

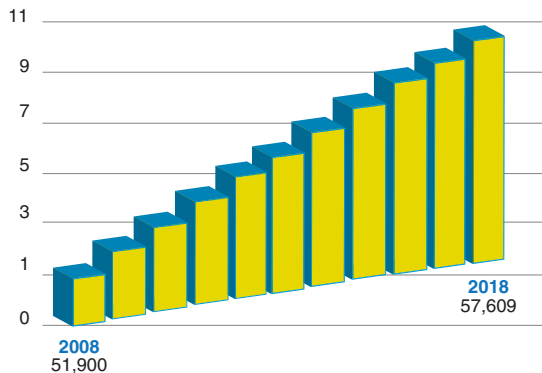
Overview

For most ENG/SNG broadcast clients, the integration of fiber optic systems comes during the migration from standard to high-definition video. The transition may range from a single ENG camera tied to a microwave truck, a “fly-pack” for remotes over fiber to other newsgathering systems, or as a fiber system for standard-definition with upgradability to HD.

Segments/Attractiveness

Fiber optic cable is used to replace copper cable in broadcast television systems. Broadcasters are used to multiple copper cable runs between one or more ENG cameras and a remote ENG/SNG truck. Such cable is heavy, bulky, manpower-intensive and subject to technical interference. Single mode fiber can dramatically lower this weight, reduce costs, and allow the multiplexing of multiple signals through one flexible lightweight cable. Now ENG trucks can be parked any distance from the story, not where cable lengths dictate.

**Percentage Growth of
ENG Camera Operators and Editors 2008 - 2018**



Market Size/Growth

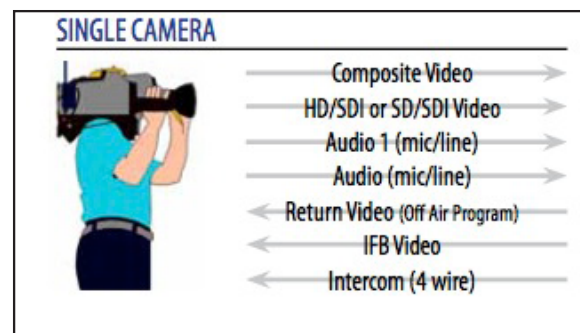
The U.S. Bureau of Labor Statistics estimates that the total growth of ENG camera operators and editors will be about 11 percent over the next decade, ending in 2018. As of 2008, the government reported that 51,900 people are employed in this category. Also, as of the end of 2010, Telecast estimates there were more than 2,500 ENG trucks on the road in the United States.

Most of the salaried camera operators and editors were employed by motion pictures studios and television broadcasting stations. About 37 percent of the salaried camera operators and editors worked for motion picture and video industry while 18 percent worked in television broadcasting. Most camera operators and editors—both freelance and full-time staff—work in large metropolitan areas.

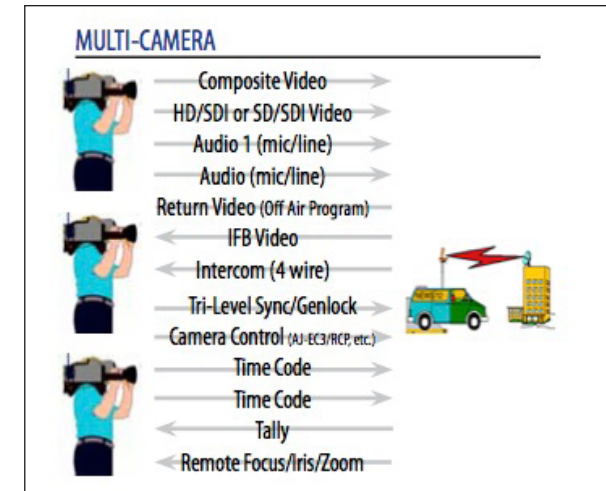
Growth in this market is expected to outpace the broadcast industry as a whole as stations convert existing mobile units to fiber solutions to take advantage of the convenience, setup and transmission efficiency benefits.

Applications

Fiber for ENG/SNG applications is normally used in two configurations. One is direct fiber between one or more ENG cameras and a remote truck. This is for simple local news operations. Another is a common “throw-down” system where multiple video, audio and data signals are transmitted from a shooting location to a remote truck. Cameras can be located as far as 3,000 feet from the remote vehicle in either configuration. This tends to be used for multi-day events, such as trials, elections or special events.



The simplest set-up uses fiber to directly connect a video camera to the truck. This uses the fewest components and is easiest to install and use. A throw-down system is similar to a remote “mult” box, where various ENG components are plugged in, multiplexed into a single signal and sent back to the truck via fiber.



Primarily, Telecast Fiber’s products are used for broadcast acquisition. Signals from video cameras and microphone are taken from the news location and sent via fiber to the remote ENG or SNG truck. Using only a single fiber cable instead of several copper audio and video cables saves space, money and time.

Business Problems to Solve

Remote news coverage usually involves quick set-up at the location of a story and rapid time to air. In long cable runs from the camera to the remote, heavy copper cable can be cumbersome to run and problematic to use. Fiber optic cable is 99 percent lighter in weight.

Often the working environment is hostile—causing EMI, RFI and ground loops with copper. Fiber optic cable eliminates these problems. The use of fiber can eliminate vehicle overweight penalties when long lengths of copper cable are needed. Electronic multiplexing allows the mixing of several video channels on a single fiber cable.

Fiber enables better utilization of the asset base. It extends the life of existing mobile units and requires fewer trucks due to increased productivity. Faster set-up time means a



lower payroll for fewer man-hours of work. At the same time, fiber extends the capabilities of mobile units. It enables multi-use camcorders for live high-definition coverage. Since fiber solutions are more compact, it frees space on trucks for other revenue producing equipment.

Fiber As the Solution

Electronic news gathering is easier and faster using fiber optic cable. Longer distances with smaller crews can be covered with lightweight single core fiber cable. Set-up and strikes are faster, allowing more locations to be visited by the same crew. With less labor, fewer crew members and lower operating expenses, fiber allows broadcasters to reduce budgets.

Internal Decision Makers

- Station general manager
- News director
- Chief engineer
- News operations manager
- ENG/SNG truck and camera operators
- Engineering staff

External Decision Makers

- Systems integrators for news vehicles
- Value added resellers

Demand Creation Questions

- How many people and remote vehicles do you deploy for news remotes?
- Does your station use all copper cable for news remotes?
- Do you know the benefits of fiber optic cable over copper?
- How many people and how much time does it take to deploy this cable?
- How many and what brand of ENG cameras do you use?
- Does your station shoot news in high-definition video?
- Are your station's intercity or backhaul microwave links and satellite links converted to true HD yet, or are you using the 16:9 aspect ratio and transmitting in SD/SDI (also known as "HD Lite")?
- What is the format of your remote audio—analogue or AES digital?

- Are you familiar with Teleport Fiber's connector options? (Stress the high reliability of MX (Min-eXpanded Beam) and Neutrik fiber connectors?)

Products you should mention and propose



- **CopperHead 3050** camera-mountable fiber optic transceiver
- **CopperHead 3200**, a multicasting solution for a range of HD applications
- Both Copperhead products deliver uncompressed HD video and simultaneously transport bidirectional digital (SDI or HD/SDI) and analog (NTSC or PAL) video, as well as all two-way camera control, audio, video, data, sync, tally/call, prompter, and intercom signals between the camera and the base station.

- **Viper**, a new Mini-Mussel Shell provides a portable and compact universal enclosure for the new line of "T-Block" Viper function modules. Mini-Mussel Shells can be mixed and matched to provide highly customized, portable solutions for electronic field production. Each Mini-Mussel includes integral optical power metering, informative system LED indicators, and an assortment of powering options.

- **TelePort** and **TeleThon** for transporting several camera signals, plus video/audio/intercom signals, all on one cable. TeleThon is a multiplexer engine.



The consolidation of signals reduces complexity of the fiber cable resulting in lower cost fiber cable/connector systems which are particularly useful in extending the life of older fiber systems

- **SHED**, a SMPTE Hybrid Elimination Device that allows the use of a single mode fiber cable from HD and slow motion camera links in a venue.



- **Rattler** for occasional HD video from various locations. Includes power supply and built-in diagnostics.

- **Tactical Cable Assemblies** include military grade fiber combined with SMPTE, MX, Neutrik, ST LT and other connectors on ruggedized reels. Results in high reliability and long life.



- **Belden Brilliance Fiber Connectors** are field-installable in less than five seconds, making fiber terminations fast, simple and reliable with no tools needed.

Why you should buy from Telecast/Belden

- Almost 20 years field experience in fiber optic newsgathering technology including the national political conventions, presidential elections, major trials and entertainment programming like the Oscar and Grammy award shows
- Large number of network and broadcast ENG customers throughout the world
- Huge breadth of products for fiber optic broadcast acquisition

Influencing the Influencer

Influencer	Hot Button	Focus/Role	How
CEO	How can he differentiate his truck	Economic/ Influencer Primary Buyer	Bundled Sell
EIC/Chief Engineer	Ease of Use, Reliability, Repeatability	Broadcast #1 influencer, Internal Pitchman	Bundled Sell Support after the sell
Systems Integrators Consultants Value Added Resellers	Product and System Knowledge	Broadcast Influencer	Training on new technology and its economic impact
Broadcast Networks	Ease of Use, Reliability, Repeatability	Broadcast/Buyer of truck services	Training on new technology and its economic impact