



CISCO TRAINING

NSO Essentials for Programmers and Network Architects

Automate network services with Cisco NSO Essentials. Learn to design and deploy programmable networks efficiently.

DURATION

32 Hours

LEVEL

Foundation

FORMAT

Instructor-Led

- Globally Recognized Certification

- Expert-Led Hands-On Training

- Flexible Scheduling

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COURSE OVERVIEW

The "NSO Essentials for Programmers and Network Architects" course is designed to equip both network professionals and software developers with the foundational knowledge and practical skills required to leverage Cisco Network Services Orchestrator (NSO) for modern network automation. In an era where manual network configurations are increasingly unsustainable, NSO stands out as a powerful platform for orchestrating end-to-end network services across heterogeneous multi-vendor environments. This course delves into the core principles of network programmability, introduces the NSO architecture, and explores the vital role of YANG data models and standard protocols like NETCONF and RESTCONF in automating network operations.

Participants will gain a clear understanding of how NSO bridges the gap between traditional networking and software development, enabling agile service delivery and robust configuration management. You will learn to define, deploy, and manage network services programmatically, significantly reducing operational costs, minimizing human error, and accelerating time-to-market for new services. By mastering NSO fundamentals, you'll be empowered to transform static networks into dynamic, programmable infrastructures capable of adapting to evolving business demands.

This foundation-level course is crucial for anyone looking to build a career at the intersection of networking and software, providing the expertise to automate complex network functions, integrate with existing IT systems, and drive digital transformation within their organizations. It lays the groundwork for more advanced NSO development and certification, positioning you as a key contributor to the future of network management.

Duration	32 Hours
Level	Foundation
Vendor	Cisco

COURSE CURRICULUM

01 Module 1: Foundations of Network Programmability and Cisco NSO

- The imperative for network automation and programmability
- Introduction to Cisco Network Services Orchestrator (NSO)
- Key NSO architectural components and deployment models
- Benefits of NSO for service providers and enterprises
- Comparing NSO with traditional network management approaches

02 Module 2: Understanding YANG Data Models

- Introduction to YANG: The language for network data modeling
- Core YANG constructs: containers, lists, leaf nodes, types
- Exploring NSO's device-specific YANG models (NEDs)
- Using YANG for configuration and state data representation
- YANG model validation and best practices

03 Module 3: Interacting with NSO via Protocols

- NETCONF protocol deep dive: operations (get, edit-config, RPCs)
- RESTCONF protocol: RESTful API for NSO interaction
- JSON and XML encoding for data exchange
- Tools and clients for programmatic NSO access (e.g., Postman, ncclient)
- Understanding NSO's transaction model and commit queues

04 Module 4: NSO Service Design and Deployment

- Introduction to NSO services and service packages
- Service creation workflow: YANG model for services
- Implementing a basic service template (Jinja2)
- Deploying and managing services through NSO CLI and APIs
- Service synchronization, fastmap, and reactive services concepts

05 Module 5: NSO Programmability and Automation Use Cases

- Overview of NSO APIs (Python NSO client library concepts)
- Basic automation script examples for device configuration
- Transaction management, error handling, and rollback
- Real-world scenarios for NSO in network operations and troubleshooting
- Introduction to NSO's self-service portal capabilities

CAREER PATHWAYS

Graduates of this program are prepared for the following roles:

- > **Network Automation Engineer specializing in multi-vendor orchestration**
- > **DevNet Engineer focused on programmable infrastructure solutions**
- > **Solutions Architect for Software-Defined Networking (SDN) and Network Function Virtualization (NFV) deployments**

FREQUENTLY ASKED QUESTIONS

Q: How does mastering NSO Essentials specifically enhance my career prospects as a Network Architect or Programmer?

Mastering NSO Essentials makes you indispensable in an evolving IT landscape by providing critical skills in network automation and programmability. As a Network Architect, you'll gain the ability to design and implement highly scalable, agile, and automated network infrastructures, moving beyond manual configurations. For Programmers, this course unlocks opportunities in DevNet roles, allowing you to develop applications that directly orchestrate and manage network services, bridging the gap between software and networking. These specialized NSO skills are in high demand, positioning you for leadership in digital transformation initiatives and enhancing your marketability significantly.

Q: What foundational knowledge or skills are recommended before enrolling in this Cisco NSO Essentials course?

To get the most out of this NSO Essentials course, a foundational understanding of basic networking concepts (such as routing, switching, IP addressing, and VLANs) is highly recommended. For the programming aspects, familiarity with command-line interfaces (Linux CLI preferred) and fundamental programming logic or scripting concepts (e.g., variables, data types, control flow) will be beneficial. While no prior NSO experience is required, a basic grasp of XML and JSON data formats would also be helpful for understanding API interactions.

Q: Beyond basic automation, what advanced capabilities will I be able to implement using NSO after completing this 'Essentials' course?

Upon completing this 'Essentials' course, you will possess a strong foundation to implement more than just basic device

configuration automation. You will be able to model complex network services using YANG, understand and utilize NETCONF/RESTCONF for robust API interactions, and craft basic NSO service packages for consistent service deployment across multi-vendor networks. While this course focuses on fundamentals, it provides the essential building blocks for further exploration into advanced NSO features like reactive services, custom Python callbacks, and integration with wider IT orchestration platforms, setting you on a clear path to becoming a proficient NSO developer or architect.

ABOUT COMPUTER PRIDE



East Africa's Premier IT Training Center

With over 15 years of excellence, Computer Pride delivers globally recognized certification programs from leading technology vendors. Located on Kenyatta Avenue in Nairobi's CBD, our state-of-the-art facilities and expert instructors have empowered thousands of professionals across East Africa.

15+

Years of Excellence

10,000+

Professionals Trained

50+

Vendor Certifications

READY TO ENROL?

Take the next step in your technology career.

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