

A Two Day Course

TCP/IP

ONE OF THE TECHNOLOGY SERIES OFFERED BY GARY ZIELKE

Course Description:

TCP/IP are the protocols of the information highway. They form the core of the Internet protocol architecture and have become the de-facto standard for private and corporate networks. This course teaches you what you need to know in order to exploit the features and capabilities of TCP/IP.

Course Benefits

After attending this course you will be able to:

- *Set up and administer IP addresses*
- *Configure key parameters for workstations and servers*
- *Identify and troubleshoot network problems*
- *Proactively plan for the introduction of IPV6*
- *Use network utilities like PING and Traceroute to isolate network faults*
- *Implement a network firewall*

Course Outline

A Brief History of TCP/IP

- ARPAnet
- Evolution to the Internet
- Concept of the Gateway (IP Router)
- Internet Architecture

Internet Protocol

- IPv4 (IP version 4)
- Connectionless Service
- Priority & Type of Service
- Fragmentation
- Time to Live
- Address Fields
- Options
- IPv6 (IP version 6)
- Flow Label
- Expanded Address Fields
- Options
- Comparison with Version 4

Internet Control Message Protocol

- ICMP Functions
- ICMP Header
- ICMP Message Types

Address Resolution Protocols

- The Need for ARP/RARP
- ARP/RARP Operation

Transmission Control Protocol (TCP)

- TCP Features
- TCP Header
- Port Numbers
- Sequence Numbers
- Acknowledgments
- Control Flags
- Window
- Checksum
- Urgent Data
- Options

User Datagram Protocol

- UDP Features
- UDP Header
- Port Numbers

Internet Addressing

- Size & Structure
- Classes
- Registration
- Shortage
- Address Assignment Strategies
- Subnetting
- Subnet Masks
- Variable Length Subnets
- Proxy ARP
- Supernetting
- Automating Address Assignment
- BOOTP
- DHCP

Internet Naming

- Local Hosts File
- Domain Name Service (DNS)
- Domain Names
- Name Servers and Resolvers
- Name Server Files
- Name Service Utilities
- DNS Protocol

Internetwork Routing

- Routing Categories
- Address Translation Tables
- Routing Tables
- Routing Protocols
- RIP
- OSPF
- IGRP & EIGRP
- BGP
- Autonomous Systems

Configuring Workstations & Servers

- Network Device Drivers
- Configuration Parameters
- Protocol Parameters
- Time To Live
- Window Size
- Maximum Segment Size

Popular Application Protocols

- WWW Browsers & Servers
- HTTP & HTML
- Anonymous FTP
- E-Mail
- SMTP, POP & MIME
- Telnet

Network Troubleshooting

- Diagnostic Utilities
- PING
- Traceroute
- ARP
- Netstat
- Protocol Analysis
- Hardware & Software Analyzers

SNMP Management

- Managers & Agents
- MIBs & Objects
- SNMP Header
- Traffic & Protocol Statistics

Firewalls and TCP/IP Security

- Security Threats
- Data Encryption
- Components of a Firewall
- Packet Filters
- Stateful Inspection
- Network Address Translators
- Proxy Services
- Network Address Translation

All HM Training Solutions Seminars are available as On-Site presentations, tailored to meet the specific requirements of your organisation. For details please telephone +49 (60 22) 50 82 00 (international).

The seminar notes have been written to minimize the student's need to take notes and are useful long after the class.

Questions encouraged, discussed, answered

What delegates say about Gary's seminars

"Excellent speaker with excellent wide and deep knowledge on particular topics as well as on the overall view how all the pieces belong and work together."

Karl Klaghofer, Siemens Enterprise Communications Munich, Manager Systems Engineering

"One of the most excellent seminars which we have booked."

Ralph Metz, Teamlead Voice Operations, EDS Rüsselsheim

"Gary Zielke was able to describe complex problems in a simple way."

Christian Binder, City of Munich, Munich

"Gary is able to bring a complex technical issue as easy as if you read a book to relax."

Mohammad Vizeai, Siemens AG Austria, Director Multimedia Products

"Gary was able to transmit the content of the seminar in a clear and simple way even for beginners."

Seydon Daffe, Nortel Networks Germany, Sales Engineer

"Good, comprehensive course – even complex cases look easy."

Bruno Maggi, Novartis Switzerland, Network Services Manager

"Very good course with motivated and knowledgeable presenter."

Marcel Legtenberg, Siemens AG, Account Manager, Munich

"Excellent and very honest when it's about future guesses!"

Gerhard Gehrke, R&D, Alcatel-Lucent, Nürnberg

"Again Gary Zielke proved to be an excellent speaker being able to explain complex networking in simple words."

Michael Taubald, IT Infrastructure Network Specialist, München

"Excellent connection of basic knowledge with modern technologies. It's fun hearing Gary."

Dr. Krystian Wencel, Consultant, Siemens Berlin

Leader's Profile

Gary Zielke is a registered Professional Electrical Engineer who has worked in the telecommunications industry since the beginning of the Internet.

He has been a network manager, a trainer and an independent consultant during his 30 years of experience.

Network design is his area of specialization. He has developed several computerized tools for the design, simulation, and optimization of voice and data networks.

He has authored papers and conducted seminars on the subject, throughout Canada, the U.S.A., Europe and Asia. His practical experience combined with his presentation style make him a popular speaker.

REGISTRATION DETAILS

To retain the information overleaf, please photocopy this form before completing and returning it by mail or facsimile to: HM Training Solutions, Falkenstraße 6, D-63820 Elsenfeld. – Telephone +49 (60 22) 50 82 00, Facsimile +49 (60 22) 5 08 99 99

Three ways to Register

- By post –** Please complete and return the registration form below.
- By fax –** You may fax the registration form to:
HM Training Solutions +49 (60 22) 5 08 99 99.
- By e-mail –** Info@hmtrainingsolutions.com

Registration fees

The seminar must be paid before attendance.
€ 1270 +19% VAT

Joining instructions

Your booking will be confirmed by dispatch of a letter containing full event and location details. Lunch, Coffee breaks and the seminar documentation are included in the seminar price.

Change of Terms

It may be necessary for reasons beyond our control to alter the venue, timetable or content of this seminar. Fees will be refunded should any event be cancelled by HM Training Solutions. We accept no liability for any other cost.

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REGISTRATION FORM

TCP/IP

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