

# VMware NSX Advanced Load Balancer: Install, Configure, Manage plus Troubleshooting and Operations Fast Track



## Course Description

This five-day, extended hour course introduces you to advanced VMware NSX® Advanced Load Balancer™ (Avi) solutions management skills. In this course, you will learn to install, configure, and manage a VMware NSX® Advanced Load Balancer™ solution. Also, you will learn advanced knowledge, skills, and tools to achieve competence in operating and troubleshooting the NSX Advanced Load Balancer solutions. This course covers key NSX Advanced Load Balancer features, functionality and troubleshooting tools offered in the NSX Advanced Load Balancer 20.x release. Features include the overall infrastructure, virtual services and application components, global server load balancing, various cloud connectors, application troubleshooting, and solution monitoring. The course includes troubleshooting hands-on labs, in which you will be presented with various types of technical problems. You will identify, analyze, and solve the technical problems through a systematic process.

## Course Duration:

5 days

## Prerequisites:

- Before taking this course, you should have completed the VMware NSX-T Data Center: Install, Configure, Manage [V3.0] course.

You should also have the following understanding or knowledge:

- Good understanding of TCP/IP services and protocols
- Knowledge and working experience of computer networking, including:
  - Switching and routing technologies (L2-L3)
  - Network and application delivery services (L4-L7)
- Knowledge and working experience of VMware vSphere® environments and KVMbased environments

The VMware Certified Professional – Network Virtualization (2020) certification is recommended.

## Objectives:

By the end of the course, you should be able to meet the following objectives:

- Describe the NSX Advanced Load Balancer architecture
- Describe the NSX Advanced Load Balancer components and main functions
- Explain the NSX Advanced Load Balancer key features and benefits
- Deploy and configure the NSX Advanced Load Balancer infrastructure within private or public clouds using Write and No Access Cloud Connectors
- Explain, deploy, and configure Service Engines
- Explain and configure local load balancing constructors such as virtual services, pools, health monitors, and related components
- Understand and modify application behavior through profiles, policies, and DataScripts
- Configure advanced services such as global server load balancing

- Describe how to use NSX Advanced Load Balancer REST API interfaces and related automation capabilities
- Describe and configure NSX Advanced Load Balancer application and infrastructure monitoring
- Become familiar with NSX Advanced Load Balancer troubleshooting tools and steps to solve the problems.
- Establish and apply a structured troubleshooting approach and methodology
- Understand built-in mechanisms available for NSX Advanced Load Balancer monitoring
- Identify, analyze, and troubleshoot problems related to the NSX Advanced Load Balancer infrastructure, including control and data plane components
- Identify, analyze, and troubleshoot problems related to application components such as Virtual Services, Pools, and related components

## Course Outline:

1. Course Introduction
  - Introduction and course logistics
  - Course objectives
2. Introduction to NSX Advanced Load Balancer
  - Introduce NSX Advanced Load Balancer
  - Discuss NSX Advanced Load Balancer use cases and benefits
  - Explain NSX Advanced Load Balancer architecture and components
  - Explain the management, control, data, and consumption planes and their respective functions
3. Virtual Services Configuration Concepts
  - Explain Virtual Service components
  - Explain Virtual Service types
  - Explain and configure basic Virtual Service components such as Application Profiles, Network Profiles
4. Profiles and Policies
  - Explain Advanced Virtual Service creation
  - Explain and deep dive on Application Profiles and Types such as L4, DNS, Syslog, and HTTP
  - Explain and configure advanced application HTTP Profile options
  - Recognize Network Profiles and Types
  - Explain and configure SSL Profiles and Certificates
  - Explain and Configure HTTP and DNS policies
5. Pools Configuration Concepts
  - Explain on Pools configuration options
  - Describe available Load Balancing algorithms
  - Explain multiple Health Monitor types
  - Explain multiple Persistence Profiles
  - Explain and configure Pool Groups
6. Modifying Application Behavior
  - Design and apply application solutions leveraging application profiles
  - Design and apply application solutions leveraging Network and HTTP Policies and DataScripts
  - Explain DataScript fundamentals

- Explain and leverage NSX Advanced Load Balancer analytics to understand application behavior
  - Describe and configure Client SSL Certificate Validation
  - Describe and configure Virtual Service DDoS, Rate Limiting, and Throttling capabilities
  - Modify Network Profiles properties such as TCP connection properties
  - Design and apply application solutions leveraging Persistence Profiles
7. NSX Advanced Load Balancer Infrastructure Architecture
    - Deep dive on the management, control, data, and consumption planes and functions
    - Describe Control Plane Clustering and High Availability
    - Describe Controller Process Sharing
    - Describe Controller Sizing
    - Describe Service Engine CPU and NIC Architecture
    - Explain Tenants
    - Recognize the configure properties of Service Engine Groups
    - Explain Service Engine Group High Availability Modes
    - Describe and configure Active/Standby High Availability Mode
    - Describe and configure Elastic HA High Availability Mode (Active/Active, N+M)
    - Explain Service Engine Failure Detection and SelfHealing
    - Describe Service Engine as a Router
    - Identify Virtual Service scale out options, such as Layer 2 (Native), Layer 3 (BGP), and DNS-based
  8. Introduction to Cloud Connector
    - Introduce VMware vCloud Connector®
    - Review vCloud Connector integration modes
    - Introduce vCloud Connector types
  9. Install, Configure and Manage NSX Advanced Load Balancer in No-Access Cloud
    - Explain No Access Cloud concepts
    - Configure No Access Cloud integration
    - Explain and Configure Linux Server Cloud
    - Describe the Advanced Configuration options available in Bare-Metal (Linux Server Cloud)
  10. Install, Configure and Manage NSX Advanced Load Balancer in VMware Environment: Cloud Configuration
    - Introduce VMware integration options
    - Explain and configure VMware No Access Cloud Connector
    - Explain and configure VMware Write Access Cloud Connector
    - Describe VMware Write with NSX Access Cloud Connector
    - Describe VMware NSX integration
  11. AWS Cloud Configuration
    - Describe NSX Advanced Load Balancer Public Cloud integrations
    - Explain and demonstrate AWS Public Cloud Integration
  12. DNS Foundations
    - Review, discuss, and explain DNS fundamentals
    - Describe NSX Advanced Load Balancer DNS and IPAM providers
  13. Global Server Load Balancing
    - Introduce Global Server Load Balancing Concepts and Benefits
    - Explain and configure NSX Advanced Load Balancer infrastructure

- Explain and configure DNS Virtual Service components
  - Explain and configure GSLB Service Engine Group
  
  - Describe and configure GSLB Sites
  - Explain and configure basic GSLB Services to include pools and health monitors
  - Describe GSLB Service Load Balancing algorithms
  - Explain and configure Data and Control Planebased Health Monitors
  - Describe GSLB Health Monitor Proxy
14. Events and Alerts
- Describe NSX Advanced Load Balancer Events
  - Describe and configure NSX Advanced Load Balancer Alerts
  - Describe NSX Advanced Load Balancer monitoring capabilities, leveraging SNMP, Syslog, and Email
15. Introduction to NSX Advanced Load Balancer Rest API
- Introduce NSX Advanced Load Balancer REST API interface
  - Describe REST API Object Schema
  - Explain and interact with REST API interface, leveraging browser and command line utility
  - Explain Swagger-based API documentation
16. Introduction to NSX Advanced Load Balancer Troubleshooting
- Explain NSX Advanced Load Balancer troubleshooting concepts
  - Describe and leverage Virtual Service Traffic Logs
  - Describe and leverage Virtual Service Security Insights
  - Understand and utilize Health Score concepts
  - Explain and leverage application metrics and analytics
  - Explain and leverage packet capture and CLI utilities for application troubleshooting
  - Leverage UI, CLI, and useful log files to perform control plane troubleshooting
17. Infrastructure Troubleshooting
- Describe and perform general vCloud Connector troubleshooting
  - Describe and analyze vCloud Connector state
  - Leverage case studies to troubleshoot vCloud Connector
  - Describe and troubleshoot NSX Cloud Connector integration
  - Leverage case studies to troubleshoot NSX Cloud Connector
  - Describe and troubleshoot Linux Server Cloud Connector integration
  - Describe and troubleshoot OpenStack Cloud Connector integration
  - Leverage case studies to troubleshoot OpenStack Cloud Connector
  - Describe and troubleshoot AWS and Azure Cloud Connector integrations
18. Troubleshooting NSX Advanced Load Balancer Service Engines and Advanced Troubleshooting
- Explain general Service Engine infrastructure
  - Explain and leverage analytics, health score, and metrics for Service Engine troubleshooting
  - Explain and leverage Events and Alerts for Service Engine troubleshooting
  - Leverage CLI for accessing Service Engine
  - Analyze Service Engine logs offline with Tech Support utility and collecting core dumps
  - Leverage CLI and useful log files for Service Engine Data Plane troubleshooting
  - Leverage CLI to capture packets for advanced datapath analysis
19. Monitoring NSX Advanced Load Balancer
- Explain and configure SNMP-based monitoring
  - Explain and configure REST API-based monitoring

- Describe and leverage 3rd-party integration with monitoring tools like Splunk
- Leverage 3rd-party REST API monitoring extensions like Prometheus
  
- Describe and leverage VMware integrations like VMware vRealize® Network Insight™ for monitoring

## Who Should Attend

- Experienced system administrators or network administrators
- Network professionals who have experience working with NSX Advanced Load Balancer and are responsible for troubleshooting and operating Application Delivery Controllers solutions