

Network Analysis

Troubleshooting and Protocol Analysis of Ethernet/IP Networks

The network isn't working again! A typical statement one hears regularly. Just how do you analyze the necessary network processes and their protocols? Before you can make a methodical approach to the integration and troubleshooting of Ethernet/IP networks, you need to understand how the different protocol layers work together, from the Network Layer right up to the Transport and Application Layers. The use of network analysis and monitoring systems should keep the down times for resolving problems as short as possible. This Workshop concentrates on identifying, analyzing and troubleshooting Ethernet/IP/TCP and Routing Network problems. During the workshop these problems will be analyzed and the specifications and topologies discussed together with the common problems that occur with them. The course will give you the ability to make a diagnosis and develop test strategies for rapid troubleshooting.

Comprehensive practical experience will be given in the use of a network analyzer ("Wireshark") to investigate and remedy the network problems that can occur.

Note

Please bring your own Notebook/PC equipped with a 10/100 Mbit/s Ethernet interface card. "Wireshark" software is used as protocol analyzer. The workshop is limited to a maximum of 10 participants.

Contents

- ▶ Typical Layer2 Ethernet problems and their impacts
 - Auto negotiation – Duplex mismatch problems
 - Fault situations and their effects on function and throughput
 - Determination of the correct MTU size
- ▶ Problems with the IP addressing
 - Ping, traceroute
 - problems with wrong IP addresses
 - Routing problems
- ▶ Analysis of TCP/UDP applications
 - Generating a typical TCP/UDP reference trace for analyzing typical protocol parameters
 - Recording an application network profile (Telnet, DHCP, DNS, WWW, FTP, TFTP, SNMP, DNS)
 - Practice sessions using incorrect settings as well as typical fault scenarios
 - Determining network data throughput and recognizing errors
 - Determining the response time behavior of applications
 - Interpreting TCP statistics and recognizing problems
 - Looking for typical TCP errors and their effects recognized by network problems or application problems
- ▶ Practical exercises on a demo network with incorrect settings and typical error scenarios

Equipment discussed

- ▶ "Wireshark" software

Course objectives

Participants will get to know the way in which the major network processes and IP network protocols work. By the end of the course, participants will be able to isolate and interpret the parameters relevant to troubleshooting from the large quantities of analysis data. They will be able to recognize the typical sources of faults in LANs and make proper use of the measurement and analysis tools.

Target group

Network maintenance and installation staff, who are responsible for day to day network operation, as well as technicians who want to deepen their knowledge of methodical troubleshooting procedures and error-free operation of typical TCP/UDP applications.

Prerequisites

Basic knowledge of Ethernet/IP/TCP technologies and the operation of the software analyzer ("Wireshark").

Seminar info

- ▶ Duration
3 days, from 9.00 to 16.30 h
- ▶ Date, location and price on request or see under www.viavisolutions.com
- ▶ On-site or customized seminars on request

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