Frame Relay Analysis

Course Number H7211B-212

Overview
This course will help you gain an in-depth understanding of fault isolation and analysis techniques on Frame Relay networks. You will focus on how to use the Agilent Advisor to analyze Frame Relay traffic and understand Frame Relay technology. The course will emphasize Frame Relay testing techniques and include practical troubleshooting case scenarios. You will be able to acquire the techniques to rapidly isolate and problems associated with Frame Relay interworking and interconnection of LANs.

Audience
This user/application training is targeted towards network engineers, network managers, network consultants, and anyone who works with Frame Relay.

Prerequisites
A basic understanding of Wide Area Networks (WANs) is helpful.

Delivery Information
This is a 3-day course that includes technology fundamentals and hands-on labs. This course is taught by Agilent consultants at your site.

Outline
Introduction to Wide Area Networks (WAN)
- Data communications fundamentals
- Introduction to networking protocols
- WAN physical interfaces
- Introduction to bit-oriented protocols

Introduction to the Agilent Advisor WAN
- Agilent Advisor hardware
- Frame Relay measurements
- Agilent Advisor user interface

Introduction to Frame Relay
- Network evolution
- Frame Relay development, benefits and functions
- Bit-oriented protocol family
- Frame Relay internetworking
- Frame Relay/ATM interworking

Components of a Frame Relay Network
- Frame Relay network components
- Frame Relay network Reference diagram
- Connecting and configuring the Agilent Advisor

Frame Relay Basics
- Frame Relay switching basics and DLCIs
- The Frame Relay protocol
- Frame Relay standards
- DLCI statistics

Introduction to Frame Relay Link Management
- Frame Relay Local Management Interface (LMI)
- Agilent Advisor LMI expert measurement

Frame Relay LAN Protocol Encapsulation
- LAN protocol encapsulation
- Frame Relay Advisor protocol measurements
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- Frame Relay Advisor protocol measurements

Conductivity Testing and Traffic Generation
- LMI emulation
- Ping generation
- Full line rate traffic generation

Documenting and Customizing
- Loading, saving and merging data
- Logging statistics
- Startup defaults
- Short cuts
- Remote control operations

Troubleshooting Frame Relay Link Management
- Link management interface
- Consolidated Link Layer Message
- Switched Virtual Circuit management
- Troubleshooting LMI problems

Troubleshooting Frame Relay LAN Protocols
- RFC 1490/2427 LAN Encapsulation
- Troubleshooting LAN protocol problems

Committed Information Rate and Congestion Notification
- Committed Information Rate
- Discard eligibility
- Understanding CIR
- Congestion, throughput and latency
- Congestion notification
- Agilent Advisor CIR monitor

SLA Verification and Analysis
- Service level agreements
- Agilent Advisor SLA measurement

Troubleshooting Frame Relay Networks
- Troubleshooting strategy
- Troubleshooting flow
- A troubleshooting case study

Baselining with the Agilent Reporter
- What is a baseline?
- The baselining process
- Frame Relay baseline

Voice over Frame Relay
- Voice over IP (VoIP)
- Voice over Frame Relay (VoFR)
- VoFR FRF.11
- VoFR multiplexing
- VoFR sub-channel
- VoFR Frame formats and examples

Case Study: Frame Relay Link is Down
The connections over the Frame Relay link are no longer available.
Where do you start troubleshooting: At the application, at the link or at the physical? How can you use your protocol analyzer to find out if clocks are available, if polling sequences are correct, if PVCs are configured correctly?

Case Study: Slow Response
Users start complaining about slow response in the network.
How could you troubleshoot if the problem is a network, application, or a CIR configuration?

Summary of Skills Learned
The Frame Relay Analysis course includes the following Labs:
- Introduction to the Agilent WAN Advisor Hardware
- Introduction to Monitoring Frame Relay Networks
- Monitoring Frame Relay T1 Link
- Monitoring Frame Relay Over a Fractional T1 Link
- Monitoring DLCIs
- Monitoring and Troubleshooting Frame Relay LMI
- Monitoring Frame Relay LAN Protocols
- Frame Relay Ping Testing
- Testing Frame Relay Links with Traffic Generation
- Saving and Retrieving, Printing and Customizing Troubleshooting Frame Relay LMI Problems
- LAN Protocol Filters and Counters
- Committed Information Rate Monitoring
- End-to-End Bi-directional SLA Testing
- Troubleshooting Frame Relay Problems
- Baselining Your Frame Relay Network with Agilent Reporter

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