

Plug and play saves time

Preconnected cable systems provide simplified vertical and horizontal management.

One of the biggest issues facing data center and local area network system designers is cable management in the racks and cabinets used to house equipment, as well as in cross-connects, interconnects and the cabling backbone throughout the data center and LAN. In commercial building installations, an optical fiber cabling link is typically assembled in the field at the job site. Alternatives to this traditional implementation method are factory-terminated

and preassembled solutions.

In these alternatives, the time-consuming steps of installation, such as cable sheath removal, cable furcation, connector installation and hardware assembly, are completed in the factory. The complete package is shipped to the job site for installation into a myriad of pathways and spaces.

Both vertical and horizontal cable management can be addressed and simplified using preconnected cable systems for trunks, cable assemblies and connector modules, often referred to as “plug-and-play” systems.

One key advantage to preconnected trunks is a reduced cable outer diameter. Rather than utilizing traditional 900-micron tight-buffered fibers, preconnected cables utilize multifiber ribbons or individual 250-micron colored fibers. A traditional 144-fiber tight-buffered cable is approximately 35 to 40 percent larger in diameter than its equivalent preconnected trunk cable. Vertical cable management is typically six to 10

inches wide and horizontal management is typically one to two rack units high.

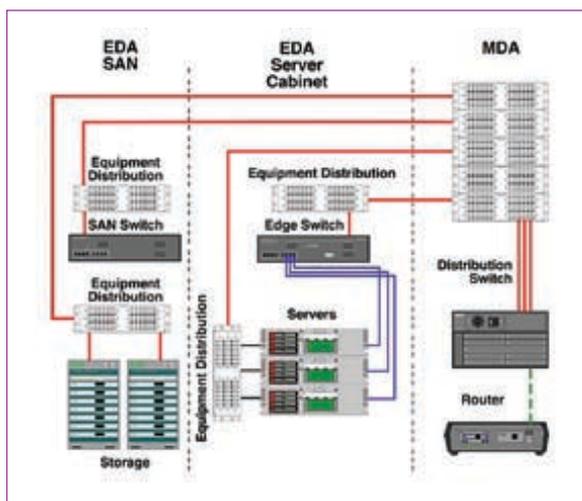
As fiber counts and density continue to increase, vertical and horizontal cable-management space at the termination and distribution locations is at a premium, with the increasing challenge of maintaining minimum cable bend radius. Reduced diameter cables ease the burden and allow density to increase without losing manageability. Furthermore, preconnected assemblies often integrate mounting hardware into the assembly unit, easing the ability to properly strain-relieve the cables and assemblies.

Preconnected assemblies support a simpler means of upgrades, moves, adds and changes. Constant change is inevitable in modern LANs and data centers. New construction, technology evolutions, personnel changes and changing technical requirements are all issues to be dealt with by network administrators on a monthly and, at times, daily basis. By utilizing preconnected trunk cables and cable assemblies, network administrators can handle changes seamlessly and with little disruption to the network.

Preconnected cables also can be disconnected, rerouted and reconnected without the use of traditional installation manpower, in less time and without the need to remove and reinstall the optical connectors. Preconnected cables support structured cabling methods as recommended in the TIA-568 and TIA-942 industry standards.

Integrated trunk modules are also now available for LAN and data center applications. These integrated, multifiber modules combine the module and trunk in one unit, which eliminates a connection point and creates a slack-free connection. The trunk cable is stored in the module, then pulled out and deployed to meet exact length requirements, so precise preplanning of cable length is not required.

The integrated module provides a quick method for deploying and redeploying optical connectivity and is suited for data centers of all sizes. The module eliminates one mated pair in the channel link, resulting in lower



Preconnected cables support structured cabling methods (above) as recommended in the TIA-568 and TIA-942 industry standards.

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system link loss. Excess cable slack is stored in the module for efficient cable management.

Additionally, manufacturer-supplied pulling grips continue to evolve and improve. Pulling grips today are not only smaller in diameter, but are more flexible and many are also reusable. Re-using the pulling grip supplied with the original purchase provides the highest level of physical protection and reliability during periods of change.

Finally, preconnected assemblies can reduce costs associated with installation, maintenance and repair when compared to traditional cabling systems. Preconnected assemblies can most often be installed by network administrators or installation crews, without the need for multiple crews to install, terminate and test cable. Whether installing cables and assemblies under raised floors, in overhead cabling systems, or between racks and cabinets, basic installation

techniques and best practices from the manufacturer may be used.

Eliminating the need to hire additional personnel often saves both time and money and reduces downtime during periods of moves, adds and changes. Another key component of preconnected cables is that optical measurements (i.e., cable attenuation, connector attenuation and reflectance) are guaranteed upon delivery, again eliminating the variability associated with traditional termination techniques.

The reasons for using these types of cables include the ease and speed with which the cables can be deployed, where downtime must be minimized and space is at a premium; and increased fiber counts with reduced cable diameters. Options include riser rated, plenum rated, indoor/outdoor rated and both dielectric and armored.

A preassembled solution is useful where cost control of a project is most

important. The completion of many of the labor assembly steps at the factory can significantly reduce the variability of installation cost in the field.

As performance requirements increase, the challenges associated with field terminating also increase. A preassembled solution can increase the versatility and productivity of the installation crew, with fewer demands on specialized tooling and installation skills.

Finally, an optical fiber link can be completely assembled and tested prior to leaving the factory. This does not completely remove the need for field testing after installation for link certification; however, many of the problems associated with the traditional field installation occur with the field connecting and correct loading of the connectors into the hardware, and these problems can be reduced with plug-and-play systems. □

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