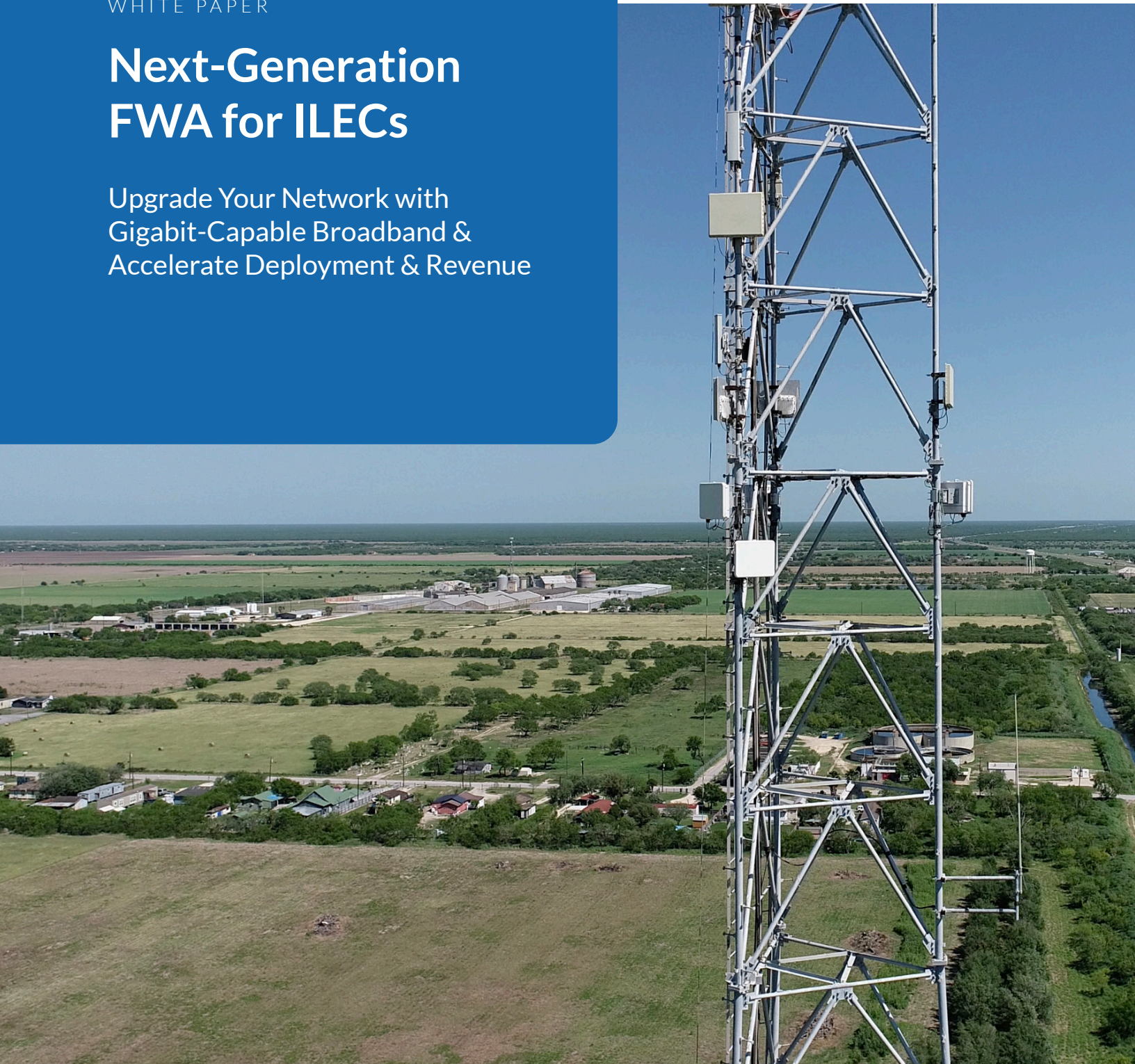


WHITE PAPER

Next-Generation FWA for ILECs

Upgrade Your Network with
Gigabit-Capable Broadband &
Accelerate Deployment & Revenue



Executive Summary

Incumbent local exchange carriers (ILECs) are at an inflection point. Aging copper networks, rising operational costs, increasing churn, and accelerating broadband demand are forcing difficult capital expenditure decisions — all under the pressure of aggressive federal funding timelines.

Several ILECs, including VTX1, CentraCom, Alaska Communications, and Taylor Telecom, faced a common challenge: How do you modernize broadband at scale quickly and affordably without sacrificing customer experience?

The answer for these operators was next-generation fixed wireless access (ngFWA) from Tarana. By deploying Tarana's ngFWA platform, these operators:

- › Met — and in most cases significantly exceeded — E-ACAM requirements ahead of schedule
- › Achieved full-coverage economics at a fraction of an all-fiber approach
- › Complemented their existing fiber plant to deliver fiber-class speeds everywhere in weeks instead of years
- › Retired legacy DSL faster than planned
- › Reduced churn to ~1–2%, on par with their existing fiber deployment
- › Increase competitiveness both in terms of customer retention and new customer acquisition

For ILECs like these, Tarana became a core access strategy that delivered across multiple dimensions of their business and positioned them for success as broadband leaders.

The Business Challenges Facing ILECs

ILECs have long served as the backbone of rural and semi-rural communications. But decades of incremental upgrades left many networks with:

- › Increasing competitive pressure from cable, fiber overbuilders, LEO satellite, and national 5G home internet providers
- › Federal funding opportunities (E-ACAM) paired with strict deployment timelines and coverage obligations
- › Copper plant delivering single-digit Mbps speeds
- › High cost to deploy fiber everywhere
- › Rising maintenance and truck roll costs

Fiber is generally the first answer, and ILECs are satisfied with fiber economics for most of their service locations. However, ILECs typically run into the “remainder” dilemma, where reaching the final 10–30% of locations with fiber becomes too expensive, too time

intensive, or both. E-ACAM's requirement for 100% coverage exacerbates this problem, making it difficult to accept E-ACAM funds.

Faced with these challenges, the forward-thinking ILECs searched for an innovative way to extend their fiber networks and reach the “remainder” of their service area. They needed a solution that still delivered fiber-class performance, but with economics that worked even in challenging, low density areas.

“With 40,000 square miles and households scattered across challenging terrain, fiber would have been not only prohibitively expensive; it was unlikely we could deploy it everywhere within E-ACAM's 5-year time limit.”

— Sebastian Ivanisky, CTO, VTX1

Why Traditional Fixed Wireless Fell Short

Most ILECs had already tried fixed wireless and been disappointed. This was typically due to poor NLoS (non-line-of-sight) performance, unreliable speeds, severe degradation in busy RF environments, and limited scalability.

“Trying to get even 100 Mbps reliably out of our old access points was a nightmare.”

— Tim Beesley, Director of Wireless Engineering, CentraCom

The perception was clear: Traditional fixed wireless couldn't scale and couldn't replace fiber. Yet the challenges remained.

Enter Next-Generation Fixed Wireless Access (ngFWA)

Tarana's ngFWA platform changed the equation by addressing the fundamental technical limits that constrained legacy FWA.

Interference and Noise Cancellation

Tarana's real-time interference cancellation enables reliable performance even in noisy, congested RF environments.

True Non-Line-of-Sight Performance

Advanced digital beamforming, distributed massive MIMO, and multipath integration allow links to perform through foliage, terrain, and clutter that cripple traditional wireless.

Fiber-Class Performance at Scale

ILECs are delivering hundreds of Mbps — and in many cases gigabit speeds — with predictable performance across hundreds of subscribers per BN (base node).

“We can easily put 200 subscribers on a BN and still give everyone 100 Mbps. That’s a game changer.”

— Tim Beesley, CentraCom

“Tarana has the best non-line-of-sight performance hands down. Tarana is the first product that does what it promises.”

— Gerrit Bode, Network Architect, Alaska Communications

Meeting E-ACAM: Speed and Economics Matter

E-ACAM funding offered a lifeline, but only for operators who could meet its aggressive benchmarks. As many ILECS discovered, fiber alone often couldn’t do the job. Tarana was critical for enabling these ILECs to take millions of dollars in funding. Tarana delivered:

- › Faster deployment timelines
- › Lower capital per passing
- › Ability to reach sparsely populated areas cost-effectively
- › Reliable service that exceeds the 100/20 Mbps requirement
- › Reduced risk of missing milestones

“80% of our E-ACAM build is Tarana. We couldn’t have taken this funding without them.”

— Brad Welch, COO, CentraCom

At Taylor Telecom, early Tarana deployments were completed in under 90 days, enabling:

- › 90% buildout two years ahead of deadline
- › ~30% under budget

“Tarana allowed us to get our subscribers a broadband solution rapidly — with technology we could trust.”

— Ricky Martinez, CEO, Taylor Telecom

Solving the Remainder Problem

While fiber is a great technology, it isn’t always the right solution everywhere. As more fiber is deployed, the cheapest and easiest locations are typically deployed first, leaving a remainder of customers that are spaced further apart, or located in areas that are difficult to reach physically. This reality increases the cost of fiber passings, ultimately reaching a threshold where it’s no longer economical to deploy.

With Tarana’s ngFWA, ILECs achieve 100% coverage of the service area, including those hard-to-reach remainders. All of this is done at a favorable economics even in

challenging, low-density portions of the service area. And in addition to the low cost of deployment, fast deployments improve time-to-revenue, acting as a multiplier effect and driving positive ILEC financial performance.

Solving the remainder challenge has multiple applications for ILECs, including meeting E-ACAM requirements for 100% coverage and the ability to “edge out” their fiber networks using ngFWA as an extension. Using this fiber “edge out” approach, ILECs can capture more customer and revenue opportunity from an increased number of households serviced with ngFWA’s fiber-class performance and speeds, and while maintaining customer satisfaction and enhancing the ILEC brand reputation.

Replacing Copper: Faster, Cheaper, and Better for Customers

For ILECs burdened with legacy DSL, ngFWA proved to be an ideal replacement. Not only is it fast to deploy, with excellent economics, but it also can be used to provide carrier of last resort support.

At VTX1, average DSL speeds were ~4 Mbps. After deploying Tarana:

- › Customers routinely see multi-hundred Mbps of speed
- › Migration is operationally simple once sites are built
- › Perfectly complements their existing fiber network, expanding coverage far beyond what all-fiber economics would allow

“Once you have the tower, upgrading each subscriber is easy.”
— Sebastian Ivanisky, VTX1

Critically, Tarana allowed ILECs to retire copper without waiting on fiber. This accelerated both customer satisfaction and operational savings.

“We plan to cover all of our exchanges for less than 10% of the cost of fiber.”
— Sebastian Ivanisky, VTX1

“That copper base was a leaky bucket. We needed to overbuild it with fiber or fixed wireless so that the consumer business wasn’t just something to maintain — it could actually become an opportunity for growth.”
— Drew Stevenson, Senior Vice President of Consumer and Marketing, Alaska Communications

The Hidden Killer: Churn

Churn is often underappreciated in access-network decisions — until it destroys returns. Because a significant portion of customer churn results from customer dissatisfaction with network reliability and performance, it’s critical for ILECs to have confidence in the quality of the network they deploy for customers.

Tarana's churn on its ngFWA platform is in line with fiber, and much lower than technologies, including 5G home internet and legacy FWA. Internal to ILEC operations is another benefit of a highly reliable network: ILEC operators can spend less time addressing network performance issues and more time ensuring customers receive great customer service.

Of course, any operator and technology experience some churn, and certain types of churn like customer moves are outside an operator's control. With Tarana, if a customer does churn, the ILEC can retrieve and redeploy the Tarana RN (remote node), reducing capital cost.

ILECs who have deployed Tarana have seen significant reduction in churn.

Real-World Results

- › CentraCom: "Literally almost no churn" on Tarana
- › Taylor Telecom: <1% churn in Tarana-served areas
- › VTX1: Reduced churn from ~12% to <2%
- › ACS: "Churn is almost zero"

"Our Tarana customers are just as happy as our fiber customers. For them, there is no difference."

— Sebastian Ivanisky, VTX1

Even as ARPU trends downward industry-wide, lower churn preserves — and in some cases increases — total revenue.

ngFWA Is Not a Stopgap

For these ILECs, ngFWA evolved from an alternative into a long-term access strategy.

"We future-proof with Tarana for the same reason we future-proof with fiber."

— Brad Welch, CentraCom

Tarana delivered:

- › Fiber-class customer experience
- › Increased competitiveness
- › Easier E-ACAM commitments
- › Lower capex and opex
- › Faster revenue realization
- › Operational flexibility
- › Regulatory confidence



Summary

Fiber remains important, but it no longer has to be the only answer. For ILECs navigating copper retirement, funding deadlines, and competitive pressure, next-generation fixed wireless has proven it can deliver fiber outcomes with wireless economics.

And for those who adopted it early, the payoff has been decisive. With Tarana, these ILECs were able to:

- › Meet and exceed E-ACAM obligations
- › Expand service to previously unreachable or non-competitive areas
- › Accelerate deployment and revenue
- › Retire copper and legacy wireless
- › Deliver hundreds of Mbps — even in NLoS conditions or heavy interference
- › Reduce churn to ~1% per month
- › Lower truck rolls and support costs
- › Improve staff morale and customer satisfaction

“Tarana performs at 110% of what you say it will.”

— Brad Welch, CentraCom

“My whole mentality changed when we started using it.”

— Tim Beesley, CentraCom

“Everything Tarana promised, it delivered — and often better. For ISPs looking for a capital-efficient, reliable, and fast-to-deploy solution, Tarana ngFWA is the right fit.”

— Ricky Martinez, Taylor Telecom

Interested in learning more about our innovative solutions? Get in touch with us at taranawireless.com/how-to-buy

Tarana's mission is to accelerate the deployment of fast, affordable, and reliable internet access around the world. Through a decade of R&D and over \$400M of investment, the Tarana team has created and continues to enhance a unique suite of next-generation fixed wireless access (ngFWA) products that deliver game-changing advances in broadband economics in mainstream and underserved markets in licensed and unlicensed spectrum. Tarana's ngFWA technology has been embraced by more than 300 service providers in 24 countries. Tarana is headquartered in Milpitas, California, with additional research and development in Pune, India.

© Tarana Wireless, Inc. All rights reserved. 260300

@taranawireless taranawireless.com

