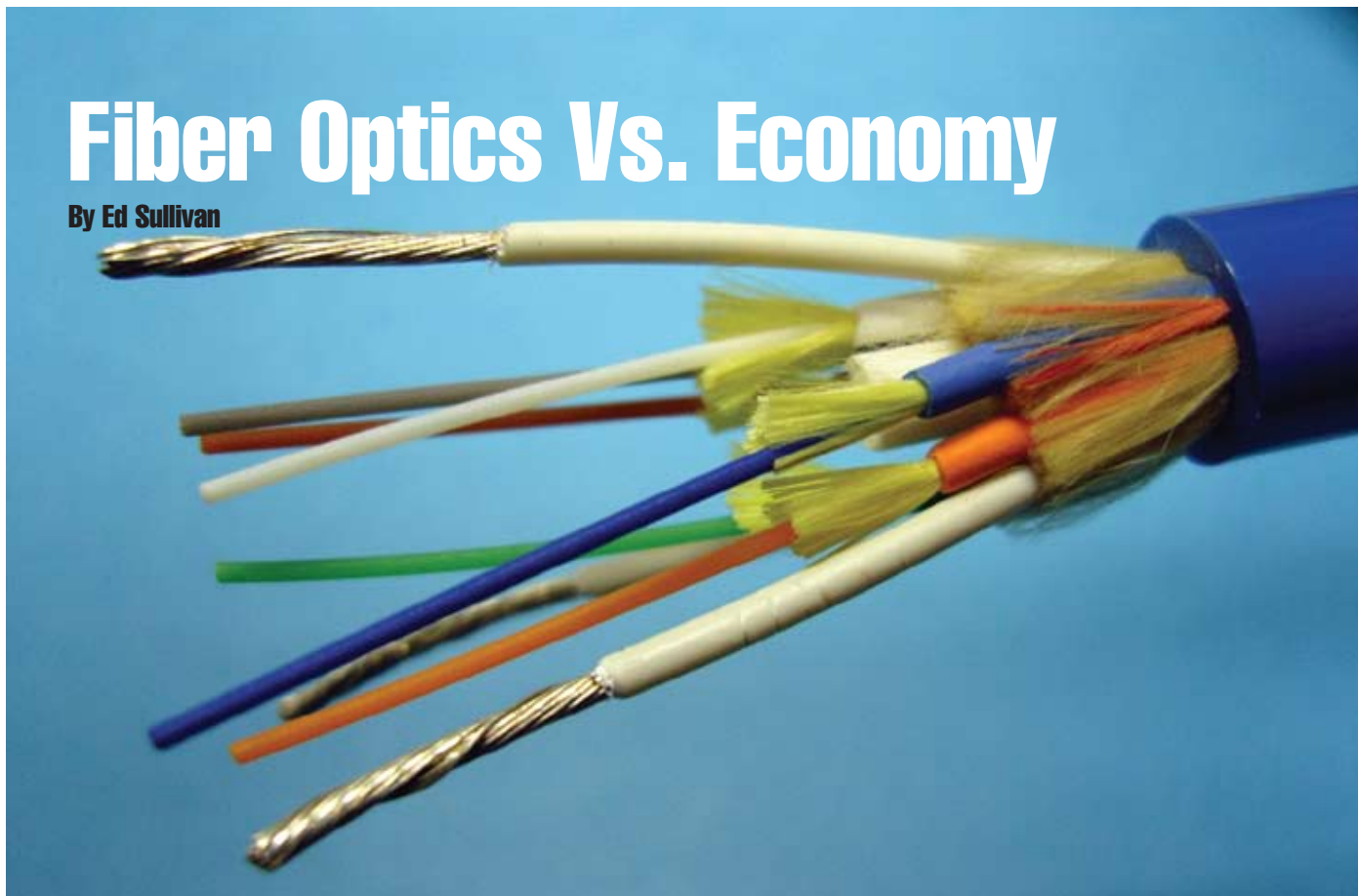


# Fiber Optics Vs. Economy

By Ed Sullivan



**H**igh-speed voice, video and data capabilities via fiber optic cables are quickly becoming the fabric of the economy. Choosing the right cable technology will make a major difference when it comes to the inherent technical, financial and operational issues.

The networks that move data, whether in text, voice or image format, have become the fabric of the digital economy. As the economy becomes increasingly dependent on high-speed data communications of growing size and complexity, the medium of choice for most private networks is fiber optic cable.

Fiber is finding its way into every sector of the economy, private and public. Yet, while many such organizations may be well aware of the high-bandwidth capabilities and benefits of fiber optics,

**As seen in the above photo, this hybrid copper-and-fiber OCC cable meets high performance, durability and safety requirements as well as carrying both fiber optic signals and electric through a single line.**

in many cases they are unaware of the difference in the various cable designs that carry the fiber optic strands.

"The tendency for network providers and installers to use older cable technology may be costing their customers time and money," says Jim Aubert, president of Summit Data Systems, Glen Mills, PA. "That is not to say that those providers are deliberately wasteful. But it does indicate that they may not be familiar with the performance advantages of more advanced and efficient cable technologies."

Two of the more significant advancements, Aubert says, have come in the form of indoor/outdoor, tight-buffered cable and armored jacketed cable. These innovations, which are readily available, not only facilitate installation and save on costs; they can also greatly enhance the durability and security of cables that are placed underground, between walls, or in harsh environments.

Aubert, a veteran of early network technology, has always been an advo-

cate of both enhanced performance and clean, simple installation of cable systems. His firm, Summit Data Systems, has installed copper and fiber optic cable systems for large and small clients including Fortune 100 corporations, industrials, retailers, pharmaceuticals and government facilities for over 15 years.

Among Aubert's earliest installations was the headquarters of one of the world's leading petrochemical firms, where he installed miles of tight-buffered fiber optic cable from Optical Cable Corporation (OCC) of Roanoke, VA. To date, he has never had a single callback due to any cable-related problem.

OCC was one of the first developers of indoor/outdoor tight-buffered cable. "We became one of their first customers because we were experienced enough to see the many advantages of that product when it came to clean and quick installation, as opposed to the more commonly used loose-tube cables. In addition to seeing the advantages of the cable, we

had a comfort level because all cable is backed by an OCC warranty if the cable is installed by an OCC certified installer," says Aubert.

### TIGHT-BUFFERED VS. LOOSE-TUBE

Although loose-tube, gel-filled fiber optic cables are widely used for high-fiber-count, long-distance telco applications, they are a less desirable design for the local private applications where time, space, and low installed cost are concerned.

On the other hand, tight-buffered construction is the best-proven state-of-the-art design for nearly all-commercial communications applications demanding the high performance of optical fibers. Such applications include moderate distance transmission for Telco local loop, LANs, SANs, COLOs, and point-to-point links in cities, buildings, factories, office parks and on campuses.

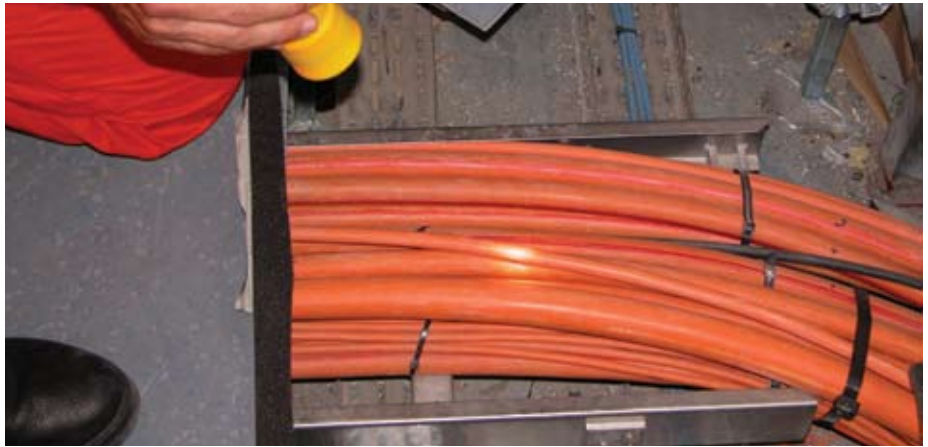
Aubert says the tight-buffered cable design is the standard for his firm when it comes to those kinds of applications.

"To begin with, loose-tube fiber cable was designed many years ago for outdoor applications," Aubert explains. "So when you connected the outdoor cable with the plenum-rated (fire safety) indoor cable you had to make a transition as you entered the building, which required a termination or a splice. That not only took time, but took up space and was an additional point of failure, as far as I was concerned."

He says that the indoor-outdoor, plenum-rated cable overcomes the need to make that splice, and is therefore a much cleaner and quicker installation. When installed, the cable requires only a quick and easy termination. Also, this will eliminate the use of valuable space in the entrance facility of the building.

### RUGGEDIZED CABLE

"We are certified on a lot of products," Aubert says, "but when I first saw the OCC tight-buffered cable, it was being used by military applications, where it was used to run across battlefields. In those



**Ruggedized, tight-buffered cable derives much of its reliability and performance advantages from its basic design.**



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situations the military doesn't want to mess with loose-tube connections. They wanted cable that would terminate quickly. Plus, the cable was subjected to a very harsh environment where it might be pounded by vehicles and other equipment. So we knew this was a very tough product."

Recently Summit Data Systems installed the OCC cable on a countywide traffic light system, connecting the traffic lights and security cameras. The cable was rugged enough to pull from 13,000-foot spools with no breakage. Connections

were so efficient that Summit was installing well over 10,000 feet at a time.

"That saves a lot of time and that translates to dollars," Aubert says. "Since we are in a very competitive business, we are able to pass that savings along and still provide a top-quality installation."

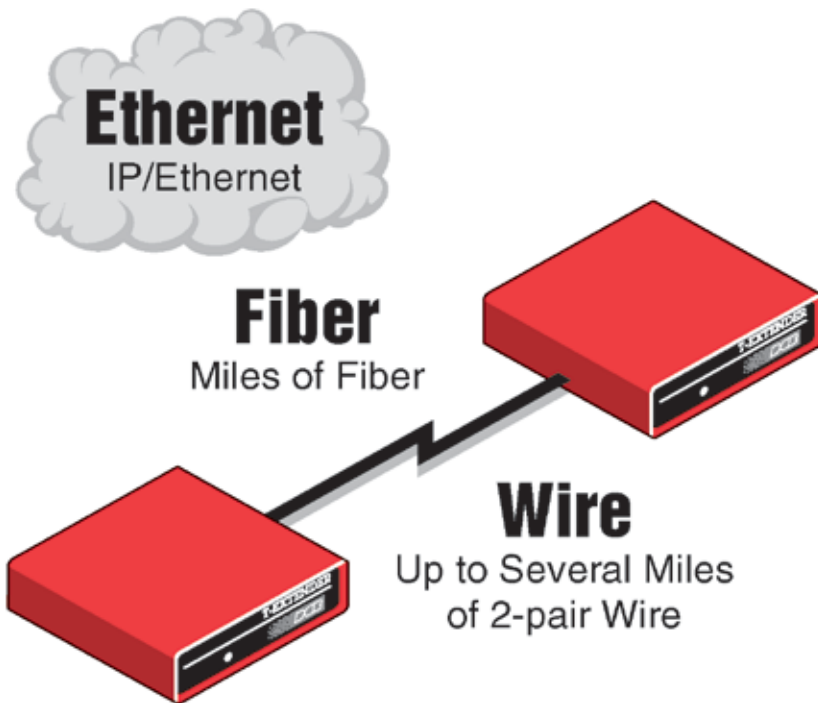
Ruggedized, tight-buffered fiber optic cable is well suited to aerial applications, as well. One of the more exotic examples of this application is the "Flying Camera" used to broadcast football and other sports events. Not only is reliability a must for these broad-

casts, but also the cable-mounted camera rig flies at speeds of up to 80 miles per hour in all types of weather conditions.

Although standard tight-buffered cable offers good protection, when durability and survivability are questionable, Summit Data Systems recommends tight-buffered armored fiber optic cable. Corrugated steel-tape armored fiber optic cable is cut resistant and suitable for subterranean applications such as trenches and tunnels where rodents or other vermin might bite through standard cable jacketing. Interlocked armored fiber optic cable features flexible lightweight aluminum sheath, which is cut resistant and resistant to kinking, so it can eliminate the need for innerduct in many applications.

"We also consider the armored cable to be a good security measure," Aubert says. "For example, not long ago we installed the fiber optic network in a county courthouse where there was a concern that some outsider might commit a malicious act such as cutting through the cable with a knife. With a standard cable, that would disrupt communications and security. With the armored cable, no way. There was no downside to installing armored cable. It was less expensive to install plenum-rated interlocked armored than standard plenum-rated cable installed in plenum-rated innerduct. It took up less space in the cable tray and increased the protection and security of the cable." ■

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Ed Sullivan is a technical writer based in Glendale, CA. For information about this article, contact Optical Cable Corporation at 800-622-7711 or visit the Web site at [www.occfiber.com](http://www.occfiber.com).