

### Computer cabling and new networks

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SII-298 2 Days (14 Hours)



### **Description**

Computer cabling is a crucial item in the company, due to its cost and its amortization over more than 10 years. This course revisits copper and optical techniques with illustrations by typical CCTP analysis. Promising new optical technologies and the place of carrier currents will be discussed.

# Who is this training for ?

#### For whom

Technicians and engineers involved in the design and implementation of computer cabling, but also in charge of physical network infrastructure projects.

#### Prerequisites

Basic knowledge desirable in computer cabling techniques.

## **Training objectives**

- · Assimilate the copper and optical infrastructures of computer cabling
- Know the TIA, ISO and IEEE standards for cabling components
- Test cabling using a cabling circuit scanner
- Be able to analyze a CCTP (cabling specifications)
- Understanding developments in networks and new technologies

# **Training program**

Evolutions des réseaux cuivre et optique

- Panorama of the evolution of techniques and performances over a quarter of a century.
- Description of the different transmission media currently available.
- Twisted copper pairs, fibers classic optics and recent developments.

Caractérisation et architecture des réseaux

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- Twisted pairs: characterization and classification: categories 5, 5E, 6, 6A, 7, 7A, 8.
- U/UTP, F/FTP, SF/FTP cables ... Certifications de-embedded (cat5E,6), re-embedded (6A).
- Evolution of twisted pair tests: NEXT, attenuation, delay skew, return loss...
- Silica optical fibers: multimode and single mode (OM1, OM2, OM3, OM4. OS1. OS2).
- VCSEL injectors for multimode fibers. Recent contributions from active optical cables, MPO/MTP cassettes.
- The change brought by OFDM in high speeds in difficult environments (Wi-Fi, 4G, CPL, ADSL, terrestrial TNT, etc.).

Les normes et performances

- TIA/EIA, ISO/IEC standards for all computer cabling components.
- Next evolution to 40 Gbit (40Gbase-T) of twisted pair Ethernet.
- New advances in optical technologies.

Déploiements intérieurs et extérieurs, locaux, campus et métropolitains

• Optical fibers indoors and outdoors (Campus networks, operator networks).

Nouveaux réseaux

- Carrier currents (IEEE P1901). Complement to copper and optical LANs.
- Privileged targets: hotels, conferences, hospitals, museums, (surveillance camera, music and remote screens).
- New types of fibers: FMF (restricted modes), MCF (multi-core) to increase single-mode throughput.
- For new applications: HCF fibers (cores) hollow), microstructured fibers, bandgap fibers.

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