Solaris 10 Network Administration

Course Summary

Description

This course is designed to cover Solaris network administration in depth and is an extension to our Solaris 10 System Administration (Part 1) and Solaris 10 System Administration (Part 2) courses. It covers many networking topics, including the TCP/IP model; network topologies, media, interfaces and utilities; ARP and RARP; configuring IP; IPMP (Multipathing); network aggregations, routing; IPV6 (IP version 6); DNS (Domain Name System); DHCP (Dynamic Host Configuration Protocol); NTP (Network Time Protocol) and IP Filter Firewall. Additional topics are also covered, including Link Aggregations with dladm, Wireless Network configuratiom, Open Source network utilities, and ISCSI configuration, plus notes on NIS and LDAP, and with full hands-on experience at all stages.

Topics

- Basic Network Configuration
- The TCP/IP Model
- LAN Components and structures
- Ethernet Interfaces
- ARP and RARP
- IP Configuration in Solaris - continued
- IPMP - IP Network Multipathing, and Link Aggregations.
- Configuring Routing
- IPv6
- The Transport Layer
- DNS Server Configuration
- Dynamic Host Configuration Protocol - DHCP
- Network Time Protocol - NTP
- Solaris IP Filter Firewall

Prerequisites

Knowledge of Solaris administration up to a level taught in our Solaris 10 System Administration (Part 1) and Solaris 10 System Administration (Part 2) courses is important. Please call if you require any advice.

Duration

Five days

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Course Outline

I. Basic Network Configuration
- A. Static configuration using files.
- B. Dynamic configuration using DHCP.
- C. The IPv4 address scheme, including classful and classless addresses.
- D. The private address space.
- E. Populating the /etc/inet/hosts file; using host aliases.
- F. Creating logical interfaces.
- G. Basic subnetting.
- H. Network daemons and the Service management facility.
- I. Using TCP Wrappers to restrict access to services, with rule examples.

II. The TCP/IP Model
- A. The fundamentals of the TCP/IP network model.
- B. Transmission Control Protocol/Internet Protocol (TCP/IP) model layers.
- C. Peer-to-peer communication and related protocols.
- D. Understanding TCP/IP protocols.

III. LAN Components and structures
- A. Identify the different types of network topology.
- B. Describe network media and devices.

IV. Ethernet Interfaces
- A. Ethernet concepts.
- B. Ethernet frames.
- C. Using network utilities,
- D. Using Open Source network utilities.

V. ARP and RARP
- A. Address Resolution Protocol (ARP) functions and implementation.
- B. Reverse ARP (RARP)
- C. IP Configuration in Solaris - continued
- D. The Internet layer protocols.
- E. IP datagrams, address types.
- F. Subnetting and variable length subnet masks (VLSMs).
- G. Setting up wireless networking;
- H. iSCSI targets and administration.

VI. IPMP - IP Network Multipathing, and Link Aggregations.
- A. Configure and manage IP multipathing.
- B. Configure and manage Link Aggregations using dladm.

VII. Configuring Routing
- A. Routing fundamentals.
- B. The routing table, and table population.
- C. Routing protocols.
- D. Static and dynamic route configuration.
- E. Classless inter-domain routing (CIDR).
- F. Configure routing for system startup.
- G. Troubleshoot routing.

VIII. IPv6
- A. IPv6 overview.
- B. IPv6 Addressing and address types (Unicast, anycast, multicast).
- C. Neighbour Discobery Protocol.
- D. Enabling and managing IPV6 in Solaris.
- E. Logical interfaces.
- F. IPv6 aware utilities.
- G. IPv6 Routing.
- H. IPv6 Tokens and temporary addresses.
- I. IPv6 and Name Services.
- J. 6to4 routing;
- K. IPV6 multipathing.

IX. The Transport Layer
- A. Transport layer basics.
- B. User Datagram Protocol (UDP).
- C. Transmission Control Protocol (TCP).
- D. TCP Flow Control.

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Course Outline (cont'd)

X. DNS Server Configuration
- A. Name Services and DNS Overview.
- B. The Name Service Switch /etc/nsswitch,conf
- C. The named daemon and the /etc/named.conf file.
- D. DNS resource record types and formats.
- E. Domains and Zones of authority.
- F. DNS Master server configuration.
- G. Creating and maintaining the data store.
- H. DNS client configuration and testing.
- I. Adding access to higher-kevel domains (internet).
- J. Adding Reverse Mapping data files.
- K. Slave server configuration.
- L. Dynamic DNS (with DHCP updates).
- M. Cache-only and Forwarding servers.
- N. DNS server security.
- O. Using the rndc command.
- P. DNS and IPv6.
- Q. DNS SMF properties.

XI. Dynamic Host Configuration Protocol - DHCP
- A. DHCP Overview.
- B. Setting up a DHCP server with dhcpconfig or dhcpmgr.
- C. Adding network tables, table entries and information macros.
- D. Managing the DHCP addresses; assigning permanent addresses.
- E. Creating custom symbols and macros.
- F. Setting up a DHCP relay agent.
- G. The dhcpagent process and dhcpinfo command.
- H. Configure and manage DHCP clients.
- I. ifconfig DHCP options.
- J. Client hostname issues.
- K. The eventhook script.

XII. Network Time Protocol - NTP
- A. Overview of time control in Solaris.
- B. Network Time Protocol overview, time sources, and stratum servers.
- C. Configuring an NTP server.
- D. Configuring an NTP client.
- E. Obtaining information (ntpq and xntpdc)

XIII. Solaris IP Filter Firewall
- A. IPfilter Overview.
- B. Filter Rules with examples.
- C. Configuration file preparation.
- D. Using the ippools feature.
- E. Using ipfstat to examine active rules, and statistics.
- F. Logging filter activities, and monitoring them with ipmon
- G. Enabling and disabling the IPfilter service.

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