

4G/5G Cellular Backhaul Over Satellite



Benefits

- Fast and reliable for cellular coverage extension, emergency response and business continuity
- End-to-end encryption with patented layer 2/3 embedded acceleration achieving 1Gbps to the handset
- Enabling advanced edge computing for IoT aggregation and caching in remote 5G networks
- Satellite network integration with cloud infrastructure and SDN/NFV core for simplified operations
- Extending 5G private networks to any location
- SkyEdge IV Aquarius VSATs with > 2Gbps throughput for demanding 5G applications

Migration to 4G/5G Networks

The demand for internet access is growing exponentially all over the world. Mobile network operators (MNOs) are becoming the primary provider of connectivity and information exchange.

In order to keep up with growing demand and user expectations, MNOs are migrating their networks from 2G/3G to 4G/5G.

While terrestrial networks deliver the promises of 4G/5G networks, satellite communication is essential to materializing the MNO vision to extend their coverage when terrestrial infrastructure is unfeasible and to provide solutions for emergency, disaster recovery and backup.

When Satellite CBH is Needed Most

Satellite communications has historically been considered a niche market, primarily used for providing cellular coverage to remote and hard to reach locations. However, CBH over satellite is now being relied upon for fast and reliable connectivity for cellular coverage extension, emergency response and business continuity.

Cellular Coverage Extension: MNOs extend cellular networks outside of crowded urban areas to:

- Meet government requirements to supply connectivity to underserved or unserved areas;
- Increase their subscriber base so as not to be required to pay roaming costs to a competitor;
- To support tourist attractions such as hiking trails, scenic travel routes and ski resorts that require connectivity.

Emergency Response: First responders need resilient, quick-to-deploy mobility solutions for fast and reliable broadband connectivity in cases where existing infrastructure collapses, in remote areas beyond the reach of terrestrial networks or it will take too long to set one up.

Business Continuity: In order to minimize the business impact of terrestrial network failures, satellite-based cellular network backup provides a reliable and easy-to-deploy broadband solution for serving affected areas. MNOs can simply activate their existing CBH over satellite network to override their terrestrial network until it is once again operational.

Industry Drivers

There is also massive evolution going on in the satellite communication industry. Satellite capacity is growing faster than ever before, as next generation satellite technology is evolving to multi-orbit constellations that include Non-Geostationary Orbit (NGSO) constellations and Very High Throughput Satellites (VHTS). Customer demands are increasingly growing, and they expect the ability to enjoy these capabilities. Next generation satellite communication will enable ubiquitous connectivity for fixed and mobility sites anywhere, will extend 5G and mobile edge computing to serve public and private remote sites and will enable mass market growth to connect IoT devices everywhere.

The Need for Speed

Gilat's CBH solutions allow leading MNOs around the world to achieve true 4G/5G speeds while overcoming the inherent delay in satellite communications. Our market leading cellular backhaul solutions for 4G networks deliver terrestrial quality speeds but can be deployed at a fraction of the time it takes to deploy terrestrial solutions. Our proven 5G solution has been designed to support demanding 5G applications, advanced edge computing for IoT aggregation as well as 5G private networks.

The SkyEdge II-c Capricorn family consists of high-performance VSATs ideal for cellular backhauling. Designed to work with high throughput satellites, Capricorn's adaptive transmission technologies maximize performance, improve service availability and reduce operational costs. Capricorn Plus provides high-speed services up to 400Mbps in the forward direction.

The SkyEdge IV Aquarius is our latest ultra-high-performance family of VSATs designed for operation over next-generation Very High Throughput Satellites (VHTS) and GEO and Non-GEO (NGSO) constellations. The Aquarius family of VSATs was designed to support flexible satellites servicing 5G backhauling as well as multiple fixed and mobility applications. The VSATs exhibit ultra-high processing capacity, achieving >2Gbps aggregated throughput and high packets-per-second processing.

Both the Capricorn and Aquarius VSAT families include Gilat's patented embedded acceleration technology which overcomes the inherent latency in satellite communications, which is critical for ensuring the required user experience.