Introduction to Ethernet Testing

This two-day course provides detailed information on the Ethernet technology and its test applications using EXFO's Ethernet test modules, covering the functionalities and features of each module. This training session discusses both theoretical and practical aspects.

Content

Part 1: Theory of Ethernet Technology and Testing

› History

› Datacom technology overview

  › Ethernet (10Base-T, CSMA/CD, half-duplex, full-duplex)

  › Fast Ethernet (100Base-T, auto-negotiation)

  › Gigabit Ethernet (1000Base-T)

› EtherSAM

› Pre-defined Ethernet frame sizes (RFC 2544)

› Throughput, burstability, frame loss and latency (RFC 2544)

› RFC 3393 (jitter)

› RFC 791 (Internet Protocol v.4) and RFC 2475 (service differentiation)

› Error performance-monitoring system (EPMS — G.821 and G.826)

› Virtual local-area networks (VLANs — IEEE 802.1 Q/p and IEEE 802.1 Q-in-Q)

› Service-disruption measurements

› Bit-error-rate (BER) testing

› Multistream generation application

› 10 Gigabit Ethernet protocol

› LAN and WAN PHY

Part 2: Ethernet Testing Applications

› Ethernet networks — what to test and how to test them

› Performance analysis (RFC 2544)

› BER testing (layer 1 and layer 2)

› Dual test sets/Smart loopback

› Frame analysis

› TCP throughput

› Expert mode

› Scripting

EtherSAM
The new standard in Ethernet service testing

EXFO

Pre-Requisites

› Basic comprehension of physics and mathematics

› Basic knowledge of telecommunications

› Basic understanding of Ethernet technology

Methodology

The first part of this course consists of lectures using PowerPoint presentations and demonstrations, while the second part consists of specific hands-on testing exercises.

Typical Schedule (can be modified to accommodate attendees' working schedule)

INTRODUCTION TO ETHERNET TESTING	
8:00 a.m. to 12:00 p.m.	Part 1: Theory › Ethernet technology and testing › EXFO product interface
12:00 p.m. to 1:00 p.m.	Lunch
1:00 p.m. to 5:00 p.m.	Part 2: Hands-On Session › Ethernet testing applications

Documentation

Attendees will receive a binder containing copies of presentations and other printed handouts, if applicable. When available, a CD containing the electronic version (PDF format) of the presentation, as well as related application notes, will also be provided.

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