

Rewriting the Rural Connectivity Playbook with ngFWA



A Service Provider at a Crossroads

CentraCom, a Utah- and Nevada-based incumbent local exchange carrier (ILEC), has been serving its communities for over a century. But with rising consumer expectations, CentraCom faced a pivotal decision point. The world was rapidly shifting to digital-first living — remote work, video conferencing, distance learning, streaming media, telemedicine, and cloud-based everything had become everyday essentials — and customer expectations were outstripping the current network capability.

Their existing DSL and first-generation fixed wireless systems, once sufficient, could no longer keep up with these new demands. DSL speeds maxed out around 20 Mbps — unacceptable in a world where multi-user households might stream 4K video, upload gigabyte

Challenge: CentraCom needed to upgrade its aging legacy DSL and fixed wireless infrastructure to remain competitive, meet E-ACAM funding requirements, reduce churn, and improve operational efficiency.

Solution: Tarana's ngFWA platform delivered fiber-class broadband at a fraction of the cost and time of pure fiber.

Results: CentraCom has increased speeds up to 25x for subscribers, reduced churn to nearly zero, reduced tower infrastructure by 3x, and successfully taken E-ACAM funding to further accelerate network development.

Speeds: Achieved an average download speed for all subscribers of 582 Mbps, while the average upload speed is 132 Mbps.

Distance: Link distances range up to 12 miles.

Visibility: Many nLoS and NLoS links due to hills, trees, and other foliage.

Spectrum: CBRS and 6 GHz

Radio Planning: k=1 (universal frequency reuse)

files, or rely on real-time online collaboration tools. Moreover, their legacy fixed wireless (FWA) infrastructure was plagued by inconsistency, interference, and limited scalability. This had knock-on effects of higher churn, decreased operational efficiency, and lower customer satisfaction. CentraCom knew it needed to modernize; the only question was how.

Evaluating the Options: Fiber vs. Fixed Wireless

When CentraCom began evaluating potential solutions, the most obvious choice was fiber-to-the-home (FTTH). Fiber is often seen as the gold standard for broadband. However, fiber comes with steep costs and serious logistical hurdles in rural markets. Laying fiber in areas with rugged terrain, sparse populations, and large lot sizes is a slow, expensive endeavor.

Even with funding support from the FCC's Enhanced Alternative Connect America Cost Model (E-ACAM), CentraCom quickly discovered that fiber alone couldn't meet their deployment goals. "The funding model was generous, but fiber still couldn't get us to the finish line in time," said CentraCom's Chief Operations Officer, Brad Welch. The timelines and costs simply didn't align with E-ACAM's aggressive benchmarks.

CentraCom had previously experimented with legacy fixed wireless access (FWA) as a middle ground. Unfortunately, the results were underwhelming. Performance was spotty, interference was rampant, and planning complexity was a major pain point. "Trying to get even 100 Mbps reliably out of our old access points was a nightmare," said Director of Wireless Engineering Tim Beesley. "It just wasn't scalable, and the customer experience suffered."

With fiber too slow and legacy FWA too deficient, CentraCom needed a third path — something that combined the performance of fiber with the flexibility and affordability of wireless. That's when Tarana entered the picture.

Tarana's Next Generation of FWA

To overcome these limitations, CentraCom turned to Tarana's next-generation fixed wireless (ngFWA) platform — a purpose-built solution engineered to make gigabit broadband possible where legacy fixed wireless would fail. At the heart of the platform are several key innovations:

- › **Unmatched Interference Cancellation:** G1's interference cancellation ensures reliable, high-speed connectivity even in crowded, noisy RF environments. Features like Asynchronous Burst Interference Cancellation (ABIC) reduce the impact of bursty interference, such as nearby Wi-Fi transmitters. Less interference means more reliable, higher-speed connections.

- › **Superior Non-Line-of-Sight (NLoS) Performance:** Rugged terrain and trees can hinder other wireless technologies, making links laggy or entirely unusable. G1 overcomes this with fine-grain Tx and Rx digital beamforming, distributed massive MIMO at both ends of the link, and perfect multipath integration.
- › **Scalability and Speed:** Operators can deploy gigabit broadband at large scale in weeks, not months or years. High-speed connectivity is deployed faster — accelerating service and revenue timelines — bridging the digital divide quickly, efficiently, and affordably.

These innovations allowed CentraCom to consider something revolutionary: delivering fiber-class broadband performance without waiting years or breaking the bank on infrastructure.

The Business Impact

Meeting and Exceeding E-ACAM Requirements

E-ACAM funding was a critical part of CentraCom's strategy. It provided essential financial support for network upgrades, but it also came with strict performance and coverage obligations. Tarana's ngFWA platform was instrumental in helping CentraCom meet those requirements.

With Tarana, CentraCom was able to roll out service quickly, covering previously unreachable areas and delivering speeds well above the E-ACAM thresholds. "80% of our E-ACAM was Tarana," Welch noted. "We couldn't have taken this funding without them." In fact, CentraCom didn't just meet the benchmarks; they exceeded them. While the program requires minimum service levels, CentraCom's new Tarana-powered network routinely delivers:

- › Speeds of up to 1 Gbps download and 500 Mbps upload
- › Low latency
- › Rapid deployment that meets aggressive time schedules

Delivering Fiber-Class Speeds in Tough Conditions

Speed matters. "Obviously, it's always about the speeds with our customers," shared Beesley. For customers, faster service means more utility, greater satisfaction, and less likelihood of switching to competitors. Faster speeds also enable CentraCom to sell premium packages, increasing ARPU and boosting the company's financial performance.

Tarana's ngFWA platform transformed CentraCom's speed story. In many locations, subscribers who once had 20 Mbps DSL are now seeing 500 Mbps or more. "We had a complete non-line-of-sight connection that was still getting 500 Mbps off one of our solar-deployed sites," said Beesley. "Even with heavy foliage, we've seen nothing but excellent speeds."

In side-by-side comparisons with older technology, the difference was night and day. “You’re trying to get 100 Mbps out of a Ubiquiti AP, and it’s dismal, especially during peak usage. We couldn’t do it,” Beesley added. “With Tarana, we can easily put 200 people on a base node and still give everybody 100 Mbps. That’s a game changer for us.”

Simpler, Faster, More Efficient Deployments

Time-to-revenue is critical for providers. Every day a network upgrade is delayed means lost opportunities and customer dissatisfaction. Tarana helped CentraCom accelerate its business and streamline operations.

One of the biggest efficiency wins came from spectrum reuse. “Something that totally sold me on Tarana was the channel reuse. There’s so much that goes into RF planning. To be able to reuse the exact same channels no matter where your site is located is a tremendous benefit,” said Beesley. “It’s taken so much load off of my plate.”

Installation became dramatically easier, as well. Previous systems required field techs to be wireless engineers to complete a simple installation. Configuration was complex, error-prone, and time-consuming. “I cannot tell you how many calls I got from the same tech week after week trying to get a CPE installed. It was exhausting,” said Beesley. “We do not have that with Tarana. Installation is as easy as it can be.”

“Our technicians tell us this Tarana stuff is great,” added Welch. “It makes their jobs so much easier. They love it.”

Lower Cost, Better Economics

From both a capex and opex standpoint, Tarana transformed CentraCom’s business. The company was able to replace six older towers with just two Tarana towers, reducing not only capital expenditure but also the long-term cost of maintenance and operations. Connecting a home with fiber can cost CentraCom upward of \$2,500, not counting construction. With Tarana, that cost drops significantly. Even better, the equipment is reusable — if a customer churns away, the radio can be retrieved and redeployed. This is impossible with fiber.

Support costs are also dramatically lower. “5% of our internet calls come from Tarana compared to other technologies where people are calling all the time,” Beesley reported. “If you really knew how much time and money you were saving yourself by doing this, it makes so much financial sense.

A Superior Customer Experience

At the end of the day, great broadband is about great experiences. Faster speeds, more reliable service, and less time spent on the phone with tech support all contribute to a

better customer journey. As a trusted, local service provider, CentraCom made customer experience a top priority.

“We’re providing a much better customer experience with Tarana,” said Welch. “Even when they’re not subscribing to the higher Tarana packages, we’re still going back and switching them over. Our techs and support representatives love cutting a customer over to Tarana. They know it’s going to be a better experience.”

And the results speak for themselves. “They’re not leaving us when they have Tarana,” Welch added. “There is literally almost no churn whatsoever.”

Future-Proof

Tarana isn’t just a stopgap. For CentraCom, it’s a long-term strategy. “We future-proof with Tarana for the same reason we future-proof with fiber,” said Welch. “Tarana is a fiber replacement for us.”

Beesley agrees: “You’re not going to need to upgrade Tarana any time soon.” The platform provides not only performance but also durability and scalability, ensuring CentraCom can grow its network without constant reinvestment.

A Blueprint for Modern ILECs

For providers navigating the complex terrain of rural broadband, CentraCom’s journey is more than a success story — it’s a blueprint. When faced with legacy infrastructure, tight funding requirements, and high customer expectations, CentraCom chose a path that balanced innovation with practicality and efficiency. The result was transformative. With Tarana, CentraCom was able to:

- › Save costs by migrating subscribers off aging DSL and legacy wireless
- › Meet and exceed E-ACAM requirements
- › Dramatically improve speeds and reliability
- › Generate new revenue by serving previously unreachable areas
- › Increase ARPU while reducing churn
- › Reduce infrastructure costs (capex and opex)
- › Accelerate revenue with faster deployment
- › Reduce tech support calls and truck rolls
- › Delight both customers and internal staff

For CentraCom, Tarana has exceeded all expectations. “Tarana performs at 110% of what you say it will. That’s a refreshing change,” said Welch.

“Tarana is a no-brainer,” added Beesley. “My whole mentality changed when we started using it.”

About CentraCom

CentraCom is a proven provider of enterprise-grade networking, communications, and connectivity services that address a wide variety of telecommunications technologies. Headquartered in Fairview, Utah, the company owns and operates a statewide fiber-optic and fixed wireless network comprised of both metropolitan access networks and extensive coverage throughout rural Utah. With its robust network backbone and expert staff, CentraCom is equipped to meet the needs of business customers of all sizes. Learn more at <https://centracom.com>.

Tarana's mission is to accelerate the deployment of fast, affordable internet access around the world. Through a decade of R&D and more than \$400M of investment, the Tarana team has created a unique next-generation fixed wireless access (ngFWA) technology instantiated in its first commercial platform, Gigabit 1 (G1). It delivers a game-changing advance in broadband economics in both mainstream and underserved markets, using either licensed or unlicensed spectrum. G1 started production in mid-2021 and has been embraced by more than 250 operators in 24 countries and 47 states. Tarana is headquartered in Milpitas, California, with additional research and development in Pune, India.