Placing Fiber Drops To Commercial Customers

An innovative design eliminates splice points in commercial buildings, reducing deployment costs and improving capacity.

By Lou Maiolo ■ *CMS*

The fiber-to-the-business market is growing rapidly as businesses exchange increasingly massive volumes of data. Fiber drops to business premises – offices, banks, schools, municipal buildings, libraries, hotels and even cell towers – now constitute one of the largest revenue streams for service providers. Service providers compete for drop revenue based on timing (the ability to deliver fibers to a location in a timely manner), price (the lowest bid often wins) and connection quality.

Any deployment option that can reduce costs, improve connection quality or permit faster deployment can make a service provider more competitive. One that can do all three covers all the bases.

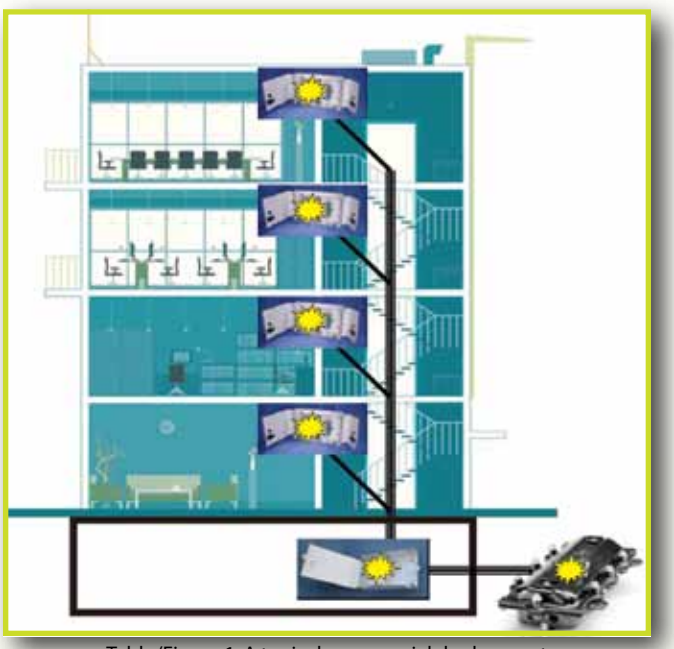
TRADITIONAL PASSIVE FIBER DROP DEPLOYMENT

Today, most deployment schemes require multiple splice points to drop fibers from backbone cables to commercial customers. As many as three splices can exist: Backbone fiber is spliced to distribution fiber at the manhole, distribution fiber is spliced to riser cable at the building entrance and riser cable is spliced to drop cable at the customer premises.

If splicing is outsourced to a contractor – which is the norm these days – this alternative can be expensive. It can also take two to three days to complete. Finally, optical loss and signal

STANDARD METHOD: SPLICING IN THE MANHOLE, AT THE BUILDING ENTRANCE AND AT EACH OF FOUR CUSTOMER PREMISES

	Price each	Quantity	Total price
100 feet 48-fiber outside-plant cable to route to manhole @ $1.00/ft.	$100.00	1	$100.00
48-fiber splice enclosure at building entrance	$210.00	1	$210.00
12-fiber riser-rated OFNR cable, 400-foot runs @ $0.42/ft. (based on 400 feet average distance from floor to basement)	$168.00	4	$672.00
12-fiber combo patch and splice at each customer premises	$295.00	4	$1,180.00
Contract labor for splicing	$75.00	144	$10,800.00
TOTAL COST			**$12,862.00**



Table/Figure 1: A typical commercial deployment

About the Author

Lou Maiolo is president of CMS, a consulting firm in New York City, and is a consultant for ARIA Technologies. He has nearly 35 years' experience in fiber connectivity and holds patents on fiber termination equipment and components. Prior to forming CMS, he held management positions with 3M, Automatic Connector, Amphenol and Porta Systems. You can reach him at Loumaiolo1@aol.com.

degradation can occur at each of the three splice points between the backbone cable and the customer premises.

Table 1 details the cost to drop fibers in an MTU to four customers in an office building, using this traditional deployment method. In this case, 48 fibers enter the building and each customer gets 12.

COMPACT DROP ENCLOSURE METHOD: SPLICING ONLY IN THE MANHOLE

	Price each	Quantity	Total price
12-fiber FiberPatch enclosure with 500-foot run of indoor/outdoor cable (based on 400 feet average distance from floor to basement plus 100 feet to manhole)	$716.00	4	$2,864.00
Contract labor for splicing	$75.00	48	$3,600.00
TOTAL COST:			**$6,464.00**

PRETERMINATED ENCLOSURES

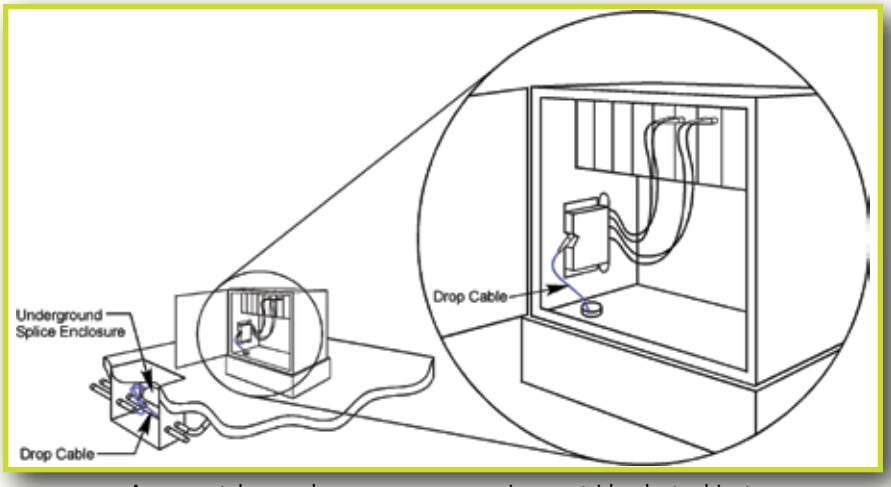
A much less splice-intensive deployment scheme is to use a factory-preterminated, compact drop cable enclosure, such as the FiberPatch from ARIA Technologies, at each customer premises with spools of indoor/outdoor fiber. A deployer can run fiber directly from an enclosure at a customer premises all the way to a manhole and splice it to backbone fiber there. No splicing needs to be done at the building entrance or at customer premises. Materials and labor costs are reduced by about half (in this example, by $6,398, as shown in Table 2), and the time for the entire installation is reduced from two or three days to half a day of contractor work.

A third option is to use the same kind of compact drop cable enclosure at each customer premises but to route the fiber to the building entrance, splice it to distribution cable there and splice again to backbone cable in a manhole. Using this method reduces splicing from three places to two places, saving $2,560 (as shown in Table 3) and, likely, a day of installation time. This alternative is less efficient than routing fiber all the way to a manhole, but it is appropriate when existing conduit is full and new conduits would be required. In this situation, an enclosure with interlocking armored plenum cable (sometimes called cable-in-conduit) is an excellent solution. This type of deployment is suitable for multitenant office buildings, hotels and other high-rise buildings.

Table/Figure 2: Deployment using compact drop enclosures

MOUNTING OPTIONS

Because of its small size, a compact drop cable enclosure can be useful in many other applications. For example, outside-plant cabinets often do not have enough rack space available for mounting passive fiber drop enclosures, but they can usually fit small, wall-mounted enclosures. Cell tower backhaul drops and intelligent traffic system cabinets used by transportation departments can also benefit from compact enclosures.



A compact drop enclosure can save space in an outside-plant cabinet.

A major MSO in Florida deployed the ARIA FiberPatch preterminated drop cable solution in a hospitality application for drops to users in business offices. In this case, 12-fiber SC/APC-terminated FiberPatch drop cable enclosures with OFNR indoor-rated cable were mounted under desks for easy access to the TX/RX equipment. The front faceplates with bulkhead adapters

HYBRID METHOD: SPLICING IN MANHOLE AND AT THE BUILDING ENTRANCE

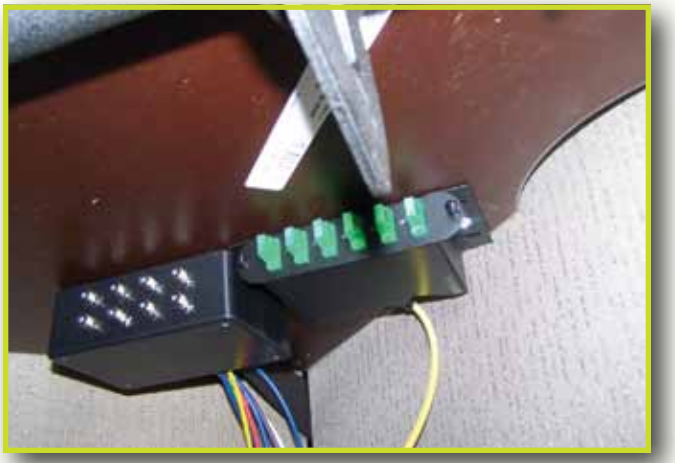
	Price each	Quantity	Total price
100 feet 48-fiber outside-plant cable to route to manhole @ $1.00/ft.	$100.00	1	$100.00
48-fiber splice enclosure at building entrance	$210.00	1	$210.00
12-fiber FiberPatch enclosure with 400-foot run of indoor/outdoor cable (based on 400 feet average distance from floor to basement)	$698.00	4	$2,792.00
Contract labor for splicing	$75.00	96	$7,200.00
TOTAL COST			**$10,302.00**

Table/Figure 3: Deployment using compact drop enclosures routed to the building entrance

were oriented toward the users, allowing them to be patched to equipment on the desks. The pigtail cable that exited the rear of the enclosures was routed down the wall, into conduit and over to the telecom closet, where it was spliced to backbone cables that traveled up the building riser.

Often, customers change their installations from wall-mounted to rack-mounted or vice versa. With a typical enclosure, an installer must return to the warehouse to swap out the enclosure and return a day later to complete the install. This costs time and money. An enclosure that offers a choice of installation methods gives installers much more flexibility.

Under-desk deployment: Pigtail cable is routed down a wall.



Front faceplate with bulkhead adapters is oriented toward the user, allowing for patching to equipment on the desk.

BroadbandCommunities

BUILDING A FIBER-CONNECTED WORLD

MAGAZINE

Formerly Broadband Properties

We urge you to subscribe today – FREE to those who qualify.

BROADBAND COMMUNITIES continues to be the leading source of information on digital and broadband technologies for buildings and communities.

IN EVERY ISSUE, we offer in-depth news, expert insights, and practical know-how on all aspects of outfitting properties and communities with broadband solutions. Our editorial aims to accelerate the deployment to Fiber-To-The-Home and Fiber-To-The-Premises while keeping readers up to date on the available solutions capable of serving their practical needs.

- Original Research
- Trusted Reports
- Latest Trends
- Industry News

Every issue is filled with valuable articles on Technology, Finance, Law and Marketing.

We urge you to subscribe today – FREE!

BroadbandCommunities

BUILDING A FIBER-CONNECTED WORLD

MAGAZINE

www.bbcmag.com/subscribe • 877.588.1649

For example, the FiberPatch is supplied standard with wall-mount brackets installed. These brackets are easily removed on site to enable the FiberPatch to be rack-mounted either in an empty rack-mount enclosure or in a "three-patch" rack-mount faceplate. A contractor can be dispatched with the FiberPatch and the faceplate, equipped for either wall- or rack-mount installation.

Preterminated compact enclosures make sense for smaller drops of up to 24 fibers. Higher-density applications should use patch and splice.

FiberPatch spooled and ready for deployment

Where and when does it make sense to deploy a preterminated compact enclosure? This type of solution makes sense for any service provider looking to expedite customer installations in apartment complexes, office buildings or office parks. The reduction in the number of splice points makes FiberPatch or similar solutions very economical. A major MSO is even deploying FiberPatch for video and audio drops at the Republican National Convention this summer.

However, these solutions are designed for smaller drops of up to 24 fibers. Higher-density applications, such as central offices or headends, are better served using traditional combination patch-and-splice enclosures.

In summary, saving time and money are key to capturing commercial customer business. By reducing splicing and contractor time and labor, service providers can better compete in the fiber drop to commercial customer market. ❖