

Starlink Evolves as a DIY Broadband Model

Small communities can leverage buying power and expertise to acquire Starlink satellite services to distribute broadband cost-effectively.

By David Daugherty / *FyberCorp*

Starlink, the satellite internet division of Elon Musk's rocket company SpaceX, is quickly becoming a force to be reckoned with as a broadband alternative in underserved markets. What Starlink has managed to achieve, intentionally or otherwise, will change the shape of these markets moving forward – it has awakened and educated underserved communities about the possibility of building and owning broadband service.

Specifically, Starlink residential and commercial service packages are sufficiently robust in their current form to satisfy the needs of between 20 to 50 full-time subscribers. All it takes is for subscribers to connect to the service.

As Starlink deploys laser-equipped, generation-two satellites, throughput and latency are expected to improve. This will provide long-term stability and support the formation of small neighborhood and community broadband collaboratives. This approach is similar to the formation of the rural electric collaboratives of the 1930s and 1940s.

In this case, the small cooperative model is key. Small communities, businesses, education campuses and health care providers can pool resources and expertise to acquire and distribute broadband cost-effectively. Recent upgrades to these broadband services also allow for roaming and intermittent use.

BENEFITS OF COOPERATIVES

The small cooperative model allows residential communities to focus on basic internet access.

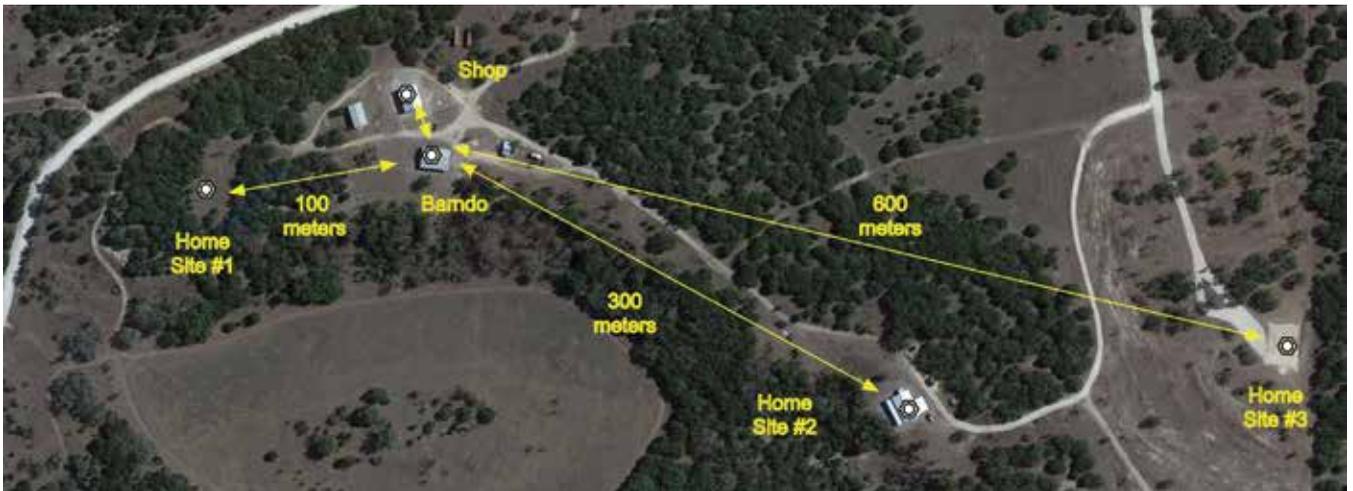
Agricultural businesses can deploy systems to support emerging automation to keep pace with future demand. First responders can concentrate on dispatching and resource allocation during catastrophic weather events and other emergencies. K–12 educators, individual institutions of learning, and research campuses can focus on mission-critical aspects of internet access.

Legacy broadband service models used in more urban areas were never a good fit for rural markets. They were explicitly designed for return on investment and ultimately sustainable cash flow.

Small cooperatives are much better models for rural markets because they allow small groups of members to tune broadband services to meet specific needs of communities while maintaining economies of scale – something well beyond the reach of legacy service providers. As a result, Starlink service models will completely upend legacy service models and disrupt underserved markets.

The good news for underserved consumers is that they can radically improve broadband access and reduce month-to-month operating costs while retaining ownership and control of their services.

What remains to be seen is the impact on business models used to justify the current level of fiber investment to reach underserved markets. They typically depend on securing and retaining customers for several years. The



A Starlink wireless canopy provides internet to disparate locations in a rural area.

unspoken truth of current internet service models is that very few residential subscribers need much more than 20 Mbps to support daily needs. Even when subscribers fork out cash for gigabit service levels, they rarely receive consistency-level service. These service levels are almost always sacrificed to achieve acceptable profit margins in increasingly competitive markets.

SMALL COOPERATIVES AND STARLINK

To get Starlink service, the small cooperative model is an especially good service template for small groups of subscribers or small, rural communities. Small cooperatives are designed as part of a larger conglomeration of neighborhood cooperatives to help drive economies of scale, maintain standards and share best practices. Each small cooperative purchases and maintains the equipment and pays the Starlink monthly service fee.

Compared with current ISP or WISP service packages, important distinctions for the small cooperative model are cost-based pricing, no service-level agreements or recurring operational costs, and manageable oversubscription. Unlike most legacy service models, small cooperatives manage oversubscription by limiting the number of subscribers. Therefore, Starlink is slow walking residential

deployment on newly opened service cells. It ties the number of subscribers to satellite density to protect service levels. Oversubscription in urban service models is typically connected to profit margins.

Post-deployment operations will be supported by local geeks. This model is somewhat future-proof because it is designed to migrate to a hybrid fiber/Starlink model as fiber reaches any point of the network. Moreover, the future value and performance of deployed infrastructure will improve with the deployment of Starlink laser interconnected second-generation satellites and improved satellite density.

Another essential function for small cooperatives is the ongoing training and certification of local service techs. These are bidirectional information exchanges designed to resolve ongoing operating issues, update best practices, and establish and build relationships with other local small cooperatives.

Rather than pay a WISP or an ISP a monthly support fee, cooperative members can rely on one another for support. As the number of small cooperatives increases, they will eventually form statewide governance boards to help extend economy of scale and best practices. The formation of new small group cooperatives will follow the deployment of Starlink service cells and provide a standard means of organizing or aggregating neighborhood and community members.

Regional economic development nexuses will also form around small cooperatives, allowing broadband to be deployed in markets in which Starlink is currently available. This dovetails nicely with regional first responders' communication needs. It is simple to deploy first-responder support VLANs by provisioning FCC-designated support channels.

STARLINK IS EXPANDING ITS REACH

Starlink began launching satellites in 2018 and has already accumulated more than 500,000 global subscribers. The current low-Earth-orbit satellite constellation is approaching 2,500 and increasing. SpaceX plans to launch more than 12,000 satellites over the next five years, seeking international approval to place more than 30,000 in service by 2027.



Starlink's reliable, immediately deployable services for the most remote areas of the U.S. will have a significant impact on the agriculture industry.



A Starlink tower provides internet.

FIELD TEST

In a recent deployment of Starlink residential services in Coryell County, Texas, FiberCorp tested the small cooperative model. The property owner was on the Starlink waiting list for roughly 18 months. FiberCorp placed the Starlink router in bypass and used Ubiquiti equipment to extend the network.

The resultant Wi-Fi service delivers between 60 and 120 Mbps in a shared flat network between three residences for \$100 per month. Overall construction costs for the network were less than \$4,000. There's no service agreement, and Starlink users' boards and customer support seem sufficient. This is a great DIY broadband solution for those inclined to do things themselves.

The emerging service model follows the service narrative discussed in my previous article, "A Franchise Model May be the Key to Providing Rural Broadband" (October 2021). Neighborhoods with fewer than 20 potential users can probably get by with Starlink's residential service package

for \$500 in equipment costs and a \$100 monthly service charge.

Neighborhoods or communities with between 20 to 50 end users will require Starlink's retail service package. The Starlink equipment is \$2,500, with a monthly service fee of \$500. There are no service agreements with the residential or commercial service packages. These are reliable and immediately deployable services for most remote areas of the U.S. and they will have a significant impact on the agriculture industry. ❖

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