



ENABLING REMOTE CELLULAR CONNECTIVITY

CellEdge SDR: Integrated Small Cell with Satellite Backhaul



BENEFITS

- **Optimized for satellite backhaul**
- **Concurrent 3G/LTE support**
- **Up to 80% OPEX reduction**
- **High-capacity, low-cost bandwidth efficiency**
- **High transmission power**
- **Extremely low power consumption**

REACHING OUT TO THE UNCONNECTED

The GSMA states that there are over 1.8 billion potential “unconnected” mobile users globally, mainly in developing countries. Many of these users, residing primarily in rural areas, can afford cellular services, but these services are not available. Now, the development of small cell technology and the emergence of high throughput satellites (HTS) are enabling new business opportunities. The convergence of these two major trends plays a significant role in bridging the digital divide, by bringing affordable cellular services to remote unserved communities.

SMALL CELL OVER SATELLITE

Mobile operators are challenged with providing connectivity to rural and metro-edge customers in areas where terrestrial infrastructure is absent. It is often hard to justify serving these communities, due to high rollout costs, lack of telecommunications backhaul and power infrastructure, low consumer uptake and low average revenue per user (ARPU).

Small cell technology supports the business case for remote connectivity, reducing capital expenditure (CAPEX) through low-cost equipment and low installation costs as well as reducing operating expenditure (OPEX) with cost effective solar power.

Satellite backhaul is often the most cost effective means to bring cellular connectivity to remote areas. Successful, quick deployment requires an end-to-end integrated solution that combines the small cell, and satellite backhaul optimized to work together in the most efficient manner.

CELLEDGE: OPTIMIZED SMALL CELL OVER SATELLITE

Gilat has applied its nearly 30 years of renowned success in rural satellite communications to address growing connectivity challenges. Its new solution, CellEdge SDR (Software Defined Radio), offers operators an efficient satellite backhaul solution, enabling them to reach unconnected communities quickly and economically.

CellEdge SDR is a fully integrated, high-performance solution that bundles a small cell with an optimized, highly efficient satellite backhaul. It can simultaneously handle connectivity for both 3G and LTE networks. This comprehensive solution transparently and efficiently connects multiple remote IP-based small cell sites via satellite.

Gilat provides not only the backhauling through its SkyEdge II-c VSATs, but also a full turnkey installation service, taking responsibility for and handling all aspects of the cellular site setup process. Mobile operators benefit from a single point of contact providing an end-to-end solution enabling quick deployment, high reliability and outstanding user experience.

SATELLITE BANDWIDTH EFFICIENCY

Minimal satellite space segment overhead is achieved by efficient voice and data compression combined with satellite bandwidth allocation on demand, reducing satellite OPEX by up to 80% compared to traditional solutions.

The SkyEdge II-c hub transmits a common, statistically multiplexed outbound signal to all remote cell sites. In the inbound direction, the bandwidth is assigned on demand allocating the minimum number of timeslots required by the small cell. The hub continuously monitors traffic generated by each cell, allocating bandwidth from a common pool to each VSAT, according to real-time demand. This method is vastly superior to traditional Single Channel per Carrier (SCPC) technology, which allocates the maximum bandwidth on a permanent basis to each cell.

HIGH POWER EFFICIENCY

CellEdge SDR provides both high transmission power for wide coverage as well as low energy consumption, reducing costs and thus enabling operators to use solar power at off-grid locations. OPEX is significantly reduced by eliminating the high fuel costs required for powering traditional, diesel generator-operated sites.

HTS FOR COST-EFFECTIVE SATELLITE BANDWIDTH

High throughput satellites are influencing the economics of broadband communication. Most of these satellites implement spot-beam technology to reuse the frequency band across the desired coverage area. This solution enables throughput in orders of magnitude greater than traditional, wide-beam satellites.

The increased broadband capacity means cheaper bandwidth, translating directly to reduced OPEX, further supporting the business case of rural expansion via small cells.

CELLEDGE SDR - SMALL CELL OVER SATELLITE BACKHAUL

