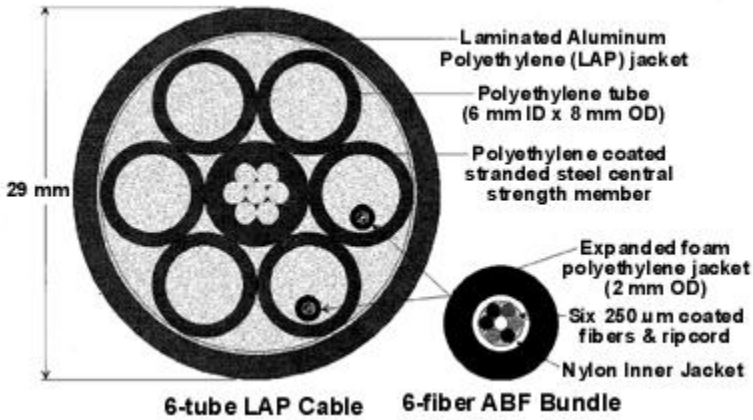
New Technology Helps University of North Florida "Future Proof" its Campus-Wide Network

Air Blown Fiber (ABF) has given the University of North Florida a level of flexibility unmatched by any other cabling system for a campus-wide local area network (LAN). At this institution, the major concern was to increase the capacity of nearly full conduit and at the same time provide for largely unknown future LAN requirements in terms of services and routing. The flexibility of the ABF system allows UNF to modify its infrastructure as capacity requirements change, and use single-or multi-mode cable, depending upon each location's needs. The system was installed by only two trained technicians, minimizing labor costs. By utilizing this method, the university has acquired a scaleable, point-to-point, optical fiber infrastructure that is cost effective.

Information technology is becoming increasingly important at educational institutions. As the functions and reach of these networks expand, LAN administrators seek ways to implement campus-wide optical fiber infrastructures that permit growth and change at minimal cost and disruption.

In 1993, the University of North Florida found itself faced with the need to upgrade an over-burdened and inadequate network infrastructure. Administrators also recognized that only an optical fiber network would be acceptable for vitally important intra-and inter-campus data processing. Late in 1993, a Request For Proposal was issued to install an upgraded network based on 24-strand multi-mode fiber between to data center and 14 campus buildings.

Shortly after the proposal was issued, university personnel monitored a presentation on a technology called Air Blown Fiber (ABF) while attending a conference in Orlando.



Air Blown Fiber Technology

ABF is a technology developed by British Telecom. It is manufactured under license in the U.S. by Sumitomo Electric Lightwave, Research Triangle Park, NC., under the name FutureFLEX®. ABF is based on using compressed air or nitrogen to blow lightweight optical fiber bundles through individual tube cells contained in a flexible, jacketed routing vehicle called tube cable (Fig. 1). Tube cables contain up to 19 cells and are constructed of a tough,

durable material that can be routed through underground conduit. Within a building envelope, costly rigid innerduct may not be required.

The individual tube cells are connected at tube distributions units (junction boxes), creating a splice-free point-to-point optic fiber path. Once the paths are established, fiber bundles of up to 18 single mode, or 50 micron or 62.5 micron multi-mode fibers are "blown" through the cells at rates of up to 150 feet per minute. Standard blowing distances are 3300 feet for 2 to 6 fiber bundles and 1650 feet for 12 to 18 fiber bundles. Distances can be doubled by running two sets of blowing equipment in tandem.

Given the Options

Approximately ten vendors submitted bids for the job. All but one proposed a conventional fiber system. Commercial Communication Systems, Inc. (CCSI) of Orlando, Florida, responded with proposals for both conventional and ABF options. In the latter case, campus buildings would be served by tube bundles containing either 7 or 4 tube cells through which the optical fiber bundles would be blown. The ABF proposal was accepted for the following reasons:

Size

An average of 5 individual tube cells are available with the ABF option compared with only 1 innerduct with conventional fiber. Some buildings would have no innerduct with conventional fiber installed. This would result in spending significant additional dollars to install additional conduits.

Flexibility

The issue of which buildings needed single- or multi-mode fiber could be deferred until it was required.

Risk

There was less risk of damaging tube bundles than damaging conventional fiber in congested areas of conduit.

Cost

The ABF System was simply a more cost effective solution.

The key motivating factor for University personnel was that ABF provided the means to accommodate future changes to the network infrastructure. In-place optical fibers can be blown out and reused very easily, keeping post-installation costs to a minimum. As needs change, departments move, new hubs become justified (i.e. Energy Management and Video), and requirements grow or go away, the scaleability of the ABF system allows the school to adapt accordingly.

The Road Ahead

The initial installation consisted of over 15,000 feet of fiber optic cable. This allowed UNF to link every building on the campus to the Data Center while leaving room for expansion. The

cable, for larger or new expansions, can be very easily added to the already existing cable without disrupting or shutting down the network. Over time, ABF has proven to be a viable technology when addressing the concerns of expanding or modifying the campus network at this institution, and in a cost effective-manner.

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