Cabling
Installation & Maintenance

Endface

In search of the truth: air-blown Myths blown

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Deciding what type of cabling system to use when installing or upgrading an optical-fiber local area network (LAN) used to be easy. Pull the cable, then make the myriad intermediate connections and end terminations necessary to complete the circuits.

Today, the choice can still be easy. If the topology is simple and few changes are anticipated in capacity, routing, or type of traffic, traditional cabling can work very well. But these conditions rarely apply in today's premises and LAN environments. In efforts to "futureproof" a LAN using the traditional cabling solution, dark fiber is often installed during initial LAN construction to leverage the high cost of installation labor, even though future network needs may not be clearly defined. Often, dark fiber installed at the outset becomes useless fiber later because changes in technology and requirements throw earlier estimates out the window. For example, who would have thought just a short time ago of installing a 10 Gigabit 50micron fiber or even single-mode fiber to futureproof a LAN?

To accommodate the constancy of change in today's corporate LANs, an alternative to conventional cabling was developed several years ago that can provide room for expansion in any network application involving optical fiber. Easily mastered by experienced installers, air-blown fiber (ABF) technology uses compressed air to blow lightweight optical-fiber bundles into or out of predefined routes at rates to 150 feet per minute, in runs exceeding 6000 feet. This results in splice-free, end-to-end connections between the network hub and the application.

In any industry, there can exist a reluctance to accept change, especially if that change is perceived as putting at risk substantial investment in the existing technology. But there is never a single solution to designing and building a LAN infrastructure, and where alternative technologies exist, it behooves all parties to investigate all possible design and installation approaches.

Such an evaluation should project total network costs over the next two to five years. This includes easily assessed costs-such as time, labor, and materials-as well as costs more difficult to predict: disruptions to the workplace, digging up infrastructure, and possible shutdown. In an attempt to arrive at the best decision, users in many instances have asked installers to bid a project with both conventional cabling and ABF cabling and to factor in realistic assessments of expected growth in LAN traffic and network topology.

What about standards?

Allegations have been made concerning ABF's not meeting industry standards. Sumitomo's ABF system has been tested and listed by Underwriters Laboratories for riser and plenum indoor use. It also complies with the TIA/EIA-568A telecommunications cabling standard and the ICEA-S-83-596 standard for fiber-optic premises distribution cable. Furthermore, the U.S. Department of Defense, General Motors, American Axle and Manufacturing Co., and the University of Utah are some of the organizations that have installed ABF systems. Certainly, a thorough evaluation of options preceded these organizations' choice of ABF.

Similarly, allegations have been made that the fiber used in ABF systems is different from that used in conventional cable. On the contrary, exactly the same kind of glass and the same connection and termination techniques are used in both types of cable. Multiple-strand singlemode or multimode fibers are color-coded, stranded together, and jacketed to create a bundle similar to bundles used in ribbon fiber, tight-buffered fiber, and conventional cables holding multiple fibers-all of which are standard in the U.S. industry. What may lead to a misunderstanding is that ABF fiber bundles look different. They are substantially smaller than conventional cables because the latter require strength members and jacketing to counteract the stresses and abrasion imposed when being pulled through conduit and innerduct. For example, a 6-fiber conventional cable has a diameter of 0.5 inch whereas a 6-fiber ABF bundle has a diameter of 0.08 inch.

Rugged, flexible, standards-compliant tubes are the routing vehicle for ABF fiber bundles. These tubes, which can be direct-buried, placed in conduit, or aerially hung, provide a splice-free transition path between outside and inside plant. ABF accommodates the same services as conventional cabling systems and, in most instances, at lower overall cost. Best of all, with ABF, you blow the fiber you need today and defer decisions on future requirements to the future.

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