Speeding Time to Revenue in the MDU/MTU

Aaron Krebs, Clearfield Applications Engineer

BACKGROUND

As consumers demand higher speeds and better reliability for phone, television and high speed internet, innovative solutions are needed to provide reliable service for the customer and a fast, cost effective deployment for the service provider. This is true more-so for the MDU (Multiple Dwelling Unit) or MTU (Multiple Tenant Unit) than in any other network area. Generally speaking, MDU/MTU developments fall into two main categories as "brownfield" (an existing structure) and "greenfield" (a structure being newly-built).

In a greenfield deployment, open access to the inner wall space provides an ideal environment for running the desired ducted/protected pathway that will deliver fiber to each unit and ideally also run each drop back to a central closet during the initial construction. In a real world scenario, microduct is supplied to the building owner or builder, then the contract electricians install one conduit run per suite/unit. The microduct is left vacant until a customer signs up, prompting the placement of the fiber and turn-up of the service.

In a brownfield deployment, service providers have the added challenge of quickly and efficiently connecting fiber drops because there is no clear path to each unit. Many different solutions can be utilized, but each building can present unique challenges to the provider. Questions that need to be answered:

- "Do the living units stack on top of each other?"
- "Is there access to the attic spaces, inside walls, or basement?"
- "What post-wire method will the property owner allow?"

In addition to the pathway challenges, the impact on aesthetics from post-wire construction must be taken into consideration, as some form of sheet rock access and patching will often times be required in delivering fiber to every building unit. It is very important for the provider to ensure that the MDU maintenance staff and the property owners are briefed on the post-wire challenges and the possible solutions. Solutions need to be evaluated for cost to the provider and potentially to the property owner.

CHALLENGE

Every. MDU. Is. Different. Varying architectural layouts offer unique challenges. Tight spaces for fiber routing and extensive labor requirements are common throughout every installation.

Due to space limitations, many brownfield installations require technicians to become creative with fiber routing and use existing cabling infrastructure wherever possible. *Major reconstruction of existing buildings is never a good or a financially feasible option.*

Fiber optic network designs in new (greenfield) buildings have their own set of challenges. They start with the design. The building design has to focus on future-proofing the network as well as lowering the cost of maintenance. Once the MDU/MTU is built, *the ability to provide simple, fast, non-disruptive upgrades and maintenance is key.*

MDUs are classified in three basic styles: High-Rise, Mid-Rise, and Low-Rise.

MDU Type	Style	Floors	Living Units
High-Rise	Condo/Apartment	10 and higher	128 and higher
Mid-Rise	Condo/Apartment	Up to 10	12 to 128
Low-Rise	Garden Style	Up to 3	Up to 12

For each of these MDU types, the engineering and design will be varied and different as there is no one design concept that will fit all. However, one concept that is mutually agreed upon is that a re-enterable pathway is the best option from both a deployment and maintenance perspective. With that, common themes and similar product concepts/solutions can be utilized.

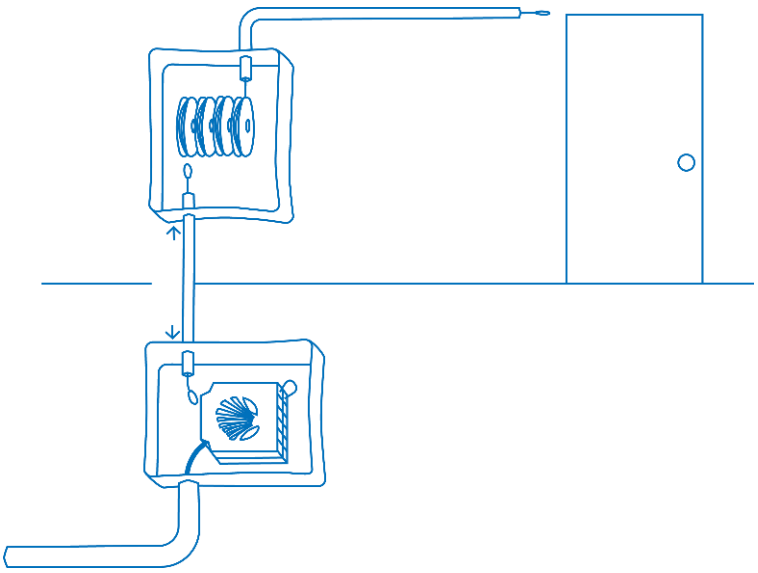
SOLUTION

Clearfield FieldShield® fiber assemblies and YOURx™ interconnects bring a comprehensive portfolio of field tested solutions designed to reduce the high capital costs associated with fiber deployment, management and protection, and scaling a fiber optic network to the varied demands of an MDU or MTU development.

The YOURx Flex Box with FieldShield Drop Wheels delivers the ability to easily deploy fiber to the unit/suite through protected pathways. The FieldShield Drop Wheels give additional flexibility to feed any of the suites/units without the headache of slack management or knowing the precise lengths of fiber to each unit/suite. The drop wheels contain FieldShield StrongFiber, an innovative, spool-based fiber technology that is pulled through microduct at turn-up, maximizing installation efficiency. In the event of a duct or fiber being damaged, or for future upgrades, the fiber can be easily pulled from the microduct. The duct is then repaired and a new FieldShield StrongFiber assembly is pushed or pulled through the microduct for a fast and cost-effective restoration or upgrade.

Service providers realize additional time and money savings via the combination of FieldShield StrongFiber Drop Wheels and FieldShield microduct, as it only requires one technician to re-pull the fiber to the suite/unit. Quick and easy deployment allows for more efficient capital investment while aligning with customer take rates. Clearfield's fiber solutions offer flexibility while also lowering the service provider's overall cost of ownership.

Further, the Clearfield plug-and-play architecture allows for fewer fusion splices, fewer fusion machines and less need for technicians to be trained on prepping and making fusion splices. The cost challenges with outfitting a field team with splicing equipment are significant, thus making a plug-and-play methodology a cost saver.



REAL-WORLD BUSINESS EXAMPLE

A developer wanted to convert a 54-story building to fiber. In a traditional design, mid-span break outs of 12 fibers from the 432 cable would have consumed 25 hours of time. Trained fusion splice technicians earn approximately $90 per hour. The traditional method ***without*** using Clearfield products had a slower speed to market because extra labor was needed to install the service and had no clear method for maintenance and repair of the fiber or the microduct. However, ***with*** Clearfield's plug-and-play design only one splice of the 432 feeder cable at the main point of entry was required - saving this developer/provider $2,250.

A chart from the Fiber Optic Association[1] illustrates the set-up times and splicing time associated with various fiber cable sizes:

One Tech per Fusion Splice Location

Cable Size	Preparation (Set-up)	Splice and Coil	Total
4 fiber	20 mins	10 mins	30 mins
8 fiber	20 mins	20 mins	40 mins
12 fiber	25 mins	30 mins	55 mins
24 fiber	35 mins	45 mins	1 hour 20 mins
48 fiber	40 mins	1 hour 20 mins	2 hours

Two Techs (or one tech and one assistant) per fusion splice location

Cable Size	Preparation (Set-up)	Splice and Coil	Total
72 fiber	1 hour 30 mins	4 hours	5 hours 30 mins
96 fiber	2 hour 30 mins	6 hours	8 hours 30 mins
144 fiber	4 hours	8 hours	12 hours

SUMMARY

When deploying fiber to both greenfield and brownfield MDU/MTU deployments, pre-connectorized, plug-and-play concepts are more cost effective than traditional fusion splicing methods. The Clearfield plug-and-play solution deploys fiber to brownfield or greenfield MDU/MTU developments with greater speed and less labor costs than traditional fusion splicing methods.

[1] See Fusion Splice - Metric Benchmarking For Splice Protection Closures table referenced from the Fiber Optic Association, http://www.thefoa.org/tech/Fusion%20Splice%20-%20Metric%20Benchmarking.pdf