdy; and
- Tough, reliable and ideal for remote environments.

Thuraya recently announced that they will be mounting an aggressive marketing campaign in Asia-Pacific and signed their first service provider agreement with Asia Pacific Satellite Industries in April 2007. This will be the building blocks of expansion of Thuraya into the region where their payphone and PCO solutions are bound to be popular in rural communities.

### Protel

US company Protel's comprehensive line of wireless payphones offers connectivity via satellite. Service providers can now rapidly install Protel payphones in any location or environment including remote areas, on public transportation, at urban sites, or disaster scenes - anywhere customers need instant, reliable communications.

In many areas of the world, constructing a wire-line network is no longer a feasible solution in building communications infrastructure and these regions have now turned to wireless networks as an alternative.

With this in mind, Protel has developed a new line of wireless payphones that you can now deploy virtually anywhere using the wireless technology that is most appropriate. Now where payphones were not possible, they become possible and public communications can now be offered.

Protel offers several products that will work with most of the known wireless technologies available today such as:

- Cellular - Where a cellular network is available, there is a wireless Protel payphone that is compatible, whether the network technology is GSM or CDMA;
- Satellite - Even in the most remote regions of the world, providing public payphone service using satellite communication technology is an option. Satellite connections are reliable and available anywhere, including on ships at sea, oil platforms, and military outposts; and
- Radio - Protel also supports radio networks, a technology increasingly used for rapid deployment in fixed wireless, point-to-multipoint networks.

The rugged, reliable, and secure payphones provide operators with a revenue-generating platform that is cost-effective and efficient. Protel wireless payphones are easy to install and maintain, indoors or out, in rural or urban areas. In addition, its wireless and wire-line phones use virtually the same components, allowing for true interchangeable parts, lowering the costs of implementing a wireless solution.



## Shin Satellite – voice via satellite

Shin Satellite's Voice application enables an organisation to rapidly deploy nationwide telephony services over IP. Together with IPSTAR's professional service and analogue telephone adapter, users can connect their normal analogue phone directly to the unit. IPSTAR Voice supports multiple protocols and it is able to connect to any off-the-shelf VoIP products. The application supports rural telephony networks and enables them to reach every part of the world regardless of distance.

IPSTAR system supports voice applications over the IP network. As one of the most promising services it has the following advantages:

- Substantially lower voice circuit cost than the SCPC/DAMA system;
- Uniform high-quality nationwide service anywhere;
- Supports off-the-shelf Analog Telephone Adapter, IP or LAN Phone & PABX and Enterprise & Carrier VoIP Gateway; and
- Attractive Service:  
Add-on Service for Corporate Intranet; and  
Rural Telephony Service.

The design of the IPSTAR modem can be adjusted for use in the rural environment. It has a rugged enclosure to withstand harsh environments, and come with air ventilation, anti-dust features. When compared to the conventional rural telephony using SCPC DAMA (Single Channel per Carrier / Demand Assigned Multiple Access), IPSTAR is superior due to:

- Lower terminal equipment costs;
- Ability to support other applications on the IP network; and
- Better bandwidth efficiency, hence lower bandwidth costs e.g. with IPSTAR, a 9.6 kbps-voice channel requires only 24 kbps of IP package including IP headers, which utilize about 30 kHz on Satellite Bandwidth compared to 48 kHz of SCPC DAMA.

## VoIP

VoIP is becoming a popular telephony tool in rural areas of Asia. In

China telecoms is one of the fastest growing areas of the Chinese economy. The ability to use voice services over broadband connections is often a cheaper option and gives communities the opportunity to host video conferences that can help link them up with other communities and also cities helping to boost the local economy.

Verso Technologies, a global provider of next generation network solutions, recently announced that Verso's leading edge Clarent® Class 5 solution has been selected by China Netcom, one of largest carriers in China, to support a major VoIP deployment and provide basic telephony services to remote regions of China.

The C5CM provides feature-rich Voice over Broadband (VoBB) to enterprise and residential markets over any broadband medium including cable, xDSL, wireless, fibre, satellite, microwave, and power-line networks.

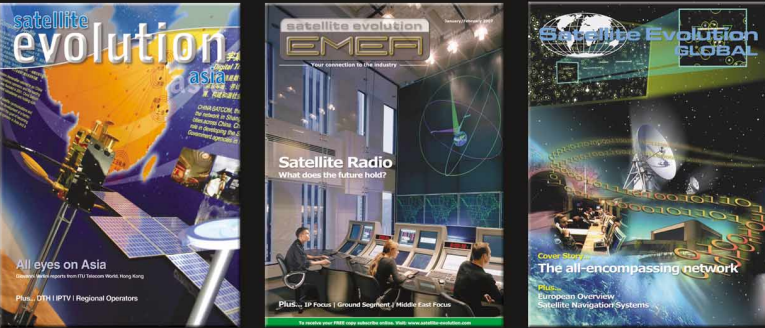

You can create true satellite offices with the same access and dialling plan capabilities as corporate PBX stations by combining the VoBB and enterprise managed services features.

The deployment is part of a major Chinese Government initiative with China Netcom to improve the quality of life for rural Chinese by extending basic telephone service to outer territories. Verso provided its Clarent Class 5 solution, which delivers connectivity between end-users and telephony switches. The offering enables carriers to offer wholesale and managed enterprise services, VoIP business applications as well as new and advanced residential communication services that are competitively priced.

## The importance of voice




Being able to communicate is probably the most important human need and in this day and age the need to communicate over large distances is a must for social and economic ends. Satellite meets these specific requirements.

Keeping in touch with friends and family who have made the move to the city and being able to find out simple facts like the current prices for crops can change people's lives. Once these rural communities have discovered the gift of telephony they can expand and use other types of technology to help their communities become stronger profitable, leading to prosperity. Just one telephone in one community can make a very big difference. ■

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