PREP**FORCE**

INNOVATION IN THE SP SPACE - WORKSHOP

NCS 5500, THE IOS XR 64-BIT SOFTWARE AND SEGMENT ROUTING

5 DAYS

OBJECTIVES

This course covers the hardware infrastructure of the NCS 5500 and the new software migration and operational enhancements of the IOS XR 64-Bit software. It will also investigate data models and show you how to implement telemetry, model-driven programmability, and application hosting services.

This course will also examine the Segment routing protocol and demonstrate all the new possibilities and services that are offered thanks to that technology in a near future.

How you'll benefit

This course will help you:

• Understand the hardware architecture of the NCS 5500

• Understand the new software architecture of Cisco IOS XR 64-Bit software

• Practice installing Cisco IOS XR and third-party software packages

• Learn to implement telemetry, model-driven programmability, and application hosting services

• Understand Segment routing and its new features

• Deploy successfully a MPLS L2 and L3 VPN network using Segment Routing

DETAILED COURSE OUTLINE

| Day 1 |

NCS Hardware Architecture

• Products Portfolio
• Fixed / Modular Platforms / Optics
• VOQ and Life of a Packet
• NCS 5500 Internals
• Memory Structure
• Features: ACL / QoS
• Packet path walkthrough
• High Availability

| Day 2 |

Software Architecture and Linux Fundamentals

• Cisco IOS XR 64-Bit Software Fundamentals
• IOS XR 64-Bit Software vs. Classic 32-Bit Software
• Exploring Linux Fundamentals
• Creating User Profiles

Cisco IOS XR 64-Bit Software Installation

• Examining Resource Allocations and Media Mappings
• Migrating to Cisco IOS XR 64-Bit Software
• Examining the Boot Process
• Performing Disaster Recovery
• Installing Software Packages

Labs:

• Using Basic Linux Commands and Creating User Profiles
• Migrating to Cisco IOS XR 64-Bit Software
• Configuring Auto-Provisioning
• Installation of Cisco IOS XR Packages

| Day 3 |

Cisco IOS XR 64-Bit Software Features

• Investigating Data Models
• Implementing Telemetry
• Exploring Model-Driven Programmability
• Employing Application Hosting

IOS XR 64-bit Virtualization and Containerization concepts

Labs:

• Configuring Model-Driven Telemetry
• Configuring Devices by Using Model-Driven Programmability
• Using the YANG Development Kit
• Deploying Native Application Hosting
• Hosting an Application Within an LXC Container
• Hosting an Application Within a Docker Container

| Day 4 |

Segment Routing basics

• Segment Routing MPLS Data Plane
• SRGB Management
• Segment Routing IGP Control Plane
• Segment Routing BGP Control Plane
• Segment Routing in existing MPLS networks
• Segment Routing Mapping Server
• Topology Independent LFA (TI-LFA)
• Large-scale Interconnect mit Segment Routing
• Segment Routing IPv6 Data Plane

Labs:

• Migration from LDP to Segment Routing
• Co-existence of LDP and SR networks

| Day 5 |

Segment Traffic Engineering and other advanced features

• Manual SRTE Tunnel
• Using the XTC controller
• Segment Routing Dynamic Path Policy
• On Demand Next-hop (ODN) for reachability
• ODN with Service Policy
• ODN with Disjoint Service
• Segment Routing Flexalgo
• Segment Routing SID Tree

Labs:

• Configuration of the XTC controller
• Collection of the protocol information with BGP-LS
• Deployment of SR policies computed by the controller
• Configuration of BGP SR-policy address-family
• Configuration of Flexalgo