Oracle SBC Configuration and Administration (OCI) Ed 3

Oracle Communications

DURATION	MODULES	COURSE CODE
5 Days	**11 Lectures**	**—**

Course Overview

This course will introduce you to the Oracle Session Border Controller and the Oracle Enterprise Session Border Controller. It will familiarize you to what the SBC is and how it can be used in your network environment, and it will look at the benefits and architecture of the SBC and understand how it operates. The course will focus primarily on the Peering deployment model (Enterprise-SBC) but will teach how to configure the SBC from the bottom up, starting with understanding all of the elements needed to configure the SBC. Once the SBC has been configured, we will test the basic functionality to ensure calls are going through the SBC correctly. This course will demonstrate and discuss how to use the ACME Command Line Interface (ACLI) as well as how to use the Web GUI Interface.

What You Will Learn

Course Introduction

- Objectives
- Audience and Course Duration
- Course
- Hands-on Practices
- Summary

SBC Hardware

- Objectives
- SBC Platforms
- Platforms and Software Products – AP 1100
- Acme Packet 1100 Hardware Characteristics
- Acme Packet 1100 Platform
- Acme Packet 1100 Network Interfaces
- Platforms and Software Products – AP 3900
- Acme Packet 3900 Hardware Characteristics
- Acme Packet 3900 Platform
- Acme Packet 3900 Network Interfaces

- Platforms and Software Products – AP 3950 & AP 4900
- Acme Packet 3950 & 4900 Hardware Characteristics
- Acme Packet 3950 & 4900 Platform
- Acme Packet 3950 & 4900 Network Interfaces
- Platforms and Software Products – AP 4600
- Acme Packet 4600 Hardware Characteristics
- Acme Packet 4600 Platform
- Acme Packet 4600 Network Interfaces
- Platforms and Software Products – AP 6300 & AP6350
- Acme Packet 6300 & 6350 Hardware Characteristics
- Acme Packet 6300 & 6350 Platform
- Acme Packet 6300 & 6350 Network Interfaces
- Summary

Session Initiation Protocol Essentials

- Objectives
- Components of a Session
- Session Initiation Protocol RFCs
- Session Initiation Protocol Characteristics
- Basic SIP Entities: User Agent (UA)
- Basic SIP Entities: Servers
- SIP Messages
- SIP Message Parts
- SIP Requests (Methods)
- SIP Responses
- Looking at the INVITE Message
- The INVITE Message Essentials
- Responses to the INVITE Message
- Basic SIP Call
- Media Setup
- SDP (RFC 4566) Offer and Answer
- Transactions and Dialogs
- RFC 3261 Says:
- Address of Record (AOR)
- User Registration
- Practice
- Topic: Using SIP Proxies
- SIP Proxy Function
- A Common Scenario (a)
- A Common Scenario (b)
- Not all of Alice’s days are lucky
- A Closer Look
- A Complete Scenario Example (a)
- A Complete Scenario Example (b)
- How a Stateless Proxy Works

- How a Transaction-Stateful Proxy Works
- How a Dialog-Stateful Proxy Works
- All Proxy Types Example
- Proxy versus B2BUA (a)
- Proxy versus B2BUA (b)
- Topology Information Hiding by B2BUA
- Summary

Introduction to Session Border Controllers

- Objectives
- Terminology
- Session Border Controllers
- Integrated Signaling and Media Control
- SBC Functions
- Operating System Functions and Services
- Where Are SBCs Located?
- Release Naming Conventions
- Summary

SBC Setup

- Objectives
- Boot Process
- Boot-Parameters (bootparam) Example
- ACLI Modes
- Setting up the User Mode Password
- Setting up the Super-User Mode Password
- Product Setup (SBC or E-SBC)
- Configuring Initial Settings (E-SBC)
- Configuring SBC Initial Settings (E-SBC)
- Running setup if SBC/E-SBC has Existing Configurations
- Verifying Setup & Configuring entitlements – ACLI
- Verifying Setup & Configuring entitlements – ACLI
- Verifying Setup & Configuring entitlements – GUI
- Mapping Interfaces to MAC Addresses (Virtual Only)
- Swapping Interfaces for MAC Address Adjustment (virtual only)
- Viewing CPU Core Assignments (Virtual only)
- Practice
- Summary

Initial Configuration

- Objectives
- Connecting to the SBC for Management
- ACLI Modes
- Sample Screen (Superuser Mode)

- Sample Screen (Configuration Mode)
- ACLI Features (1 of 2)
- ACLI Features (2 of 2)
- File System – General Structure
- Some Common Commands – ACLI
- Accessing the GUI
- Configuration Assistant Operations
- Dashboard Tab
- Configuration Tab
- Monitor & Trace Tab
- Widgets Tab
- System Tab
- Some Common Commands – GUI
- Practice
- Configuration Wheel (Branches & Elements)
- Configuration Element Attributes
- Configuration Elements Example
- To Boot or Not to Boot Configuration Changes
- Handling Configuration Elements
- Creating a New Configuration Element
- Creating a New Configuration Element – GUI
- Viewing and Editing an Existing Element
- Viewing an Existing Element – GUI
- Editing an Existing Element – GUI
- Copy – Paste-Config
- Copy – GUI
- Deleting a Configuration Element
- Deleting a Configuration Element – GUI
- Discard – GUI
- The done Command
- The done Command – Error 409
- The ok Command
- What’s Next?
- Exiting Configuration Mode
- The verify-config Command
- The verify-config Command – GUI
- Saving and Activating Configurations
- Saving and Activating Configuration – GUI
- The Complete Workflow
- Practice
- Configuration Backup/Restore
- Where are Configurations Stored?
- Configuration Version – GUI
- General
- The backup Command
- The restore Command

- Commands and Actions
- Configuration Backup- GUI
- Configuration Restore – GUI
- Practice
- Beginning from the Beginning
- Deleting The Configuration – delete-config
- The Global System Settings
- Configuring SIP Monitoring
- Practice
- Summary

Provisioning Interfaces

- Objectives
- Configuration Wheel (Branches & Elements)
- Configuration Element View
- Logical Binding
- The phy-interface in General
- The phy-interface Configuration Element (1 of 2)
- The phy-interface Configuration Element (2 of 2)
- The phy-interface Configuration Element – GUI
- The network-interface in General
- Important Aspect
- The network-interface Configuration Element – Main Parameters
- The network-interface Configuration Element – GUI
- Interfaces’ Default Behavior
- Enabling Management Protocols
- Enabling Management Protocols – GUI
- Note – Removing ssh-address
- Interfaces Status Check – ACLI
- Lookup Table – show nat in-tabular
- Interfaces Status Check – GUI
- Lookup Table – show nat in-tabular – GUI
- Practices
- Summary

Signaling & Media Services

- Objectives
- What Is a Realm?
- Realm Bridging
- Peering Model
- Access-Backbone Model
- Configuration Wheel (Branches & Elements)
- Configuration Element View – realm-config
- Creating a Realm Configuration Element
- Creating a Realm – GUI

- Configuration Elements View
- Practice
- Configuration Wheel (Branches & Elements)
- The media-manager-config Element
- The media-manager-config Element – GUI
- Media Proxy Function
- Media Packets Path (Conceptual View)
- The steering-pool Configuration Element
- How Is Media Steered to the SBC?
- Configuring steering-pool Element
- Configuring steering-pool Element – GUI
- Configuration Element View
- Call Admission Control Based on steering-pools
- Example: steering-pools and Sessions
- Practice
- Configuration Wheel (Branches & Elements)
- The sip-config Element
- The sip-config Element – GUI
- SIP Edge Proxy Function
- Edge Proxy – sip-interface
- Signaling Packets Path (Conceptual View)
- Configuring sip-interface Element
- Configuring sip-interface Element – GUI
- Configuration Element View
- Practice
- Summary

Routing, Session Agents & Access Control

- Objectives
- Routing
- Policy-Based Realm Bridging (PBRB) in Peering Environment
- Configuration Wheel (Branches & Elements)
- The local-policy Element
- The local-policy Configuration Element
- The local-policy Element – GUI
- Routing Decision
- Example 1 – local-policy Configuration
- Example 2 – local-policy Configuration
- Example 3 – local-policy Configuration
- Example 4 – local-policy Configuration
- Basic Configuration Elements for a Peering Environment
- Quiz 1
- Quiz 2
- Practice
- Configuration Wheel (Branches & Elements)

- Configuration Element
- Session Agent: General
- Session Agents in Peering Environment
- Configuring The session-agent Element
- Configuring The session-agent Element – GUI
- Session Agent Groups
- Configuring The session-group (SAG) Element
- Configuring The session-group (SAG) Element – GUI
- addr-prefix and allow-anonymous
- SIP Peering Common Settings
- Access Control – Scenario 1
- Access Control – Scenario 2
- Quiz 3
- Practice
- Summary

Header Manipulation Rules (HMR)

- Objectives
- What is Translation?
- Translation “For Dummies”
- Configuration Wheel (Branches & Elements)
- Terminology
- Header Manipulation Rules: General
- The sip-manipulation Configuration Element
- Where Are HMRs Performed?
- The header-rule Parameters and Logic
- header-rule Examples
- The element-rule Logic
- Referencing Elements in a Header
- Example of parameter-name in a SIP Header
- Example: The Need for an Element Rule
- Example: The Solution
- Configuring sip-manipulation – GUI
- Applying Rule Sets
- Quiz 1
- Header Manipulation Rules In A Policy-Based Realm Bridging (PBRB) –
- Peering Environment
- Configuration Element
- Example: Applying HMRs
- Quiz 2
- Practice
- Summary

Configuring High Availability

- Objectives

- Configuration Wheel (Branches & Elements)
- Architecture
- Operation
- Alarm Subsystem Components
- High Availability Terminology
- Review of the Key Points
- Quiz 1
- Cluster Operational Addresses
- Cluster Utility Addresses
- Events Triggering Failover
- Cluster Failover and Transparency
- Example of Cluster Addresses
- Selecting Virtual MAC Addresses (physical SBCs)
- Finding Out Virtual MAC Addresses (virtual SBCs)
- The Logic Behind The Configuration
- High Availability Configuration Elements (1 of 2)
- High Availability Configuration Elements (2 of 2)
- Quiz 2
- Assumptions
- High Availability Configuration Workflow
- Steps 1 to 3
- Step 4a: Cabling the Cluster (physical SBCs)
- Step 4b: Synchronizing SBCs’ time (NTP sync)
- Step 5: Configuring the Primary SBC
- Step 5a: Configuring Virtual MAC (physical SBC)
- Step 5a: Configuring Virtual MAC (virtual SBC)
- Step 5b: Configuring Utility Addresses
- Step 5c: Defining a Secondary Gateway
- Step 5d: Configuring wancom1 and wancom2 phy-Interfaces
- Step 5e: Control Interface Configuration Guidelines
- Step 5e: Adding wancom1,2 Network Interfaces
- Step 5f: Configuring the redundancy Element
- Step 5fa: Configuring the peers Sub-Element
- Step 5fb: Configuring the destinations Sub-Element
- Quiz 3
- Secondary Node Preparation Workflow
- Configure Target Name and IP Address (wancom0)
- Configure Passwords , Setup Product, Entitlements and Verify Features
- Acquiring Configuration and Rebooting
- Node States
- The show health Command
- Manual Switchover
- Summary