Oracle Solaris 11.4 New Features Update
Course Summary

Length: 5 Days   **Prerequisite**: Oracle Solaris 11 System Administration 1

Recommendation Statement:

The student must have take a Solaris 11 Administration 1 course or have equivalent experience.

Course Description:

This course is for system administrators who need to learn new features added in Solaris 11.3 and 11.4.

A 3 day course is available covering the 11.4 update only.

Upon completion of this course, you will understand the new features affecting:

- New Zone Features
- Kernel Zones
- Oracle VM (Logical Domains)
- Unified Archives
- Image Packaging System (IPS)
- ZFS
- OS Installation and the Automated Installer (AI)
- Networking and Configuration
- The Service Management Facility (SMF)
- System Administration Utilities
- Security
- Overview of all end of life features

I.   Overview of all end of life features

II. Zones
   A. Overview of new zone features
   B. New options for backing up zones
   C. Enhancments to commands for monitoring zones and zone activity
   D. Zone Boot Environments
   E. Overview of kernel zones
   New in 11.4
   - Control zones boot order of zones
   - Live Zone Reconfiguration (LZR)
   - Dynamic zones
   - Zone Delegated Restarter
   - Virtual-CPU for kernel zones
   - Add datasets to running zones
   - Changes to `zonecfg` and properties
   - Zone trusted path
   - Modify immutible zones without a reboot
   - Per zone kstats
   - New options for backing up zones
   - Evacuate a zone
   - Cold zone migration
   - `zoneadm move`: moving a zone between local and shared storage
   - Manage zones with the `sysadm` utility

III. Logical Domains
   A. `ldmconsole`
   B. Multi-pathing for LDOMs with virtual SCSI HBAs

IV. Unified Archives
   A. Backup, clone, recover, and provision servers (physical, LDom or zone) using Unified archives.
   B. Configure the AI server to install, clone and recover servers using unified archives
   C. Use Unified archives to deploy zones
   D. OpenStack and support for unified archives
   E. Dehydrate and rehydrate an archive

V.   New IPS Features
   A. Minimal server pkg group
   B. Understand automatic repository mirroring
   C. Install and manage platform firmware through IPS
   D. Oracle database prerequisites package
   E. Recursive package operations on zones
   F. Bootable USB media for SPARC
   G. The `solaris-11-cpu` package
   H. Understanding SRUs (Support Repository Updates), CPUs (Critical Patch Updates) and CVE's (Common Vulnerabilities and Exposures) and how to apply them.
   I. New options to the `pkg` command
   New in 11.4
   - Clone a package repository
   - New FMRI format for packages
   - Enhancements to Boot Environments
   - Changes to the uname command
   - SMTP notification of core files

VI. Installing and Configuring the OS
  A. Changes to Package groups and package naming
  B. Changes to the interactive installer
  C. Automated Installer enhancements
  D. Tools for creating an AI manifest
  E. `sysconfig` utility
  F. `network-boot-arguments` - overview
  G. Distribution Constructor

VII. ZFS Features
  A. ZFS send progress reporting
  B. Review ZFS snapshot differences recursively
  C. ZFS default user or group quotas
  D. `zpool monitor`
  E. Persistent L2ARC
  F. Limiting ZFS ARC Cache
  G. Changes with the ZFS rpool
  H. Cloning ZFS files (`cp -z`)
  <u>New in 11.4</u>
  - Remove a device from a Zpool
  - Resume zfs send and recv operations
  - Compressed `zfs send` and `zfs recv` operations
  - Replicate a cloned dataset
  - Scheduled scrubs
  - Changes to `/var/tmp`
  - NFS version 4.1
  - Dedup features
  - Changes to fsstat
  - Set ZFS read/write limits
  - `zpool label` enhancements
  - `zpool destroy` enahancements

VIII. New Administation Features
  A. The `sysconfig` utility
  B. Enhancements to `fmadm`; managing faults, defects and alerts
  C. `stackdiag` for tracking bugs that may have caused a fault
  D. `kstat2`: Enhanced kstat to provide historic kstats
  E. `useradm`: manage user accounts and roles interactively
  F. `sysadm`: control maintenance mode for a system and perform evacuation of zones hosted on the system
  G. Enhancements to the `fcinfo` utility
  H. Web Dashboard: A performance management GUI tool with realtime and historical data gathered through statstore.
  I. `admhist` for displaying the history of system administration related events

IX. New Networking Features
  A. `ipstat` and `tcpstat` monitoring tools
  B. `netstat -u` monitoring option
  C. Private VLANS (`dladm create-vlan`)
  D. `mtr` command (my traceroute)
  E. Elastic virtual switch (EVS)
  F. Network and IP configuration using SMF
  G. Changes to NFS mounting
  H. Configuring named routes
  I. Monitor network I/O latency
  J. Enhancements to `fsstat` and `iostat`

X. SMF Features
   A. SMF profiles and managing service properties
   B. New `-xL` option for viewing log files
   C. `editprop` and `delcust` utilities
   D. SMF service snapshots
   E. New `svccfg` options and properties
   F. Timezone settings
   G. Other things that moved from config files to services
   H. Profiles
   I. smf_stencils
   J. SMF goal services and milestone
   K. `svc-create-first-boot` tool
   L. `svccfg extract`
   M. Nested property groups

XI. Security
   A. Understand the `compliance` utility for maintaining security of enterprise systems
   B. Secure end-to-end provisioning using the automated installer
   C. Baseline install with IPS exact-install subcommand
   D. RBAC Profiles and enhancements
   E. RBAC time based and location based access control at the user level
   F. Understand the verified boot feature
       New in 11.4
       ● Overview of labeled security: Trusted Extensions labeled security is always activted
       ● Use the Security Compliance Tool to assess the security on a system
       ● Changes to SSH
       ● One time passwords and 2-factor authentication
       ● New Auditing features
       ● CVE (Common Vulnerabilities and Exposures) compliance reporting
       ● Sandboxing
       ● Migrate from IPF to PF (Packet Filter)

XII. Misc Solaris 11 Features
   A. Settting system identity configuration settings
   B. Root backup and recovery options
   C. IPS mirroring
   D. Virtual Network Components
   E. IPMP
   F. Configuring NFS
   G. Deferred dump
   H. Gnome3