INTELSAT

Removing Roadblocks to Rural Deployment

How MNOs Can Deliver Coverage, Resiliency, and Speed With Satellite-enabled Cellular Backhaul

Two significant barriers have kept high-performance 3G and 4G cellular broadband from reaching many rural and hard-to-reach communities: network coverage and resiliency. While the reasons are simple, they have historically been hard to overcome using traditional network cellular backhaul technologies. However, satellite-enabled cellular backhaul can tackle these obstacles.

The Challenges of Terrestrial Backhaul in Rural Areas

Distance and terrain

97%

Land in the U.S. that's considered rural

A lack of established terrestrial networks in rural places means connectivity can be slow and unreliable—if it exists at all.

Source: Intelsat CellBackhaul Field Test

Capital investment

$186K

The price to deploy 10 miles of fiber

Physically connecting cellular sites with fiber over vast distances can be prohibitively expensive.

Source: U.S. Department of Commerce and National Telecommunications and Information Administration

Sluggish deployment

15-50%

Penalty for missing RDOF milestones

Long service deployment times can lead to financial penalties under Universal Service fund policies.

Source: U.S. FCC Rural Digital Opportunity Fund (RDOF) Rules

The Pitfalls of Fiber and Microwave Backhaul vs. Satellite

	Fiber	Microwave	Satellite
Limited Reach	Fiber is a great solution for urban and peri-urban deployments, but capex, opex, and challenging terrain puts a practical limit on the reach of fiber networks.	Microwave is a fast, cost-efficient means of servicing areas at the edge of the fiber backbone, but multiple hops and line-of-sight requirements can limit its utility.	Satellite bandwidth is readily available globally, covering 99% of populated areas, and is ideal for 2G/3G/4G/5G coverage in places where terrestrial backhaul is not practical or feasible.
Lack of Resiliency	Single-homed fiber—along roads and through waterways—can expose a network to outages due to construction, accidents, and natural disasters.	With multiple hops in a long-distance microwave backhaul connection, each tower-to-tower jump is a potential break in the chain.	Satellite is installed in a month or less at the tower location, is unaffected by local fiber cuts or outages, and is quickly re-deployable for use at new site locations.
Inefficient Bandwidth Use	Point-to-point technologies like fiber or microwave are typically provisioned to handle anticipated peak demand at each tower. This frequently means over-provisioning capacity beyond what's normally needed. Those costs are often passed to customers, who essentially pay to deploy capacity they'll rarely use.		Satellite is point-to-multipoint capable, with bandwidth shared across tens or hundreds of cell towers to cost-effectively meet demand during peak hours.

Applications for Internet and Cellular Network Backhaul

Improve customer services with expanded network coverage and faster speeds

Quickly and cost-effectively expand services to new customers, and strengthen services for existing customers with satellite-powered cellular backhaul.

Telefónica Global Services

Using Intelsat's managed CellBackhaul solution, Telefónica Germany brought services to corners of the country where fiber and microwave deployments weren't feasible. For communities that previously had no mobile coverage, and those with only marginal coverage, the solution powers Telefónica's ability to deliver 4G/LTE voice and data services with rates up to 50 Mbps.

Protect communities with better resiliency

In the past 30 years, there has been a three-fold increase in the number of global climate-related disasters (OXFAM International). As so many people and businesses (and their vital utilities) are reliant on high-performance connectivity, these events have a heavier toll than ever. In emergency situations, satellite backhaul services can be provided crucial connectivity at the moments it's most needed.

Tier 1 Japanese MNO

In addition to using satellite capacity to provide day-to-day cellular network connectivity to thousands of sites across the southern islands of Japan, one of Intelsat's biggest CellBackhaul customers has positioned equipment with hundreds of other sites to use satellite backhaul to maintain service in the case of an earthquake, tsunami, or other event that impacts the existing terrestrial backhaul.

Leverage flexibility for projects big and small

By 2030, the number of IoT devices is expected to top 24 billion (Transforma Insights, 2020), with applications like farming and environmental monitoring requiring innovative, low power, small form factor connectivity solutions. Satellite-enabled backhaul helps enable a future where flexible, sustainable solutions can address these new customer use cases.

TIM Brasil

Intelsat customer TIM Brasil sustainably extends connectivity to some of Brazil's most remote communities with a solution developed for off-grid locations. The operator provides 4G coverage to more than 1,000 solar-powered sites in their ongoing effort to cover 100% of the region's municipalities by 2023.

Intelsat CellBackhaul: Extend MNO Networks with a Trusted Partner

As the foundational architects of satellite technology, Intelsat operates the world's most trusted satellite and terrestrial telecom network. We apply unparalleled expertise and global scale to connect people, businesses, and communities, no matter how difficult the challenge.

Intelsat CellBackhaul, a managed cellular backhaul service, makes it easy for MNOs to realize the reach, reliability, and flexibility benefits of satellite backhaul. Intelsat's solution is designed and managed to address challenges associated with rural and remote deployments, and to deliver a backhaul solution that matches specific business and service-level needs.

Learn more at intelsat.com/cellbackhaul

Flexible pricing

Per-site pricing. Tiered pricing based on required speed. Easily transition between tiers as needed.

Operational support

24x7 proactive monitoring. L1/L2/L3 support. Guaranteed support SLAs.

Site configuration and management

Initial and ongoing configuration updates, including OTA software upgrades.

Performance SLAs and reporting

Defined per-site SLAs for latency, jitter, and speed. Customer reports highlighting performance metrics.