



## Case Study

# IPSTAR ADSL Network Backhaul

Department of Science and Technology (DoST) and Vietnam Telecom International (VTI) Join Forces to Link Rural Vietnam to the World

Broadband Internet is increasingly taking center stage as a critical factor to the economic development of Vietnam. But until now, only 15 million people in the country are able to connect to rich digital resources available online, a mere 17% out of Vietnam's 86 million population.

Rural Vietnam, like many other non-urban parts of Asia-Pacific, has very limited access to broadband Internet. ADSL connectivity is very scarce outside of major cities Hanoi and Ho Chi Minh, and households, businesses and government offices in rural areas still have to rely on traditional communication systems – like the telephone and dial-up Internet – with no short term prospect

of benefiting from the rollout of broadband Internet from telecom operators and service providers.

The high operational and capital expenses normally involved in providing remote villages in Vietnam with high speed Internet means that these areas face an indefinite wait – perhaps for many years – before telecom operators and service providers reach them.

But the solution to providing broadband Internet access to remote communities in Vietnam is now underway, thanks to the ADSL connectivity project – called "VSAT-IP to Bring Broadband Internet to the Countryside" – initiated by the Department of Science and Technology

(DoST) and Vietnam Telecom International (VTI), the National Service Provider of IPSTAR in Vietnam. The pilot project implemented in the remote village of Cat Tien in Dong Nai province has led to a highly cost-effective solution that is now extending to other villages across the province as well.

### Benefits

#### Cost-effective

- IPSTAR delivers high performance broadband connectivity to any location, regardless of distance and terrain barriers, and avoids the utilization of cost-prohibitive wired technology such as fiber optic cable.

#### Nationwide Coverage

- IPSTAR enables service providers to easily extend their operations to rural, as well as urban areas.

#### Fast Deployment

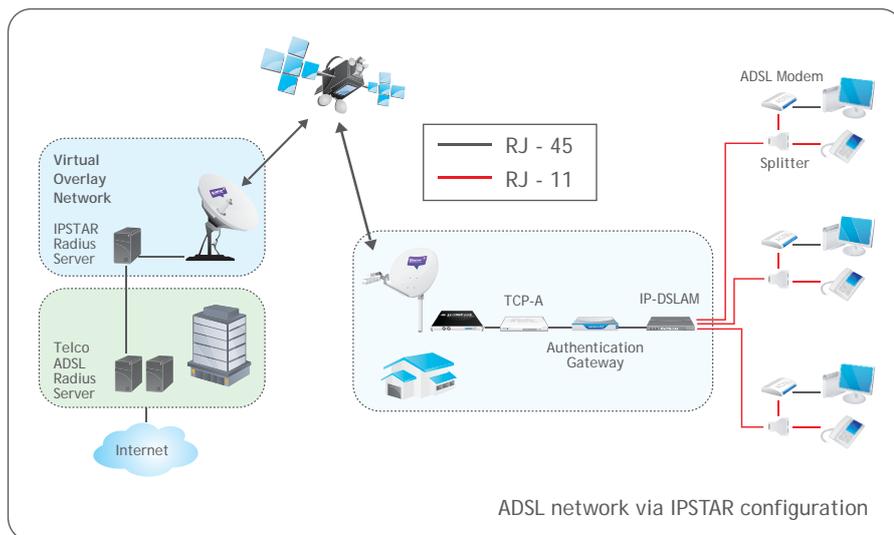
- IPSTAR enables rapidly deployable satellite-based network for telcos who have remote communication needs and Internet service providers planning to expand their market.

### Challenge

- Provide rural villages in Vietnam with access to information and economic opportunities through broadband Internet
- Implement a community-shared broadband access model that can overcome distance and terrain barriers, and can deliver Internet speeds comparable to ADSL
- Create a cost-effective ADSL network via IPSTAR satellite backhaul that can be deployed into other underserved communities in Asia-Pacific

### Solution

- Deploy ADSL network via IPSTAR satellite backhaul, a cost-effective solution in delivering shared broadband access to communities without access to terrestrial networks – thus providing instant coverage, and flexible and rapid infrastructure rollout to rural areas



### The Situation

Rural communities, like Cat Tien, have to overcome major challenges when it comes to availing high speed broadband connection. Remote villages are typically far from any Internet backbone or Point of Presence (PoP). Wired infrastructure, like fiber optics, usually does not exist or is unviable to provide ADSL backhaul for far-flung areas. In addition, the population density in Cat Tien is lower compared to metropolitan areas, requiring telecom operators and service providers higher capital and operational expenses in deploying an ADSL network infrastructure for the village.

### The Solution

The primary focus of the project 'VSAT-IP to Bring Broadband Internet to the Countryside' is to demonstrate that it is both technically and economically feasible to provide broadband Internet access to remote communities by using commercially available satellite technology. The system utilized in the project uses ADSL technology via IPSTAR to deliver high speed Internet access to community residents of Cat Tien. The broadband Internet connection is distributed among households, businesses and government offices across the village by deploying a single IPSTAR user terminal, and connecting it to a Digital Subscriber Line Access Multiplexer (DSLAM) – a network device that can link up to 24 Internet end users to the ADSL network.

The pilot project enables DoST and VTI to provide high speed and always-on Internet access to Cat Tien, delivering broadband connection speeds similar to that of major metropolitan cities. The IPSTAR solution enables the delivery of Internet to various destinations within Cat Tien – including government offices, school, medical center, police station and residential homes – with distances ranging from 200 to 2,000 meters away from the central node. The shared satellite link is able to provide a download speed of 2 Mbps and upload speed of 512 kbps.

### Proof-of-Concept

DoST and VTI's rural connectivity project in Vietnam is a major milestone in the deployment of ADSL network via satellite backhaul. IPSTAR plays a major

role in the rapid installation of ADSL to far-flung areas, which would otherwise not be economically viable with fiber optic cable or other broadband backhaul. In addition, the satellite platform helps in reducing the capital expense of the project to 3,500 USD, a critical factor in the implementation of a sustainable business model.

The pilot project implemented in Cat Tien village demonstrates a valuable case study in addressing a range of issues related to providing broadband Internet service to remote, isolated areas across Vietnam. The satellite-enabled ADSL network delivers broadband Internet to thousands of village residents – most of them for the first time.

Capital Expenditure: ADSL via IPSTAR Satellite Backhaul vs. WiMAX and Fiber Optics		
Technology	Total Cost	Details
ADSL via IPSTAR Satellite Backhaul	3,500 USD @ 24 Users	IPSTAR terminal: 1,800 USD DSLAM (24 ports): 1,400 USD Transportation and installation: 300 USD
ADSL via WiMAX Backhaul	30,000 USD @ 40 Users	WiMAX was deployed in 2007 to provide broadband Internet to 40 subscribers in Ta Van, a highland community in Lao Cai Province, Vietnam
ADSL via Fiber Optic Backhaul	400,000 USD @ 29 Users	For a 230-kilometer distance, at least 400,000 USD should be spent for an ADSL network over fiber optic backhaul

#### About IPSTAR

THAICOM-4 (IPSTAR) is the world's largest and most advanced commercial satellite serving up to 10 million users in Asia-Pacific. The breadth of the satellite's geographical reach in the region – covering an area inhabited by 4 billion people or roughly 60 percent of the world's population – positions IPSTAR as the preferred gateway in 14 countries across Asia-Pacific. IPSTAR has achieved a critical milestone in its pursuit to bridge the digital divide in the region. With a combined 100,000 subscribers in Australia and New Zealand alone and still growing, IPSTAR has become the single largest VSAT network operator in both countries. Across the region, IPSTAR has sold nearly a quarter of a million user terminals.

For more information, visit [www.ipstar.com](http://www.ipstar.com).

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