

# Get Big Savings In Time And Money Plus Vastly More Reliable Networks

Many vendors have begun offering fiber with factory-installed connectors

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Fiber optic cables with factory-installed connectors have driven down component complexity, installation time, and the required craft training and skill level. This article highlights the significant cost and labor savings that are being realized today by service providers deploying FTTP networks featuring pre-connectorized outside plant (OSP) solutions.

The technology also increases network reliability. What's more, the benefits can be realized by service providers deploying FTTP networks on any scale, from the smallest home development to coverage of the largest city. The result is an attractive reduction in the labor component of the cost picture, which ultimately brightens the business case.

But what are the key locations within an FTTP network where the significant benefits of pre-connectorized solutions matter most? How are these systems being deployed? And what are the advantages in contrast with first-generation, splice-only deployment scenarios?

It is important to recognize early-on the monumental savings in both time and money that result from deploying pre-connectorized solutions in FTTP networks. Although these savings are possible at several key areas in the network, this article focuses on the most significant link, which is from the terminal to the subscriber premises. To put things into perspective, deploying an optimized terminal and drop cable solution at this point in the network can yield capital savings near 40 percent, and even more significantly, a reduction in installation time of over 60 percent.

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## **Solutions at the NAP Terminal**

Perhaps the component in the FTTP network that has benefited most from optimized deployment innovations is the network access point terminal. The NAP terminal is typically a small closure

that serves as the connection point for subscriber drop cables to the distribution cable. Early NAP terminals, whether deployed in aerial or buried applications, required significant labor time for drop cable installations to connect subscribers.

### **Major benefits of optimized solutions at the NAP**

Optimized Network Access Point terminals accommodating environmentally hardened, pre-terminated drop cables:

- Eliminate the need for terminal re-entry for drop cable adds or repairs
- Allow a service provider to tier labor and reduce deployment costs (the highly skilled splice technician installs the network to “pass homes,” while the economical installation and maintenance (I&M) technician configures subscriber service to “connect homes”)
- Eliminate the need to relocate the terminal to the appropriate splice environment (van, tent, etc.) for drop cable adds.
- Leave the vital core of the network static and untouched, exactly as it was left on day 1, throughout the life of the network.

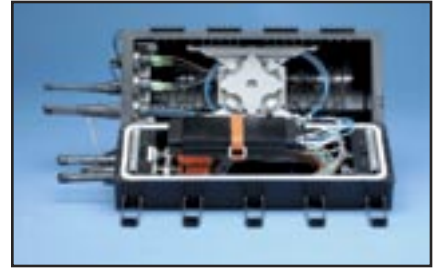


Figure 1. Optimized NAP terminals accommodating environmentally hardened, pre-connectorized drop cables. Left to right: Breathable NAP terminal, sealed NAP, and inside of sealed NAP.

Additionally, installation of drop cables in FTTP networks has traditionally required the high level of craftsmanship of the skilled splice technician. Pre-connectorized solutions in the drop segment of the network have completely altered this meticulous approach, eliminating the need for fusion splicing to connect subscribers, which in turn yields unparalleled benefits to the service provider.

Moreover, these solutions present an invaluable benefit to the service provider by eliminating the need for craft to re-enter terminals for drop cable installations. This feature alone is often a compelling-enough advantage for a service provider to upgrade to optimized solutions at the NAP, as it serves as a virtual insurance policy providing coverage over what has traditionally been the most vulnerable segment of broadband networks.

As service providers would likely agree, it would be difficult indeed to assign a dollar amount to substantial peace of mind in the drop segment of their networks, but one thing that is for certain is that this value is significant. **Figure 1** illustrates several optimized NAP terminals accommodating environmentally hardened, pre-connectorized drop cables.

Optimized NAP terminals offer a multitude of tangible benefits to service providers. Not only is drop deployment time and the required craft skill level drastically reduced, but the drop system itself becomes a more robust solution, increasing network reliability and durability in one of the most critical segments of an FTTP network.

### Subscriber Premises Issues

Moving toward the subscriber premises from the NAP terminal, there are

several optimized approaches that can be taken beyond traditional fusion splicing at both the NAP terminal and the network interface device (NID), at the subscriber premises. Within the family of pre-terminated drop cables, those solutions featuring environmentally hardened connectors provide the greatest value and benefit to service providers deploying FTTP networks.

There is a significant difference between a standard connector that is installed on the fiber at the end of a drop cable and a drop cable that is terminated with an environmentally hardened connector. The hardened connectors provide strain-relief and environmental sealing for the drop connection *external to the NAP terminal*, and more importantly, leverages all of the previously discussed benefits to the service provider.

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Figure 2. Environmentally hardened, pre-connectorized optical drop cable.

nated drop cables having both ends terminated with environmentally hardened connectors), the required drop length is typically estimated during network planning walkout, with discrete management of excess drop cable slack performed at the customer premises.

**Figure 2** illustrates a typical environmentally hardened, pre-connectorized optical drop cable.



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One of the most intriguing benefits of a pre-terminated drop cable assembly on both ends is the fact that no fusion splicing is needed for a subscriber connection; the entire operation, including drop cable and NID placement, can be readily handled by an I&M technician, thus reducing installation costs and freeing up splice technicians for higher level tasks.

The alternative, mechanical splicing

in the field, has significantly higher signal loss at the splice. It also makes for a less reliable connector than either the factory-installed connector or fusion splice. These issues are particularly important in passive optical networks, which lack active electronic amplification of the signal.

**Better Business Case**

Extraordinary innovation with FTTP

deployment solutions has not only allowed service providers to deploy these networks faster, easier and cheaper than ever before, but it has also raised the bar on network reliability and scalability above and beyond what has traditionally been deployed into broadband access networks. Carriers operating FTTP systems today have been able to realize savings and efficiencies in the outside plant that are truly unprecedented. Optimized FTTP networks, featuring an infrastructure built upon pre-terminated solutions, facilitate the realization of these attractive benefits.

There are some additional benefits that are worth reviewing. First, the drastic reduction in labor time to deploy these solutions has a profound impact on the business plan and cash flow of service providers operating these networks. Faster deployment easily translates to more revenue earlier in the business life cycle.

Another beneficial factor is the reduced training time for craft to master installation of these solutions. Along with that, the opportunity to use different levels of craft skill to optimize the labor model becomes a reality. Finally, the overall network reliability is increased by eliminating the need to re-enter terminals and operate in close proximity to fibers serving customers.

With all of the benefits of optimized product solutions achievable today, the overall risk factor is further mitigated when deploying an FTTP network. Not only is a strong technological advantage realized in the competitive landscape that most service providers operate within, but the network integrity and reliability is also increased above traditional FTTP networks.

Additionally, increased operating expense savings materialize following initial installation, as the physical integrity of outside plant components remains intact. Optimized solutions for FTTP networks will serve as an integral catalyst to propel potential deployments into reality for some time to come, which is good for all of us in the long run. **BBP**

**About the Author**

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