

## Practical work with “Wireshark” and “Iperf”

### Network analysis and Throughput measurements

Constant practice is needed in using protocol analyzers, if such network tools are to be properly applied. Regardless of whether software or hardware analyzers are used, only a correct combination of network and computer knowledge coupled with correct operation of the analysis tool will lead to rapid successful resolution of a fault scenario.

The “Wireshark” software analyzer allows you to record and analyze protocol data using standard LAN interfaces. You will be able to use this recorded data to diagnose the problem once you are familiar with the basic functions and how they are operated.

The data transmission rate describes the quantity of digital data transmitted over a communications channel within a given time. In theory, FastEthernet is capable of transmitting around 100 Mbit/s. In practice however, this rate remains pure theory, because the network cards and their associated drivers, the network path, the protocols and applications used, and the operating system all influence the available data transfer rate.

The “Iperf” software tool can be used to determine the transmission application rate in order to test the network throughput and to ascertain the actual usable bandwidth of network connections.

#### 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

- ▶ Network analysis:
  - Software installation
  - Basic operation of the analyzer
  - Recording data packets
  - Working with different display and filter settings
  - Analyzing protocols in the network and application layer
  - Measuring the response time behavior of applications
  - Graphical display of network throughput
  - Generating reference traces
  - Possible evaluations explained in detail using practical demonstrations
- ▶ Performance Tool “Iperf”:
  - Software installation
  - Generating test data streams – TCP & UDP
  - TCP and UDP throughput measurements via IP networks
  - Working in the command line layer
  - Evaluating and interpreting test results
  - Recognizing configuration errors in typical Ethernet links

#### Equipment discussed

- ▶ “Wireshark” software
- ▶ “Iperf” software

#### Trainer

- ▶ Helmut Otto

#### Course objectives

Participants on this course will learn about the basic functions and operation of the software analyzer “Wireshark”. Practical demonstrations will be used to show the various types of analysis used for troubleshooting. Participants will also get to know the functions of the “Iperf” software tool and will then be able to determine the network throughput via an end to end connection.

#### Target group

Network maintenance, technical and installation staff, administrators and developers responsible for network operation and troubleshooting, who wish to deepen their knowledge.

#### Prerequisites

Knowledge of the principles of LANs in respect of Ethernet/IP/TCP Technologies.

#### Related seminars

- ▶ IEEE 802.3 Ethernet Technology - Ethernet Standards, Concepts, and Architectures
- ▶ TCP/IP & Routing - Introduction to IP/TCP – Protocols
- ▶ Network Analysis – Troubleshooting and Protocol Analysis of Ethernet/IP Networks

#### Seminar info

- ▶ Duration  
2 days, from 9.00 to 16.30 h
- ▶ Date, location and price on request or see under [www.viavisolutions.com](http://www.viavisolutions.com)
- ▶ On-site or customized seminars and E-Learning on request

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