Catapult TOC for L2 to L3

VMWare L2 to L3

Versions covered: ESXi 7.x,8.x

Module 1: VMware Course introduction

- Introductions and course logistics
- Course objectives

Module 2: vSphere and Virtualization Overview

- Explain basic virtualization concepts
- Describe how vSphere fits in the software-defined data Center and the cloud infrastructure
- Recognize the user interfaces for accessing vSphere
- Explain how vSphere interacts with CPUs, memory, networks, storage, and GPUs
  Demo: Lab: Accessing the Lab Environment

Module 3: Virtual Machine – Operations and Troubleshooting

- Recognize the role of a VMware Tools Repository
- Configure a VMware Tools Repository
- Identify the components in the VMware vSphere® Replication architecture
- Deploy and configure vSphere Replication and VMware Site Recovery instances
- Recover replicated VMs
- Discuss virtual machine files and disk content IDs
- Recognize the backup and restore solution for VMs
- Describe virtual machine files
- Identify, analyze, and solve virtual machine snapshot problems
- Troubleshoot virtual machine power-on problems
- Identify possible causes and troubleshoot virtual machine connection state problems
- Diagnose and recover from VMware Tools™ installation failures
  Lab: Resolving VM Power-On Problems
  Lab: Troubleshooting VM Problems

Module 4: vSphere Monitoring and Troubleshooting

- Monitor the key factors that can affect a virtual machine's performance
- Describe the factors that influence vCenter performance
- Use vCenter tools to monitor resource use
- Create custom alarms in vCenter
- Describe the benefits and capabilities of VMware Skyline

- Recognize uses for VMware Skyline Advisor Pro
- Use Data Center CLI commands for troubleshooting
- Run commands to view, configure, and manage your vSphere components
- Identify the best tool to use for CLI troubleshooting
- Locate important log files
- Identify how to use log files in troubleshooting
- Describe the benefits and capabilities of VMware Skyline™
- Explain how VMware Skyline works at a high-level
- Identify the types of health information provided by Skyline™ Health
- Identify uses for VMware Skyline™ Advisor
- Describe the support bundle REST API
- Use the support bundle REST API
  Lab: Using the Command Line

Module 5: vCenter and ESXi – Operations and Troubleshooting

- Create a vCenter backup schedule
  Demo: Back Up vCenter Appliance

- Recognize the importance of vCenter High Availability
- Explain how vCenter Server High Availability works
  Simulated Demo: Configuring vCenter High Availability

- Use host profiles to manage ESXi configuration compliance
- Recognize the benefits of using configuration profiles
  Demo - Lab: Using vSphere Configuration Profiles

- Use the vSphere client and the command line to manage certificates
  Demo - Lab: Working with Certificates
  Analyze and resolve vCenter service problems

Module 6: Virtual Network – Operations and Troubleshooting

- Configure and manage vSphere distributed switches
- Describe how VMware vSphere® Network I/O Control enhances performance
- Explain distributed switch features such as port mirroring and NetFlow
  Demo: Lab: Using Port Mirroring

- Define vSphere Distributed Services Engine
- Describe the use cases and benefits of VMware vSphere® Distributed Services
- Analyze and troubleshoot virtual machine connectivity problems
- Analyze and troubleshoot management network problems
- Analyze and troubleshoot standard and distributed switch problems

Lab: Monitoring NIC Teaming During Failover
Lab: Monitoring and Recovering Switches
Lab: Applying the Troubleshooting Methodology
Lab: Troubleshooting Network Problems

Module 7: Storage – Operations and Troubleshooting

- Discuss vSphere support for NVMe and iSER technologies (OS – Mod 5 – L1+L2+
- Recognize components in the vSphere storage architecture
- Identify the possible causes of problems in the various types of datastores
- Analyze the common storage connectivity and configuration problems and discuss the possible causes
- Resolve the storage connectivity problems, correct misconfigurations, and restore LUN visibility
  Lab: Investigating Disk Issues on ESXi
  Lab: Troubleshooting Storage Performance Issues

- Analyze log file entries to identify the root cause of storage problems
- Use ESXi and Linux commands to troubleshoot storage problems
- Investigate ESXi storage issues
- Troubleshoot virtual machine snapshots
  Lab: Troubleshooting VM Power-On Problems
  Lab: Troubleshooting VM Snapshot Problems
  Lab: Working with VM Snapshots Using the Command Line

- Recognize how multipathing works
- Identify the common causes of missing paths
- Resolve the missing path problems between hosts and storage devices
  Lab: Troubleshooting Storage Problems

- Describe the architecture and requirements of vSAN configuration
- Describe storage policy-based management
- Recognize components in the VMware vSphere® Virtual Volumes architecture
- Configure Storage I/O Control
- Troubleshoot storage performance problems

Module 8: vSphere Cluster - Operations and Troubleshooting

- Explain the vSphere HA architecture
- Use vSphere HA advanced parameters, Admission control policies and EVC selection
- Describe how vSphere HA responds to various types of failures
- Create and manage resource pools in a cluster
- Describe how scalable shares work
- Describe the function of the vCLS
- Recognize operations that might disrupt the healthy functioning of vCLS VMs
- Identify and troubleshoot potential vSphere HA problems
- Analyze and solve vSphere potential vMotion problems

- Diagnose and troubleshoot potential vSphere DRS problems
  Lab 15: Troubleshooting Cluster Problems

Module 9: vSphere LOG analysis

- Describe the best practices of collecting log bundles
- Use a structured approach to solve configuration and operational problems
- Discuss the log analysis best practices
- Overview of VMware vRealize Log Insight

Module 10: vSphere Lifecycle Manager

- Describe features of the vCenter Update Planner
- Run vCenter upgrade prechecks and interoperability reports
- Recognize features of VMware vSphere® Lifecycle Manager
- Distinguish between managing hosts using baselines and managing hosts using images
- Describe how to update hosts using baselines
- Describe ESXi images
- Validate ESXi host compliance against a cluster image and update ESXi hosts
- Update ESXi hosts using vSphere Lifecycle Manager
- Describe vSphere Lifecycle Manager automatic recommendations
- Use vSphere Lifecycle Manager to upgrade VMware Tools and VM hardware
  Demo: Lab: Using vSphere Lifecycle Manager