The Power of VSATs to Connect the Unserved and Underserved in MENA

By: Kamal Antoun, Director, Middle East North Africa Region, Hughes Network Systems

Satellite service delivered over VSATs (very small aperture terminals) makes a convincing complement to fiber, cable and wireless networks, enabling MNOs and telcos to extend their networks and reach more subscribers in numerous ways.

**Meeting the Needs of the Unserved and Underserved**

Across the world, about half of the population lacks Internet access. In the Middle East, that figure is a little over 30% of the population. In Africa, it’s closer to 60% of people who are unconnected. No matter the percentage, however, one fact remains: those who have no Internet access – the “unserved” – and those who have inadequate service – the “underserved” – can be found in every country, largely in rural and hard to reach places, but also in semi-urban and suburban areas.

This is because building the networks that underlie most types of connectivity – fiber, cable, DSL, cellular and microwave – is an expensive proposition that telecommunications companies (telcos) and mobile network operators (MNOs) must justify based on expected return on their investments. When faced with building a network across difficult (and therefore costly) terrain – such as islands, mountains and unpaved roads – or to serve thin populations with low subscriber potential, telcos will often choose to expand their networks where it is more economically profitable. Unfortunately, this business model often excludes the hard-to-reach or rural customer – leaving every nation with a portion of citizens unserved or underserved when it comes to Internet access.

Wherever terrestrial networks fall short of reaching hard-to-serve or sparsely populated areas, satellite makes the connection.

- **Direct to Consumer** – In places where cable and fiber providers cannot reach individual homes and businesses, satellite can deliver Internet access. Usually offered on a subscription basis, satellite Internet brings all the advantages of connectivity to people’s homes or workplaces, enabling them to send and receive email, shop online, watch videos, take online classes, pay bills and much more. All it takes is a VSAT antenna outside the home or business and a modem inside to connect to the computer or other Internet-enabled devices. Wi-Fi routers are often used with the VSAT to extend service throughout the home or business, across several devices.

- **Cellular Backhaul** – MNOs looking to extend connectivity to subscribers outside the reach of their terrestrial networks can use satellite to backhaul mobile traffic. This entails the provision of a satellite VSAT and equipment at the cell tower to transmit the mobile traffic by satellite back to the network core. Satellite readily backhauls every type of mobile traffic – 2G, 3G, 4G/LTE and even 5G.

- **Community Wi-Fi Hotspots** – In places where direct-to-home service maybe unaffordable for citizens or unfeasible for providers, shared service can make Internet access available to more people. This model entails a satellite VSAT and modem at the location – such as a shop, community center, library or school – along with a Wi-Fi device that extends the signal across a 50- to 100-meter radius, making service available to anyone within range of the Wi-Fi signal, accessible with any Wi-Fi enabled device. Service can then be offered for free or on a pay-per-use basis.

These scenarios illustrate some of the ways VSATs can connect the unconnected, all without the investment and time required to build out the typical terrestrial infrastructure required for cable, fiber, and even wireless service.

**Today’s VSAT Technology**

As demand for broadband has exploded worldwide, advances in the satellite industry over the past 10 years have enhanced the user experience dramatically. Service providers today have new options for satellite service that delivers the performance and speed that the consumer expects.

The newest generation of satellites are known as “High-Throughput Satellites” (HTS). A step-change in the HTS technology over earlier versions (“conventional” satellites) enables the re-use of spectrum
frequencies – for more efficient delivery of capacity – as well as “Spot Beams” – which target more capacity over a specific area. Combined, these advances vastly increase the amount of capacity that a single satellite can deliver.

Another significant change in satellite services comes from the wide adoption of the Ka-band spectrum. Compared to C-band and Ku-band satellites, Ka-band makes more capacity available and enables the use of smaller – and therefore, less costly – terminals.

Other advances in the satellite industry – such as reusable rocket technology from companies like SpaceX and Blue Origin – has launch costs for putting up these satellites dropping by close to 50% when compared to a few years ago.

And manufacturing costs are coming down, as satellite engineers innovate new ways to deliver ever more capacity from a single satellite -- an order of magnitude greater than previous generations.

All told, these HTS Ka-band satellites have ushered in a new era of pragmatic and economically viable satellite solutions that many operators are leveraging in the Middle East, Africa and around the world. Where available, such satellites have bought down the cost of delivering broadband service that meets customers’ need for high-speed Internet access.

As one example, Hughes operates the world’s largest satellite Internet service, HughesNet® with millions of subscribers across the Americas. Other examples can be found in Africa with Algérie Telecom, InterSAT, and YahClick, the joint venture between Yahsat and Hughes.

Moreover, satellite technology continues to evolve, with still larger satellites with even more capacity being developed that promise to deliver end-user speeds of up to 100 Mbps. Not to mention Low Earth Orbit constellations that will complement High Throughput Satellites with global coverage and lower latency service – albeit at a higher cost-per-bit.

The Outlook is Bright for Satellite Solutions

Despite billions of dollars invested by governments in fiber infrastructure, the problem of connecting everyone, everywhere to the Internet has not been solved. To connect the unserved and underserved, VSAT service is an essential part of the mix of Internet access technologies that should be made available to citizens. Capacity and speeds are increasing while cost is coming down, making satellite the ideal connection to extend any MNO’s network to reach the unserved and underserved.

Newer technologies have brought down the cost of satellite service, making it a practical alternative for delivering Internet access beyond the reach of terrestrial technologies – whether by subsidizing the cost of the remote terminals or the entire service (to provide free public Wi-Fi access). Policy makers can also subsidize cellular backhaul by satellite to enable MNOs to extend their network reach to serve more customers.

When it comes to bridging the digital divide in the Middle East and Africa, satellite is essential and can help MNOs reach more of the unserved and underserved than ever before.
Dear Readers,

Welcome to the latest edition of Teletimes International.

This edition features an exclusive interview with David Gelerman, an industry veteran and President & CEO of SpaceBridge. David talks about the current satellite market landscape and also sheds some light on SpaceBridge's SatCloud™ - this is a game-changing offering which takes away a lot of risk from the service users while providing all the benefits they would require from a satellite network point of view. I think this solution addresses the market according to its current conditions which are very tough and competitive. SatCloud™ should definitely drive adoption for new projects where investment into infrastructure is not always very easy.

On the subject of satellite connectivity, I would recommend the editorial from Kamal Antoun, Director, Middle East North Africa Region, Hughes Network Systems titled "The Power of VSATs to Connect the Unserved and Underserved in MENA" - the editorial gives a great overview of the potential and outlook of VSATs in the current environment. Another interesting article that I would recommend is "5G in Oil & Gas: Advantages and use cases" from Saurabh Verma, Business Head, ICT and Gourab Banik, Senior Research Analyst, ICT at Frost & Sullivan.

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