



Remote Connectivity—Striking the Correct Business Case

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Today, more than ever, people need connectivity and its mobile access that dominates this requirement. The smart device has permeated our lives and has given rise to an insatiable demand for data. It doesn't matter where we live on the planet, this need is increasing on every continent, in every country, in every city, town and village.

Though many of us take for granted the ease at which we can connect to mobile networks, this is not the experience for millions of people who are located outside of centers of population. As new services and applications whet the consumer appetite, Mobile Network Operators (MNOs) are under pressure to reach more subscribers in more remote areas.

Operators need to expand their offering — that's a fact. However, they also need to do this in a sustainable way. If this isn't achieved, the ambition to reach communities that are under or unserved, will be lost. That said, it's a difficult balance to hit. The business case must make sense. How can rural cellular backhaul projects be supported and made successful?

Telecom Infrastructure Project

Back in 2016, Facebook, along with partners Deutsche Telekom, Intel, Nokia, and SK Telecom, launched the Telecom Infrastructure Project, known as TIP, to help accelerate the development and deployment of open, disaggregated, standards-based solutions with the goal of delivering high quality connectivity on a global scale.

TIP has highlighted the importance of sound business cases, investments, complete and specific policies to fuel rural cellular backhaul deployments. These are key areas that define the Total Cost of Ownership (TCO), as they address the important aspects of OPEX, CAPEX and business models. In terms of business models, there are several common and important aspects that TIP has picked up on. Firstly, the ARPU (which is typically between 3 and \$6); secondly, the data usage (around 1GB per user per month) and thirdly, the size of the communities which are targeted.

Small Cells, Big Benefits

It is these aspects that are feeding the business case. What is now established is that small cells are the best way to address these communities, as small cell technology can now provide a positive Return on Investment (ROI) even for population clusters of below 1,000 people.

Small cells allow the deployment of a low-power mobile base station that can deliver mobile services to smaller populations especially in remote areas. This means that they can operate without generators or

mains electricity. Instead, they use solar or wind power and batteries in a sustainable and cost-effective way. This creates a much more affordable solution that is viable for developing countries. Deployment is significantly cheaper than a full-size base station with lower operating costs and less requirement for site visits by engineers for maintenance or to refill generators. Coupled with satellite capacity prices for 1GB per user per month of around US\$300 per Mbps per month, these are the conditions for a valid rural connectivity business case.

Driving Down TCO

To enable a competitive TCO, all aspects related to OPEX, CAPEX, performance and even customer experience must be taken into consideration. A set of features should be built into the solution that will provide very high spectral efficiency, multiplexing and optimization in order to reduce OPEX, enable data acceleration to enhance user experience and also to adhere to strict Service Level Agreements (SLAs) that MNOs will impose.

The terminals are integral to TCO for deployment of rural mobile services. If the terminal is too expensive, it will render the service out of financial reach. If it cannot accommodate the right throughput, the service will not operate efficiently. In addition, the terminals must have the capability to accommodate the multiple network configurations that may be deployed.

At ST Engineering iDirect, we have been involved with TIP for some time and see it as a major initiative to drive awareness of new solutions and business cases for MNOs to expand their reach.

As a leader in ground infrastructure and solutions for the cellular backhaul and trunking markets, we are well positioned to enable MNOs to take advantage of business models that make sense. Advances in ground segment satellite technology and lower-cost access networks will support future growth for ultra-rural networks that demand scalable, flexible and high performing platforms as well as advanced technologies that provide very high efficiency.

It's critical that we collaborate with leading, like-minded players to develop solutions for MNOs to extend their reach and solve the growing connectivity issues. Connecting the unconnected users in remote, rural areas will provide those markets with the same opportunities that are available in more developed regions — empowering communities, enabling innovation and creating connectivity for all.

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