**Quality Mobile Connectivity for Rural America**

*A Cost-effective Approach to Rapid Expansion of Mobile Broadband in Rural Areas*

*By Todd Cotts, Intelsat Senior Principal Product Marketing Manager, Mobile Network Operators*



According to a 2019 report by Pew Research Center titled *Digital Gap Between Rural and Nonrural America*, over 60 percent of rural Americans surveyed say they connect at home using a broadband internet connection. While this is a significant improvement over the last 10 years, it is clear many rural Americans are still not connecting where they live and do not even own a smartphone. For these unconnected rural Americans, it is about more than connecting to high-speed internet at home, broadband is simply not available where they live.

State and local governments with constituents living in largely rural areas have been working to address the connectivity crisis, especially during the pandemic. However, the various initiatives, including providing mobile hotspot devices, have fallen way short of bridging the gap.

These initiatives only work if quality broadband internet infrastructure is installed to rural homes and establishments. To address this problem, these government entities have been pressuring Congress to act quickly and invest in the deployment of high-speed fixed broadband infrastructure in these areas.

Connectivity on mobile devices such as smartphones, tablets, and cellular-enabled laptops is insufficient in many of these rural areas because mobile broadband coverage is not available, or spotty at best.

Across the U.S., 97 percent of the land area is considered rural, much of which remains without mobile broadband coverage, including roughly 11 percent of the nation’s road miles. It simply has not been economically viable for mobile operators to deploy miles of terrestrial-backhauled networks into rural unpopulated or sparsely populated areas, much of which is mountainous terrain and dense forests.

Subsidizing the installation cost of telecommunications infrastructure, whether fixed or mobile, is vital to enabling service providers to profitably build out their networks in rural America. This is especially true when relying only on terrestrial backhaul solutions, such as fiber.

According to data from the U.S. Department of Commerce and National Telecommunications and Information Administration, the cost of fiber and conduit material alone for a 10-mile installation runs on average $186,000. This does not even consider trenching or other costs.

Government initiatives are underway to subsidize both fixed and mobile network buildouts in unconnected rural areas of America. For example, the Rural Digital Opportunity Fund was approved by the U.S. FCC to allocate $20 billion over the next 10 years to broadband providers, which ensures residents in rural areas have access to quality broadband internet connections.

In addition to fixed broadband funding, the FCC also approved what they dub the 5G Fund for Rural America, which provides $9 billion for the deployment of 5G mobile broadband in rural areas over a 10-year period (see the AGL article titled [5G Fund Proposed for Remote Rural America](https://www.aglmediagroup.com/5g-fund-proposed-for-remote-rural-america/) for more information).

However, timing is a major issue for these government initiatives aimed at closing the digital divide. The 5G Fund for Rural America auction is not slated to begin until 2021, and that plan is based on using the former Mobility Fund II map. An additional plan was proposed by the FCC that includes updating the coverage maps and further extending the auction date until 2023. Both plans were met with resistance from the Competitive Carriers Association (CCA), which represents rural operators, due to concerns about timing.

Both the network build-out and the auction need to happen in a timely manner to close the digital divide as soon as possible. Since it can take six months to a year or more to deploy mobile broadband networks in rural areas using terrestrial backhaul, the timing could extend to 2025 before many of these areas have access to coverage.

There is a viable solution that addresses the challenges of cost, timing, and the complexity associated with connecting unconnected areas of rural America: satellite backhaul. By utilizing quality satellite backhaul in place of terrestrial backhaul (or even as an interim solution), mobile operators, and even tower companies interested in new business models, can quickly and cost-effectively deploy 4G or 5G coverage in any place, and for any purpose regardless of how rural or remote the area.

While satellite backhaul alone, in the form of capacity, is suitable for larger mobile operators that have dedicated satellite teams in their organizations, most rural operators do not have this luxury. For rural operators and tower companies looking for ways to offer new services to mobile operators, a fully managed cellular backhaul service over satellite is ideal.

There are many advantages to using an end-to-end satellite managed service to backhaul cell sites in rural areas for 4G or 5G coverage. These include:

* The ubiquitous nature of satellite for rapid deployment of mobile broadband coverage in any rural area, no matter how remote – backhaul in weeks instead of months
* Advances in satellite technology that provide connectivity to a network of rural cell sites in a cost-efficient manner by dynamically distributing bandwidth based on per-site traffic demand
* Technological advances, including forward error correction and acceleration, to ensure strict quality of service (QoS) requirements are met and fiber-like connectivity is delivered for optimal quality of experience (QoE)
* Low-cost, very small satellite antennas that can be quickly installed, helping providers realize cost and time efficiencies
* A variety of service plans and professional services that include access to a global space and terrestrial network, required satellite capacity and equipment, expert engineering services for network design and 24x7 support, last-mile connectivity solutions, and installation and maintenance

We must connect rural America. Time is of the essence. By incorporating a complete satellite backhaul managed service, we can quickly and cost-effectively expand 4G or 5G mobile broadband coverage across rural America.

***Bio –*** *Todd Cotts is a Senior Principal Product Marketing Manager at Intelsat with specific focus on the Mobile Network Operator (MNO) segment. In this role Todd promotes the value the Intelsat satellite fleet can bring to MNOs and promote greater integration between satellite and cellular services. In particular, Todd supports space-based solutions for quickly and economically expanding reliable 2G/3G/4G/5G connectivity everywhere.*

*Todd has nearly 20 years’ experience in the telecommunications industry, much of which was with a tier 1 operator, followed by several industry verticals in devices, Software-as-a-Service, and network testing.*

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