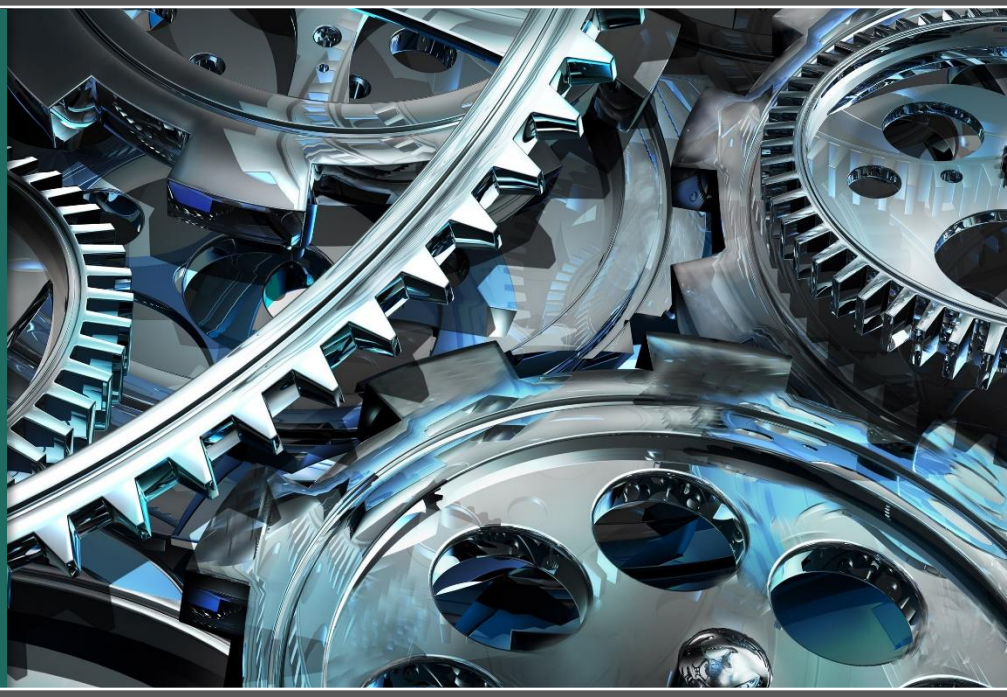
Course Catalog

Network DevOps Engineer (NDOE)

v 1.0

Vendor Neutral Technologies



Engineered Training

Developed by

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Technology	Duration	Vendor	Audience	Delivery
Network Programmability Network Automation Software Defined Networking	40 Hours	Vendor Neutral	System/Presales Engineers Solution Architects Implementation Engineers Operation Engineers Network Developers	Offsite Classroom Onsite Classroom

Course Overview

The Network DevOps Engineer (NDOE) is a Vendor Neutral course that is developed for whom seeking to understand Network Programmability and Automation Tools along with Software Defined Networking (SDN) Principles, Architecture, and Landscape. The course validates the ability to well-understand DevOps tools, write automation scripts, and differentiate between SDN methodologies. The course is recommended for Network Architects, Network Consultants and Network Operation Engineers who are involved in DevOps.

This course is part of our Engineered Training Services that deliver value-added courses which covers the concerned technologies from all aspects as well as other related fundamentals or technologies from zero level to the expert level incorporating case studies and real-life scenarios that benefit participants in their actual work environment.

Course Related Certifications

This course is not aligned with any official certifications. The Course is custom developed for who seeks to get into Network Programmability, Automation and to well-understand SDN architecture and its landscape for both Open and Vendor SDN solutions. The course can help significantly to achieve Vendor Programmability Certifications like Cisco NPDESI.

Course Prerequisites

There is no specific prerequisites for this course, although it's recommended to fulfil below points to better understand technologies and features:

- Recommended to have at least CCNA R&S certification or equivalent knowledge.
- Recommended to have at least 1 – 3 years of networking experience.
- Recommended to have a laptop in Lab sessions.

Course Added Values

- Consolidating core network programmability and automation topics into one single course ensuring effective knowledge and realization of the whole picture.
- Conducting Session by Session labs on every topic ensuring practical experience and getting into touch with Network DevOps tools.
- Delivering the latest architecture and technologies landscape ensuring transferring up-to-date knowledge compared with regular certificate courses.
- Ease the move for Network Engineers towards Network DevOps Era without the need to acquire knowledge from different resources and course saving time, cost and efforts.

Course Objectives

- Understanding of Linux Fundamentals and base Linux commands and tools that are essential for Network Programmability and Automation tools.
- Understanding Python Data Types, logic, functions, methods, modules, libraries that can be used in Network Programmability and Automation.
- Understanding utilization of Data format languages and APIs to transfer data between network devices and network applications.
- Understanding how to write Network Configuration Templates with simplified scripts using Jinja.
- Ability to write a complete python program that can be used to manage network configuration on different network devices.
- Understanding Automation tools, key-values and their use in Network Configuration Automation.
- Ability to use Ansible Automation Tool in Network Configuration Management on different network devices.
- Understanding Software-Defined networking (SDN) basics, Landscape and the different flavors of SDN implementations.
- Understanding OpenFlow Protocol along with its specifications, architecture and benefits.
- Qualifying CLI Network Engineers to be engaged in Network DevOps and to turn into DevOps Engineers.

Course Tools and Materials

- Animated Presentation Slides
- Labs (Programming, Automation tools, SDN Controllers, NX-OSv)
- Student Book – Printed Copy
- Lab Guide - PDF

Course Outline

The course is divided into 3 Modules. Each Module is sub-divided into sections. Course blueprint is listed below:

Module 1: Understanding Network Programmability

- Understanding Network Programmability Fundamentals
- Understanding Linux Fundamentals
- Understanding Python for Networking
- Understanding Data Format Languages (XML, JSON, YAML)
- Understanding YANG Data Model
- Understanding Jinja Configuration Templating Language
- Understanding Application Programming Interfaces - APIs
- Understanding NAPALM Python Library
- Workshop – Complete Network Programs

Module 2: Understanding Network Automation

- Understanding Automation Fundamentals
- Understanding Ansible Automation Tool
- Understanding Event-Driven Network Automation
- Workshop - Automating Datacenter Network Switches using Ansible

Module 3: Understanding Software Defined Networking (SDN)

- Understanding SDN Defenition and Fundamentals
- Understanding OpenSDN Architecture
- Understanding OpenFlow Protocol Architecture, Specifications, and Operation
- Understanding Alternative SDN Architectures
- Understanding SDN Applications
- Understanding SDN OpenSource and Vendors Landscape
- Designing a Datacenter using Cisco UCS and Nexus Fabrics

Course Schedule

The course consists of 5 sessions, each session 8 Hours (Total of 40 hours). Session Details are listed below:

Session	Session Content	LAB Session
Session 1	Module 1: Understanding Network Programmability	**LAB**
Session 2	Module 1: Understanding Network Programmability (Cont.)	**LAB**
Session 3	Module 1: Understanding Network Programmability (Cont.)	**LAB**
Session 4	Module 2: Understanding Network Automation	**LAB**
Session 5	Module 3: Understanding Software Defined Networking (SDN)	**LAB**

***Note:** Session hours can be minimized to 4 hours, with total of 20 session or as per client desire.