

Fiber Extension Technology Offers Cost-Effective Option for Gigabit MDU Broadband

Service providers can ensure a high-quality broadband experience for MDU customers by turning their attention to home networks and reusing existing in-building infrastructure for broadband access.

By Helge Tiainen / *InCoax Networks*

The global pandemic forced people to move their working lives, education and daily communications into their homes. The importance of reliable, unfailing internet connectivity inside homes was made glaringly obvious. Operators no longer regard home networks as needless expenses. According to Broadband Forum and Omdia's "The Future Telco – Connected Home 2021 Survey," focusing on connected home investment will provide a superior broadband experience and quickly become a top priority for service providers.

By turning their attention to home networks and investing significantly more funds into equipment inside the home, operators can ensure a high-quality customer experience. Multiple-dwelling-unit (MDU) deployments have been the trickiest deployment environments in Europe and North America.

As people moved indoors and demand for internet spiked dramatically, the level of stress placed on operators' networks rose sharply as they sought to deliver fiber deeper into networks. By reusing existing in-building infrastructure for broadband access, operators can combat the connectivity complexities for both building owners and tenants.

SEIZING THE HIGH-SPEED OPPORTUNITY

Operators may already be familiar with deploying legacy technology, such as G.fast over point-to-point (P2P) coaxial networks when such networks are available. But G.fast does not necessarily provide the consistent gigabit service operators crave, and selling high-speed services can be challenging. In addition, legacy technologies and DOCSIS cannot always meet the symmetrical download and upload speeds required. Many MDU buildings already have coaxial networks, a viable alternative to installing expensive, labor-intensive fiber directly to apartments that could be the cost-effective solution operators seek.

P2P coaxial network topology has been the foundation of pay TV systems for several years; previously, it was necessary to have a P2P connection. This topology is commonly deployed in North America and covers up to 90 percent of MDU coaxial networks. Europe has also advocated a P2P approach; Germany has P2P topology in more than half of MDU buildings and Italy deploys both terrestrial and satellite networks. One thing is certain: Coaxial networks are available for both cable TV providers and fixed-line operators to harness and deliver high-speed connectivity.

As governments across Europe and North America seek to fulfill fiber rollout targets, the task becomes even more taxing without investing in and leveraging complementary architectures to extend fiber from the basement to all floors of an MDU building. By leveraging technologies using the Multimedia over Coax Alliance (MoCA) standard, customers can access fiber-based broadband in a more economically viable way. Fiber extension technology also complements operators' overall fiber-to-the-home (FTTH) strategies.

ALLEVIATING THE MDU BROADBAND HEADACHE

MDUs represent a significant challenge compared with single-family units (SFUs), which often provide a much more seamless process for fixed-line operators. For instance, MDUs involve several people in the approval process, including numerous tenants and apartment owners. Building and apartment owners must grant consent to undertake construction work.

The MDU network installation process alone can present a significant hurdle for operators because landlords may be reluctant for work to proceed if they deem it disruptive or have concerns about potential cosmetic damage. Costly construction work is often the deciding factor for building owners who opt not to proceed with FTTH installations. Ducts from the fiber entry point to each apartment unit are needed for MDU installations. If a provider does not install these ducts, it can drive up costs.

Fiber deployments in MDUs are costly for operators, especially if take rates are low. Exploring other viable alternatives presents a potentially lucrative opportunity for service providers. Utilizing in-built infrastructure equates to reduced costs and complexity, both of which are high priorities for operators.

Serving MDU buildings with fiber must no longer be regarded as impractical. Historically, fiber cabling of the last few tens of meters is the most challenging for operators.



Fiber-to-the-extension point (FTTep) provides operators with architecture to effectively bring fiber closer to customers, whether inside or outside a building, depending on the availability of the copper or coaxial infrastructure. Broadband Forum recently published its technical report, "TR-419," on fiber access extension over existing copper infrastructure. TR-419 details ways providers can extend their fiber facilities by using a copper medium without causing significant quality of experience degradation compared with FTTH topology.

Reusing a building's in-building coax facilities can yield enhanced multi-gigabit and gigabit speeds. A provider's ability to deliver high rates depends on whether the coaxial network has a point-to-multipoint (P2MP) or P2P topology.

Other benefits of the P2P and P2MP topologies include minimal construction work and shorter time for increased revenue. By enabling tenants to install broadband equipment and modems themselves, a provider can reduce technician visits to a customer's location. FTTep enables the reuse of existing copper or coaxial infrastructure, so fiber deployment rollouts are sped up significantly and it's not necessary to pull new cables.

FTTEP IS THE ANSWER

As operators seek to deliver timely fiber installations to many homes efficiently and cost-effectively, they must consider all options available to stay ahead of the competition. Many considerations must be taken into account, including implementation costs, wiring infrastructure changes and contract requirements, including minimum take rates.

Operators need technology that provides a significant return on investment and a high-quality provision of connectivity in MDUs. Fiber access extension technology is the answer, as the broadband industry vies to deliver fiber services to end users and increase the addressable number of homes and buildings passed.

By leveraging fiber access technology over existing coaxial infrastructure, tenants and businesses can access the gigabit fiber services they crave. ❖



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