

ngFWA for Multi-Dwelling Units (MDUs)



While fixed-wireless access is most often associated with delivering broadband to single-family residential or enterprise subscribers, it can also be an important source of connectivity for multi-dwelling units (MDUs), such as apartments or flats, and other structures in which more than one subscriber household resides.

Broadband connectivity for MDUs poses several challenges. Because there are multiple residences within a single building, the capacity of the wireless link must offer multi-megabit throughput in order to support the demands of a larger subscriber base. Secondly, many MDUs are located in more urban areas. This means physical obstacles are likely to exist between the assets on a tower and the building. These non-line-of-sight (NLoS) links can create difficulty establishing, and maintaining, a wireless connection at required speeds. Also related to location, having a building in a busy urban area typically translates into equally busy RF spectrum, with many potential sources of interference that can disrupt performance and reliability. This is particularly true in unlicensed or lightly licensed spectrum, such as that used by Wi-Fi networks; radio bands that many operators prefer due to its low cost.

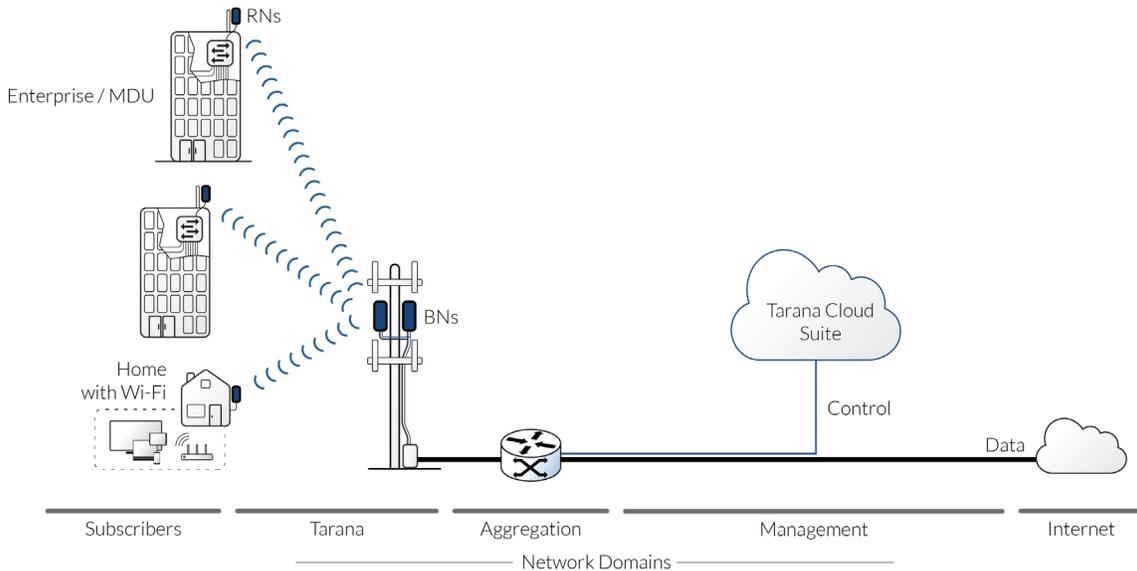
These three challenges – capacity, non-line-of-sight, and interference – are significant obstacles for legacy fixed-wireless access and yet, are absolutely required for MDU deployments. Typical legacy systems are not adequately optimized to handle these challenges, which poses a problem for operators looking for simple, cost-effective connectivity into an MDU building. Fortunately, the newest generation of fixed wireless, next-generation fixed wireless access (ngFWA), was designed with these specific requirements in mind and is suitable for large-scale, economically efficient deployments.

Next-Generation Fixed Wireless Access (ngFWA)

Tarana Wireless, Inc. is the performance leader in next generation fixed wireless access, powered by a number of industry-first and well-proven breakthroughs in perfect, multi-dimensional optimization of radio signals. Its Gigabit 1 (G1) broadband wireless access

platform overcomes previously insurmountable network challenges in urban, suburban, and rural markets, using free unlicensed and lightly licensed spectrum.

Tarana ngFWA Architecture Offers Simplicity and Flexibility



G1 comprises fully integrated base nodes (BNs) that are mounted on towers or other assets similar to mobile network base station installations. They communicate over line-of-sight (LoS), near line-of-sight (nLoS), and non-line-of-sight (NLoS) radio links to remote nodes (RNs) installed on the sides or rooftops of buildings. In the case of an MDU deployment, the remote node is mounted outside the building, and from there, it is connected to internal building cabling which extends to each individual dwelling unit.

G1 optimizes the signal from both ends of the link to automatically converge on the best solution to deliver up to 800 Mbps of aggregate capacity on a link. It does this using teraflops of processing power to make link optimizations 5,000/second using very precise, fine-grained beamforming and RF nulling techniques.

To get around obstacles that can obstruct the link path, G1 takes advantage of multipath to use reflections and diffractions around obstacles. It then recombines the various multipath signals to recreate the original signal. This ability was part of the original design for G1 and demonstrates the power of ngFWA versus legacy FWA systems that were limited to, and optimized for, line-of-sight operation.

If other transmitters are present in the spectrum, Tarana's Asynchronous Burst Interference Cancellation (ABIC) removes interference from outside interferers, such as Wi-Fi transmitters. This is important when using unlicensed spectrum — in particular, in dense urban and suburban environments where many Wi-Fi networks create RF environments that destroy link performance and reliability. In MDUs, where every domicile likely has a Wi-Fi network, this problem only increases in criticality.

G1 showcases exactly what is possible with state-of-the-art next-generation fixed wireless broadband:

- › Connection speeds of 600+ Mbps, including symmetrical 100/100 Mbps
- › Field-proven interference elimination that provides unbeatable reliability and performance in the most challenging RF environments
- › Future-proof expansion that requires minimal to no CPE adjustments or upgrades
- › Speedy RN installations that require minimal tools and skills
- › Unlicensed spectrum support

With G1, providers can deliver endgame broadband quickly, effectively, and cost-efficiently in almost any environment, from busy urban cores to rural communities. It does this with a number of well-proven techniques that delivers the capacity, non-line-of-sight performance, and interference cancellation in particular required for successful multi-dwelling unit deployments.

Interested in learning more? Get in touch with us at [taranawireless.com/how-to-buy](https://www.taranawireless.com/how-to-buy)

Tarana Wireless, Inc. is the industry's performance leader and new category creator in ngFWA (next-generation fixed wireless access), powered by a number of well-proven breakthroughs in precise, multidimensional optimization of radio signals. Its G1 access platform overcomes previously insurmountable network economics challenges for service providers in both mainstream broadband and underserved markets, using free unlicensed spectrum. Unit sales of G1 in its first year are sufficient to cover 15M households, with millions more in the pipeline. The company is headquartered in Milpitas, California, with additional research and development in Pune, India.