Nalini Elkins'

Introduction to IPv6 (Web Based)

Do you want to start to understand IPv6 from a technical viewpoint? IPv6 is much more than a larger address. Many features of the IPv4 protocol have been replaced. Address planning and structure is completely different. Much of what you know for IPv4 needs to be rethought. For example, ARP has been replaced with Neighbor Discovery. NAT does not exist in IPv4 – or does it? We will review address planning for IPv4 and then consider how we might do that in IPv6. We will also briefly discuss application changes.

In this class, we will look at the z/OS implementation, Windows, Linux and router changes. As always, there is nothing like hands-on experience! We will trace packets on the IPv6 networks, on Windows, Linux and z/OS. We can 'play around' with our own IPv6 enabled router and z/OS TCP stack.

The more hands-on experience you have, the more you will become comfortable and adept at resolving many problems in the areas of security and IPv6 in your TCP/IP network. We will use case studies from real situations to see how such problems manifest themselves and have been resolved. We will also discuss potential migration scenarios for IPv6.

Nalini Elkins, an experienced TCP/IP network performance expert, with many years in network management and working with IBM, will teach you how the IPv6 protocol works, as well as practical TCP/IP diagnostic skills . You will learn how to identify protocol and performance problems, whether originating from TCP/IP system setup, application problems or hardware failures.

Consider this class as being dedicated to learning about and understanding the new IPv6 protocol.

Audience

This 1 day (two – 4 hour sessions) seminar is designed for systems programmers who are responsible for troubleshooting, performance measurement, security, analysis, or tuning of their installation's TCP/IP network, socket applications and TCP/IP stack. You will leave class knowing the basic changes that have been made from IPv4 to IPv6. You can then assess how to take the next steps.

Class Overview

This intensive seminar is designed to provide the attendee with an initial understanding of how to implement and troubleshoot IPv6. The seminar will provide hands-on experience with an IPv6 network and socket application. You will learn how to analyze traces, profile and setup parameters for the IPv6 protocols.

The strength of this course comes not only from theoretical information learned but from hands-on labs and exercises.

Prerequisite

A basic understanding of z/OS, TCP/IP, and networks is assumed. For best results, you may wish to take our ***Trace Reading and Diagnostics on z/OS*** course first. It will provide you with a clear understanding of the core Internet protocols and IPv4.

Seminar Dates and Location and Prices

For dates and locations and prices, please contact training@insidethestack.com or call our office at 831-659-8360. Seminars are regularly offered in the USA, Europe, and Australia.

In-house

All seminars are available for in-house instruction.

Instructor

Nalini Elkins, of Inside Products, Inc., (www.insidethestack.com), is a recognized leader in the field of computer performance measurement and analysis. In addition to being an experienced software product designer, developer, and planner, she is a formidable businesswoman. She has been the founder and co-founder of two start-ups in the high-tech arena.

During her career Nalini served in groups responsible for network performance design, analysis, troubleshooting, and systems programming. The classes Nalini produces and instructs, and the products she develops are designed with the needs of systems programmers as a key requirement. Nalini has an excellent understanding for the needs of system programmers because she was in their shoes for many years.

Nalini has also developed an expert system for diagnosing network hardware problems. The marketing rights for this product were sold to Boole & Babbage (which was later taken over by BMC). Nalini then joined Boole to further develop and support this product. After some time at Boole, Nalini joined some other Boole employees in co-founding a new company – Applied Expert Systems.

As Technical Co-founder, Nalini helped to design and develop a number of products in the SNA and TCP/IP network management area. These products included expert systems for SNA diagnostics, web performance diagnostics, TCP/IP routing diagnosis and TCP/IP network management. She was the Chief Developer of the product IBM first marketed as NetView Performance Monitor for TCP/IP.

Nalini now has her own company, **Inside Products, Inc.** (www.insidethestack.com), which designs, develops and markets TCP/IP network management software. The products are Inside the Stack TCP/IP monitor, TCP Problem Finder, TCP Response Time Monitor, Enterprise Extender Problem Finder, Availability Checker, and Early Warning System. Inside Products also provides consulting to resolve network problems such as FTP throughput, socket application performance and TCP/IP tuning. In fact, the Inside Products Network Health Check and EE Health Check can be purchased via IBM. Please contact the IBM Network Traffic Analysis group at 1-800-876-8801 within the U.S. or (919) 461-5131 outside the U.S. Of course, you may also contact Inside Products to purchase our consulting or Health Check services. Inside Products has international distributors in Australia, France, Spain, Portugal, the United Kingdom, Belgium, Netherlands, and Luxemburg.

Inside Products, which is an IBM Business Partner, working in conjunction with the IBM Network Traffic Analysis Team, can help you tune and troubleshoot Enterprise Extender (EE) networks. Many companies are implementing EE to integrate their legacy SNA networks with TCP/IP. EE uses the complex embedded HPR/IP protocol - which has eight levels of headers! The strategy is to use the EE Problem Finder product developed by Inside Products and the analytical expertise of the IBM Network Traffic Analysis Team. Moreover, the IBM software support group may be called upon to assist with the design of APPN.

Nalini has published numerous articles in publications such as zJournal, Technical Support, Xephon's TCP/IP Update, and Enterprise Systems Journal. Nalini is also a regular speaker at SHARE, both national and regional Computer Measurement Groups (CMGs), and variety of international conferences.

Nalini can be contacted directly at Nalini_Elkins@Insidethestack.com

Seminar Outline

The following is a high level outline for this seminar. Since the seminar is constantly being updated, actual seminar content and flow may vary slightly from this outline.

IPv6 Concepts

- How has addressing changed? (Categories of addresses, address states, address model)
- IPv6 / IPv4 tunneling mechanisms
- Problem determination in an IPv6 network (ICMPv6, SNMP, Netstat, SMF)
- How to get an IPv6 address (ARIN vs. ISP)
- Migration scenarios

Enabling IPv6

- Lab: Enabling IPv6 on Windows XP
- Lab: IPv6 and Vista
- Lab: Enabling IPv6 on Linux
- Lab: Enabling IPv6 on z/OS
- Lab: Enabling IPv6 on a router

Troubleshooting IPv6

- Lab: Taking and reading an IPv6 packet traces
- Lab: using new IPv6 Netstat commands
- Packet traces with IPv6

IPv4 - IPv6 Address Planning

- Sample IPv4 address plan and structure
- Sample IPv6 address plan and structure