ipstar
Broadband Satellite

Solution Sheet

IPSTAR Cellular Backhaul

Cost-effective Trunking for the Telecom Industry

IPSTAR is a cost-effective alternative to microwave links and fiber optics, and is capable of providing cellular operators with satellite-based backhaul for bandwidth-efficient and scalable service.

The need for global cellular communication is rapidly increasing as nations industrialize, coupled with the fast-changing cellular phone technology, yet millions of people have limited or no access to cellular service. For most network operators, bringing communications to remote areas presents an opportunity to expand network coverage and to acquire millions of new subscribers, but the problem lies in the cost of deploying cellular networks in the rural area where wired infrastructure rarely exists.

IPSTAR is a viable platform in overcoming distance and geographic barriers to deliver cellular service to the rural area. A broadband satellite like THAICOM-4 (IPSTAR) is used to backhaul the network traffic from the remote Base Transceiver Station (BTS) – oftentimes located in areas with low population density, and where it is costly to install fiber and microwave links. Its unique IP-based technology allows operators to share network capacity across multiple locations, thus reducing the bandwidth cost and expanding their coverage to areas that were previously unprofitable.

Cellular Network with IPSTAR Backhaul

IPSTAR is capable of delivering bandwidth-efficient and scalable cellular service. The robust IPSTAR backhaul solution can be deployed in areas with low population density on a point-to-point, multipoint or mesh network configuration. The IPSTAR platform can reduce transponder capacity needs by sharing a single IP stream between multiple links and by providing access to base stations in an on-demand basis.

IPSTAR also enables network operators to quickly and seamlessly expand cellular service in the remote area. Extending service to accommodate higher traffic loads or to cover more geographical areas can be done economically via satellite, since IPSTAR-enabled cell sites only require minimal additional infrastructure.

Therefore, IPSTAR can provide many benefits to telecom operators seeking to reduce their network's capital and operating expenses, while enabling them to offer cellular service and to expand their coverage in the remote area.

Benefits

Nationwide
- Wide coverage and quick deployment nationwide

Cost-effective
- Lower bandwidth and equipment costs in providing cellular backhaul for geographically dispersed subscribers

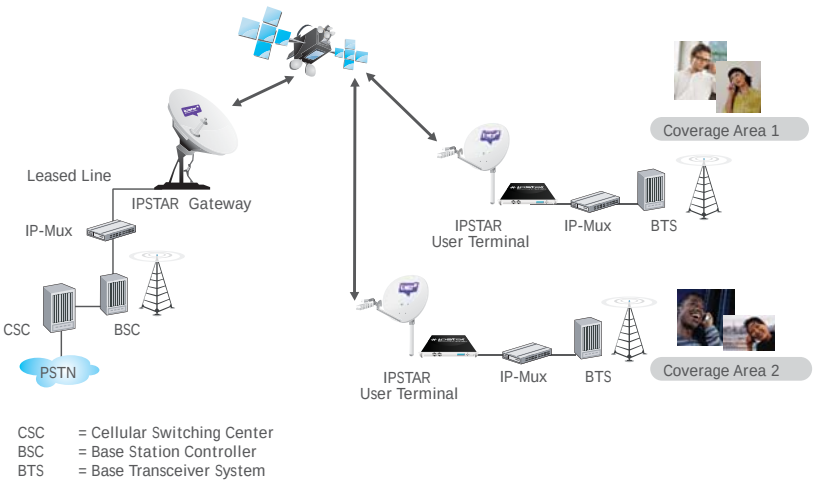
Easy Integration
- Interoperable with most equipment

Scalable
- Allows seamless increase of users on a single platform

Fast Time-To-Market
- Quickly acquire new service subscribers and earn immediate revenue

IPSTAR Cellular Backhaul can:

- Launch a new network or extend an existing network in markets with low subscriber density
- Connect isolated locations into a regional network when terrestrial backhaul is too expensive or not available
- Quickly expand coverage for special events or provide communication backup in the wake of a disaster, without the need of building permanent cellular network infrastructure
- Provide special or ad-hoc services for disaster management, mobile vehicles and other related applications



Cellular Network with IPSTAR Backhaul Configuration

Bandwidth on Demand

IPSTAR connects subscribers to the network in an economically efficient manner, while maintaining high quality voice and data traffic. IPSTAR can also be used in a shared access environment, as part of the services provided by a network operator.

IPSTAR dynamically allocates satellite resources only when they are needed, statistically multiplexing bandwidth to reduce the resources required by Abis signals. In addition, IPSTAR optimizes traffic, such as idle frame suppression and discarding silence frames, thus reducing the amount of traffic transmitted on the satellite network.

IPSTAR vs. Microwave Link

A microwave link requires line-of-sight between base stations, making it difficult to implement in heavily forested areas, mountainous regions and valleys. The line-of-sight problem can be partly solved through building a higher mast, but this can raise the deployment cost by up to 30 percent or more. In addition, the technology requires a repeater to be installed for every 50-kilometer distance from the main link. Thus, in difficult to reach locations in countries with many islands, such as Indonesia, this poses a significant problem. Therefore, the IPSTAR satellite platform is the only cost-effective solution to interconnect geographically distant base stations.

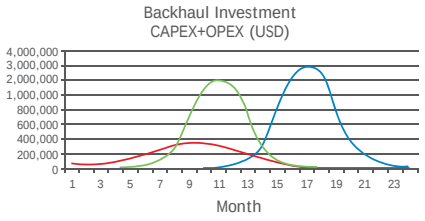
Femtocell via IPSTAR

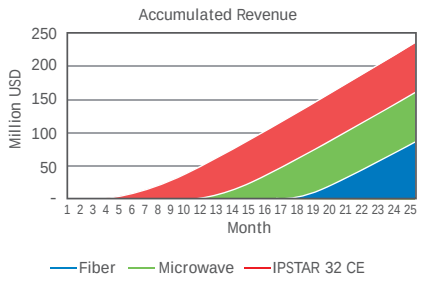
Femtocells offer telcos with the solution for enhancing cellular network capacity and coverage levels in hotspot indoor areas with minimal interference on the micro/macro outdoor coverage. The size of the femtocells keeps operators from going through the time consuming process of network installation, enabling them to provide instant coverage in any location.

By using IPSTAR technology for backhaul, femtocells can be installed wherever and whenever cellular capacity and coverage are required. Femtocell via THAICOM-4 (IPSTAR) provides lower cost alternative to traditional microwave-based approaches in providing capacity in offices and buildings. Moreover, it can provide coverage of approximately 350 to 1,000 meters in open space without the requirement of building dedicated towers.

Cost-effectiveness of IPSTAR

The graph below illustrates the cost-effectiveness of a cellular network that uses IPSTAR as backhaul for CDMA 2000 1X. The capital and operational expenses for 2,600 BTSs, located 40 kilometers away from a Cellular Switching Center (CSC), are significantly reduced by using the IPSTAR system.





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.

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