EMPOWERING PAKISTAN

O3b MEO Powered Cellular Backhaul Solution Enables LTE and Growth

Connectivity across Pakistan is often as unpredictable as the South Asian nation's vast terrain. Large areas of the country, especially the towns and villages dotting Pakistan's sparsely populated Northwest and Southwest regions, are beyond the reach of a reliable fiber ring and microwave backbone.

Five Mobile Network Operators (MNOs) have extended their urban 2G cellular networks into these remote locations by backhauling traffic over VSAT networks and a combined 450MHz of geostationary (GEO) satellite capacity. 2G voice services have worked quite well for nearly a decade, but 2G data, most notably video streaming applications such as YouTube and Skype, have performed poorly over the traditional satellite links laden with high latencies of around 600 milliseconds.

The emergence of 3G and 4G LTE across the mainland and the metropolitan areas of Karachi, Lahore and Islamabad is driving rural demand for the same connected experience and further challenging MNOs to provide a comparable solution in some of Pakistan's most isolated places.

One of only two MNOs in the world to offer LTE on the re-farmed frequencies of the underlying GSM network, Warid Telecom set out to secure the financial case and technological capabilities to deliver LTE to more than a dozen remote locations across Pakistan.

Carriers normally use a full 10 Mega Hertz (MHz) of frequency to offer LTE services. Warid is delivering 2G and LTE to metropolitan centers over a total of 8.8MHz – 5.8MHz for what the telecom operator refers to as 2.5G services and 3MHz for LTE. Replicating that model successfully across the rural swaths of Pakistan had proven to be a tough challenge. Equipment costs, traditional satellite bandwidth limitations, and spectrum constraints served up significant barriers to getting LTE to the distant hinterlands – until now.

SES | Networks

Warid jumped those hurdles in the increasingly essential port city of Gwadar, where the telecom provider successfully matched its urban LTE download speeds during cellular backhaul trials over SES Networks' game changing O3b Medium Earth Orbit (MEO) satellite constellation.

BUILDING THE 3G/LTE BUSINESS CASE IN GWADAR

Warid is facing a broad range of challenges in its quest to deliver LTE to Gwadar and other far flung communities across Pakistan. The average revenue per user (ARPU) from mobile broadband (MBB) is among the lowest in the world, about two dollars per month. High costs for spectrum licensing and infrastructure, along with high taxation on telecoms offer up additional hurdles.

to Gwadar over GEO-fed VSAT networks. The geographically strategic harbor is served by a single strand of linear fiber, which is not connected to Pakistan's mainland backbone network and not robust enough to handle 3G or LTE service on its own.

Home to 55,000 people, Gwadar is now central to the new $48 billion China-Pakistan Economic Corridor (CPEC), which in turn will form a major roadway (One Belt, One Road Project) linking Northern Pakistan and Western, land-locked China to the deep water seaport. To fully transform Gwadar into a global port, the region will require more than a 2G pipe.

"We had to have a game-changing technology to provide the same quality mobile broadband experience enjoyed in the big cities of Pakistan to users in Gwadar and other towns

LTE services promotion from Warid Telecom
O3b MEO backhaul solution seamlessly supports LTE traffic growth

A move to monetize the data, replacing dumb pipes with an intelligent solution, is a must to drive better performance, enable new services, add 3G and LTE subscribers, and generate new revenue opportunities and overall growth.

Another major challenge is the lack of fiber. A longtime fishing settlement, Gwadar is about 550 kilometers west of Pakistan's largest city, Karachi, on the shores of the Arabian Sea. First developed as a strategic port in 2007, Gwadar has remained underutilized for a number of reasons, including a shortage of investment, security concerns, and connectivity issues. Warid and Pakistan's other MNOs have long backhauled 2G cellular services and villages throughout the more remote stretches of the country," explained Usman Sharif, Warid's Senior Manager of Transmission Planning and Optimization. "O3b, with its high throughput, low latency bandwidth, is an absolute enabler of connectivity and 3G and LTE services in underserved markets around the world. We worked closely with the O3b team and initiated trials of O3b's fiber in the sky MEO satellite solution to extend 3G and LTE services into Gwadar for the first time."

FIBER FROM THE SKY

By establishing an O3b terminal in Gwadar and a centralized microwave network linking additional cities, Warid began backhauling LTE services from Karachi to the port city and Pakistan's Southwest region over a powerful beam of O3b's high throughput satellite capacity. The fiber-like bandwidth features latencies of less than 150 milliseconds (ms), which has enabled Warid to offer new services and reap new revenue streams.

"When we turned up the O3b service, all of a sudden we had big city LTE connectivity in Gwadar. It was a night and day difference overnight, and customer response was just as quick," Sharif noted, recalling with a smile the transformation that followed.

"We set a lofty download throughput benchmark in Gwadar, based on the peak 21 Megabits-per-second (Mbps) on a 3 Mega Hertz LTE channel that Warid's metro subscribers enjoyed via fiber in places like Istanbul," Sharif explained. "Our customers in Gwadar were able to enjoy virtually the same level of throughput on O3b, with an average of 19.8 Megabits-per-second (Mbps) and low latencies that are driving exciting new streaming services and the higher revenues they bring."

By attaining their Key Performance Indicators (KPIs), Warid and SES Networks have clearly raised the bar at a critical time in the life of Pakistan's newfound global port of Gwadar. "SES Networks and O3b MEO services are well-positioned to play a vital role in the future of Pakistan's economic growth and a linchpin in the fast-developing economic partnership between Pakistan and China," Sharif noted. "O3b is the technology solution, the elixir we've needed to unleash the full potential of our business, our people and the country of Pakistan."

"By landing 50 Megabits-per-sec (Mbps) of O3b's Ka-band MEO bandwidth in Gwadar and the Southwest region of Pakistan, Warid can deliver four times more throughput downstream to its customers than the geostationary satellite equivalent," noted Hamid Nawaz, SES Networks' Regional Sales Director for Pakistan, Afghanistan and

Central Asia. “That opens the door to Warid generating four times more revenue by driving data uptake and LTE penetration throughout Gwadar and the region.”

“In essence, O3b is a powerful engine of connectivity and economic growth across the region,” Sharif added. “Our O3b trials lasted about three months and have changed the outlook of our business and the future here in Gwadar.”

CELLULAR BACKHAUL BREAKTHROUGH

By tapping the high throughput, low latency satellite capacity of O3b, Warid Telecom has made the business case for 3G and LTE cellular backhaul in Pakistan. By sharing its O3b terminal access with other MNOs serving the region, the financial equation for connecting Gwadar and more than a dozen other remote cities and towns becomes even stronger.

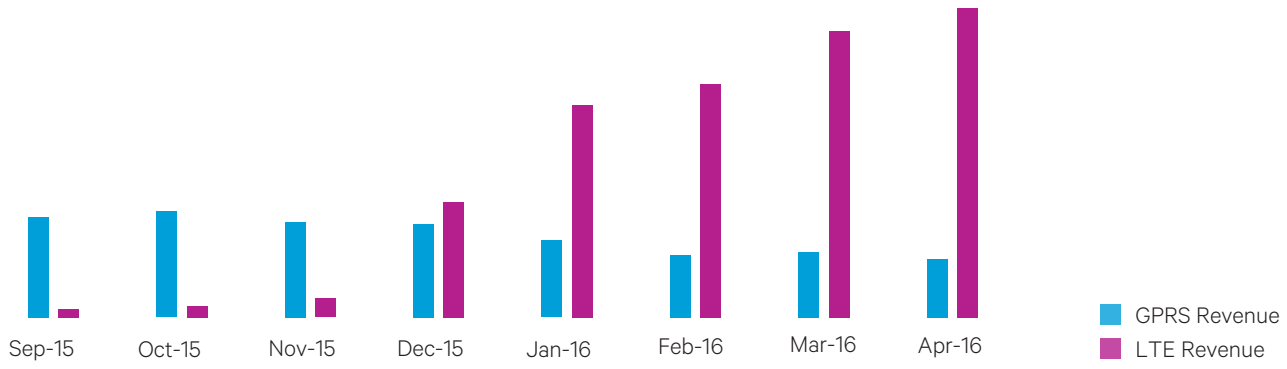
The results and benefits that have emerged from a brief three month trial of O3b are staggering, according to Sharif and his Warid Telecom team. “The outcomes are truly eye opening and demonstrate just how impactful and empowering reliable and secure LTE connectivity can be,” Sharif said, outlining the milestone trial at a recent telecom conference.

Warid’s successful trial in Gwadar includes major technical achievements, including a remarkable before and after in data usage that’s up from 50 to 60Kbps to more than 5Mbps per user. Data volume in Gwadar is up an astounding 25 times as of April 2016. 4G handset penetration reached 75%, and Warid has experienced significant revenue uptake from LTE data services. In fact, ARPUs have more than doubled to about $4.15 from an average of $2.00 in less than a year.

The mobile broadband movement that has taken off across Pakistan’s mainland metro centers is now reaching businesses and people in the country’s remote cities. As Sharif likes to describe it, SES Networks’ O3b MEO solution is enabling Warid to help close the urban-rural divide between Pakistan’s connected and under-connected communities.

Warid’s subscribers in Gwadar and other towns, such as Jiwani, Tump, Chitral and Turbat, are embracing new services on their mobile devices. They’re enjoying web browsing, voice and video calls, multi-player gaming, video streaming and social media. Critical services such as telemedicine and distance learning and video surveillance are also possible over the O3b-delivered LTE network in the once out-of-reach regions of a country that is home to more than 200 million people.

Warid and SES Networks are collaborating on the next phase of solutions capable of managing and delivering a new age of connectivity across Pakistan. “In the absence of reliable fiber in the remotest cities and towns, we are able to architect and design new communications and entertainment distribution platforms using the O3b satellite system.” Sharif explained. “SES Networks is empowering us to think out of the box in places where we’ve long wanted to offer new services.”



Warid’s GPRS vs. MEO-Enabled LTE Revenue Growth
Seven month trial conducted from September 2015 until April 2016

EMPOWERING PAKISTAN

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