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## CISCO NSO ADVANCED FOR PYTHON PROGRAMMERS

DURATION: 4 DAYS

COURSE CODE: NSO300

FORMAT: LECTURE/LAB

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### COURSE DESCRIPTION

Introduces learners to developing advanced services using Cisco Network Services Orchestrator (NSO) programmability with Python scripting.

This course explores how to create advanced services using the NSO application framework and Python scripting with both new and existing Layer 3 Multiprotocol Label Switching (MPLS) VPN services. Students will also learn how to manage and scale these services, and how to use NSO Network Functions Virtualization (NFV) orchestration features and Cisco Elastic Services Controller (ESC) to manage Virtualized Network Functions (VNFs).

### WHO SHOULD ATTEND

- System installers
- System integrators
- System administrators
- Network administrators
- Solutions designers

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### PREREQUISITES

- Basic knowledge of the Cisco Command -Line Interface (CLI)
- Basic knowledge of the CLI of UNIX-like operating systems
- Basic knowledge of YANG data modeling
- Basic knowledge of Java or Python software development

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### LEARNING OBJECTIVES

Describe the NSO's transactional application framework and mapping model options

Describe the Reactive Fastmap design pattern and the NSO Configuration Database (CDB) subscriber in the NSO Transaction model

Simplify packages to remove the need for subscriber applications, scale orchestration solutions, and integrate NSO with external systems (east-west integration)

Describe the Cisco ESC architecture and integration with NSO, and how the NSO VNF Orchestration (VNFO) Release 2 bundle interacts with ESC for orchestration

## COURSE OUTLINE

### 1. Cisco NSO Programmability

- NSO Application Framework
- NSO Python Scripting
- NSO Python and Template-Based Services Resources

### 2. Augmenting Cisco NSO Service

- Service Lifecycle and Integration Options Overview
- Greenfield Layer 3 MPLS VPN Service
- Brownfield Layer 3 MPLS VPN Service

### 3. Managed Services

- Managed Services Overview
- Stacked Service Design Overview
- Design-Managed Network Services
- Scaling Service Orchestration

### 4. Cisco NSO Network Functions Virtualization (NFV) Orchestration

- ETSI MANO
- Cisco ESC
- Cisco NSO Orchestration

## DISCOVERY LABS

- 1: Device Setup Using Python Script
- 2: Create an SVI Service Using pre-modification Service Callback
- 3: Create a L3VPN Service Using Dynamic ID Allocation
- 4: L3VPN Service Upgrade
- 5: Stacked Services
- 6: Service Action
- 7: ESC Integration
- 8: NFV for the DMZ Service