

# Building a Rapid Network

New Approaches to Fiber Deployment Across all Fiber Networks

## Service Providers in today's wireline and wireless sectors find themselves squeezed between two conflicting pressures.

On one side, to attract and retain customers, they must continue to invest in the fiber-based network infrastructure essential to support bandwidth-intensive video, data and multimedia applications. This ever-growing demand for bandwidth is underscored by analyst firm research2guidance's recent prediction that the number of smartphone users around the world will grow from 100 million to 1 billion by 2013, and Cisco's 2009 Visual Networking Index estimates that Internet Protocol (IP) traffic will quintuple in that same time frame.

On the other side, service providers are under relentless pressure to turn up new services and customers faster than before while also reducing costs. To achieve these objectives, they need solutions that are:

- cost-effective, enabling them to deploy new fiber connectivity at the lowest-possible cost
- flexible and scalable, to help satisfy growing requirements for more bandwidth
- efficient, in terms of conserving physical space through good cable management, including slack storage
- efficient, in terms of reducing upfront engineering and installation
- time and reducing delays due to product lead time
- simple to order, for increased productivity

## Ongoing Challenges Across the Network

From the central office, headend, data center and mobile switching office to the outside plant, cell site and customer premise, service providers grapple with a range of connectivity issues. As mentioned earlier, they need to reduce their total cost of adding fiber capacity and network equipment while simultaneously managing CAPEX and OPEX. A successful strategy for doing so is based on several factors:

- the ability to deploy new fiber
- and equipment quickly and easily, within short planning cycles
- reducing maintenance expenses by relying on multi-skilled personnel and minimizing tooling and equipment expenditures
- the use of plug-and-play solutions which, thanks to easier craft interfaces, reduce installation time and require fewer skilled technicians and
- maximizing the efficient use of network infrastructure, namely, by deploying solutions that support high fiber density and capacity

## IFC Cable Length and Slack Storage Create Problems

Until now, service providers basically had two options for establishing connectivity between the optical distribution frame (ODF) or main cross-connect area and the active equipment: use individual patch cords in a fiber guide system, or use a multi-fiber IFC, with a connectorized breakout on each end, over ladder racking.

Both options present several additional challenges, including:

- engineering time to determine exact cable length required
- getting the cable length just right, in order to accommodate slack storage limitations
- minimizing cable bulk and congestion, while also protecting the connectors, when pulling the cable through the fiber guide

- the time required to load all of the individual connectors into
- the rear of the panel and
- in the case of the IFC approach, the time and effort required to lace the cable to the ladder racking.

## A Solution that Offers the Best of Both Options

Innovations by CommScope are designed to tackle all those issues. For example, the Rapid fiber panel, the latest addition to the TE's Rapid fiber product portfolio, conserves physical space by effectively replacing an intermediate panel and an "external" IFC cable.

The Rapid fiber product line is driven by the RapidReel fiber cable spool, an internal cable-payout system which allows installers to unspool precisely the length of cable they need and simply leave any slack stored on the internal spool. Incorporating the latest innovations in fiber-connectivity technology, Rapid fiber solutions enable service providers to add fiber capacity quickly and cost-effectively. That translates into faster service turn-ups, greater network reach and lower overall installation and maintenance costs.

With the new Rapid fiber panel, the IFC cable is mounted inside the panel on a RapidReel spool, which means the panel features built-in slack storage as well. With up to 100 feet of IFC cable available on the Rapid fiber panel, installers can simply pay out the precise length they need from the internal spool; they no longer have to pay for and store excess cable nor engineer upfront the precise cable length they need.

Offering 24 fibers in one rack unit of space, the individual panels are stackable and feature SC/UPC and LC/UPC connector styles. In addition, such solutions incorporate flexibility, in the form of a small (3 mm) 12f microcable. Installers can run the microcable in a fiber raceway system or on ladder racking. In either application, the microcable dramatically reduces cable congestion.

The combination of MPO connectors, microcable and RapidReel spool resolve all the challenges mentioned above. By replacing 12 single-fiber connectors, the MPO enables a more compact, streamlined installation process. Its built-in pulling eye makes it much easier for technicians to pull through the microcable and connectors. The MPO minimizes loading issues because technicians only have to load one cable, rather than 12, and lacing no longer is necessary—technicians simply have to route the cable through the fiber guide.

## Fast, Cost-Effective Fiber Connectivity

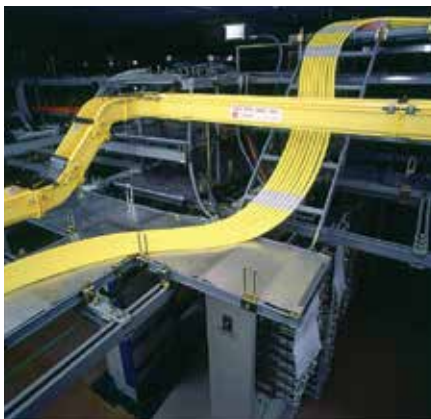
These advanced solutions go a long way toward reducing total first costs of adding fiber capacity. For one thing, they greatly simplify site survey inspections. By using internal fiber spooling to combine a microcable with a fiber panel and by incorporating MPO connector technology, they make it possible for installers to add more fiber capacity in a shorter time than before. In fact, compared with traditional installations, solutions such as the Rapid fiber panel can reduce the total cost per installation by as much as 25 percent. Requiring no field terminations nor splicing, these solutions also make it easier for service providers to make the most cost-effective use of their labor resources and to perform ongoing maintenance and upgrades more easily.

## Delivering Flexibility and Scalability

Service providers now can reduce their cycle times dramatically. While they need as much as four to six weeks to deploy traditional solutions, they can deploy these new panels in a much shorter time frame—one day to two weeks. The Rapid fiber panel offers various sizes, cable types and standard cable lengths, giving service providers the flexibility they need to tailor



**RapidReel Fiber Cable Spool accelerates fiber installation**



**Traditional Cable Routing through Ladder Racking**

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deployments to their individual requirements and the scalability to deliver more bandwidth quickly and cost-effectively.

## Improved Operating Efficiencies

Advanced fiber-connectivity solutions are designed to help service providers enhance their operating efficiencies dramatically. Through good cable management, including slack storage, they help to conserve precious real estate. Further, the combination of microcable, RapidReel spool and MPO connector technology in a single panel not only relieves cable congestion but also simplifies the service provider's ordering and inventory procedures.

The Rapid fiber panel eliminates the need to have extra jumper fibers on hand and the associated need to find space in which to store a wide variety of different jumper lengths. By using robust, 3 mm cables with reduced bend radius fibers, such solutions also support flexible cable runs, similar to using a fiber jumper with a fiber guide system.

Further, by taking advantage of the improved connector design and reliability built into these new solutions, service providers can adopt a plug-and-play strategy, thereby eliminating the time and expense involved with field terminations and splicing.

Finally, when service providers order equipment, they no longer have to go through an extensive list of different panel types or different panels with different cable lengths. They need only one panel, and that panel can accommodate multiple IFC cable lengths. They can easily stock 1 RU, 3 RU or 4 RU panels, thus streamlining their ordering and inventory processes while also ensuring their ability to install panels and IFC cables on the same or next day.

## Competitive Advantages in a Single Panel

With the growing popularity of bandwidth-intensive services that support video, data and multimedia applications, service providers must continue to invest in fiber-based network capacity. At the same time, however, they need to control their CAPEX/OPEX in order to protect their margins in an ultra-competitive market.

Solutions such as Rapid fiber panel, which are designed to accelerate the overall process of adding new fiber, ensure precise-length cabling and relieve overhead cable congestion, allow service providers to tackle both challenges. By enabling service providers to install new fiber faster than before and by giving them the flexibility and scalability to deliver more bandwidth as needed, these solutions lower the total cost of expanding fiber capacity. In doing so, innovations such as Rapid fiber panel help service providers attract and retain customers and ensure long-term profitability.



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