

## **Understanding HFC Technology - Time Warner – Kevin Backer**

**Length of Session:** 105 Min

Understanding the structure and technologies used in today's network architectures is critical to allow for informed planning decisions, in order to ensure profitability and customer satisfaction, based on current practices. This session will not only review the HFC architecture, but discussions about new technologies used to deliver high-speed data, video, IP telephony, as well as networking at the premises.

This workshop will cover:

- Review of the basic architecture, components and terminology related to HFC networks
- Review of HFC transport systems
- Overview of critical areas within a HFC network that can effect delivery performance
- Review of other delivery designs and technologies with cost benefit review
- Overview of potential future changes within HFC networks

## **Networking for Home and Small Business – M.A. Polce – Mike Polce**

**Length of Session:** 60 Min

SOHO networks continue to require the ability to transmit more data to efficiently allow its users to communicate either by interoffice or to the outside world. Each SOHO network may have unique characteristics that determine the type of network that may best suit its users. In this session a review of SOHO networks from terminology to architecture will be discussed to allow attendees to determine the best course of action in future or current applications.

This workshop will cover:

- Network terminology
- Network Standards
- Review of determining factors in the set up of a SOHO network
- Review of Ethernet, Phone , wireless, or mixed-media based networks, their related architecture, and best applications
- Overview of standard SOHO networking equipment such as cabling, modems routers etc. and functions

## **Bend, Bandwidth or Both – Making the right choice for your enterprise networks**”- Corning Inc – Ravi Yekula

**Length of Session:** 60 Min

Data centers and enterprise networks designed with bend-insensitive multimode fibers have greater reliability and protection against downtime. The presentation will explain the value that a bend-insensitive multimode fiber can bring into an enterprise networks. The presentation will also illustrate the performance of high bandwidth OM3 and OM4 fibers on 40G/100G and 16G systems and show where high bandwidth multimode fibers can bring the most value to your network. Additionally the presentation explores why, despite continual talk of single-mode fiber superseding multimode fiber, multimode fiber market is still growing and is predicted to grow for the foreseeable future. Furthermore the presentation plans to educate designers, consultants and end users on the significant financial benefits of using multimode fiber versus single-mode fiber in their enterprise networks.

This workshop will cover:

- Summary of bend improved fibers on the market today
- Why choose multimode fiber over single-mode fiber
  - Breakdown of system spend
  - Areas where multimode can save money over single-mode
  - Potential for this to grow with next generation speeds
- 16G/40G/100G and OM4
  - Status of standards – largely focused on multimode objective
  - 40G/100G and 16G performance with OM3 and OM4
  - Cheap 40G/100G transceivers may allow MMF to challenge copper in more places

## **Fundamentals of IP Networking in Cable Networks** - GarrettCom – TJ Roe

**Length of Session:** 60 Min

As the CATV industry continues to move towards an IP infrastructure for video, voice and data it is critical to have the knowledge to support the Internet Protocol (IP). This session is designed to provide cable operators the practical knowledge, application and problem solving of Internet Protocol (IPv4) in cable networks.

This workshop will cover:

- General overview of IP in CATV applications and terminology
- Review of current standards related to IPv4
- Review of common equipment and installation hurdles
- Review of common topologies associated with IP

## **Drop Installation Fundamentals** - PPC – Pete Carapella

**Length of Session:** 60 Min

This session will guide installers and technicians industry standards for properly performing a drop termination within a broadband system. The course will provide the basic procedures to helping installers achieve the highest quality termination to ensure a properly performing network.

This workshop will cover:

- Review of basic cable network configurations; with review of signal path in relation to the customer premise
- Review of functions and applications of drop terminations.
- Demonstration of proper cable handling, preparation, and connectorization techniques of cables used for CATV drop applications
- Basic troubleshooting of drop terminations and repair methods

Participants in this session may bring the drop cable tools they currently use on the job. The session host will inspect the following tools to determine if any need to be replaced:

## **Introduction to OSP** - 3M – Gary Woolston

**Length of Session:** 105 Min

Gain the knowledge you need to make wise decisions on outside plant (OSP) projects. This course will cover elements common to all OSP projects, along with design issues related to underground, direct-buried and aerial cable plant.

This workshop will cover:

- General review of current OSP codes, standards and regulations.
- Bonding & Grounding guidelines:
  - Discussion would include aerial, buried, building, underground and vault environments plus DSLAM applications
- Fiber design in the neighborhood (Route design & Cabling topologies)
  - Front lot versus rear lot
  - Pre-terminated versus field spliced
  - Fiber drop direct to main splice versus terminals
  - Traditional front/rear lot versus side lot with innerduct
  - Which would you rather pay: higher CapEx costs with lower Maintenance cost / lower CapEx costs with higher Maintenance costs

## **Advanced OTDR Operation & Trace Analysis** - EXFO – Tony Lowe

**Length of Session:** 105 min

An OTDR can determine the length of a fiber, end-to-end loss as well as the amount of reflections or loss of light from a variety of events in a fiber optic link. Within a fiber technician's arsenal of tools the OTDR has become the most important and versatile piece of test equipment. The requirements for network technicians to test optical cables during installation, maintenance, and restoration are more critical than ever before.

This workshop will cover:

- Review of typical functions and features
- Review of types of events such as reflective and non-reflective events and their cause
- Proper techniques for measuring optical return loss, insertion loss, link loss and link length
- Review of equipment settings and influence on proper results
- Proper trace analysis
- Advancements in OTDR Testing
- Live testing demonstration and review

## **Fusion Splicing Techniques & Theory** - TBD

**Length of Session:** 60 min

In any fiber optic application a technician is bound to come across the situation that calls for a fusion splice. Tight loss budget, cramped space, or a long OSP run are all situations that may call for a fusion splice; a technician's comprehension of the ins and outs of splicing is important to the quality of the splice. Installers and technicians can gain practical knowledge that can directly relate to the field and immediately be put to use on the job.

This workshop will cover:

- Overview of Fiber Optic Fusion Splicing including theory, applications and terminology
- Review of different types of fusion splicers such as core, clad alignment or single, mass fiber
- Proper equipment setup and fiber preparation/cleaving practices
- Splicer maintenance and helpful tips

## **Fiber Optics 101** – FIS – John Bruno

**Length of Session:** 60 min

Entering the realm of fiber optics can be challenging even for the most seasoned technician. In understanding the beginnings of fiber optics and its basic principles, technicians will have the foundation to understand the task and make informed decisions when performing tasks related to optical networks.

This workshop will cover:

- An overview of the history of fiber optics
- Fiber optic transmission theory with review of fiber construction and types
- Review of industry terminology
- Review of proper applications for fiber optics
- Overview of safety issues related to fiber optics – laser safety, handling bare fiber, etc.

## **F/O Connector Termination Methods and Applications** - FIS – Shawn Lawlor

**Length of Session:** 105 min

In every fiber optic network constructed some of the most critical links are its connections. That being said, a technician's ability to properly terminate optical cable along with maintaining those connections will determine the quality of network performance. In today's market there are a variety of termination methods and understanding the installation processes and applications will greatly improve the rate of a successful termination.

This workshop will cover:

- Overview of the types termination methods such as epoxy, splice-on and pre-polished connectors
- Review of the proper tools and techniques needed for quality connectorization
- Review of proper applications
- Discussion of both positive and negative influences of each type of termination in relation to network performance
- CapEx Review of each method
- Review of new termination technologies