Implementing Cisco Catalyst 9000 Series Switches

Durée: 3 Jours **Réf de cours: ENC9K** **Version: 4.0**

Résumé:

The Implementing Cisco Catalyst 9000 Series Switches (ENC9K) course provides you with insight into Cisco Catalyst 9000 Series Switches and their solution components, architecture, capabilities, positioning, and implementation. Learn how to manage the switches using CLI, Cisco DNA Center, and the IOS-XE GUI. Additionally, you will be introduced to security, cloud, automation, and other important features of Cisco Catalyst 9000 Series switches.

This course will help you:
Prepare for successful deployment of the Cisco Catalyst 9000 Series Switches
Understand the role of Cisco Catalyst 9000 Series Switches in the SD-Access fabric
Learn to provision Cisco Catalyst 9000 Series Switches using Cisco DNA center as the orchestration platform
Gain hands-on practice through in-depth lab exercises

This course is worth 18 Continuing Education Credits.

Public visé:

Network engineers, designers, managers, and system engineers who are adopting the Cisco Digital Network Architecture (Cisco DNA) and who will use Cisco Catalyst 9000 Switches to enable an SD-Access solution provisioned with DNA Center.

Objectifs pédagogiques:

- **After completing this course you should be able to:**
- Review the Cisco Catalyst 9000 Series Switches identify the switches' features and examine the functionalities purpose-built for Cisco DNA and the SD-Access solution.
- Position the different Cisco Catalyst 9000 Series Switch model types in the network, and map older Cisco Catalyst switches to the 9000 family for migration.
- Identify the role and value of Cisco Silicon One in a campus environment.
- Examine management capabilities of the Cisco Catalyst 9000 Series Switches.
- Describe the scalability and performance features supported by the Cisco Catalyst 9000 Series Switches.
- Describe the Cisco Catalyst 9000 Series Switch support for security, Quality of Service (QoS), and Internet of Things (IoT) convergence features.
- Describe automation features, Application Programming Interface (API), Infrastructure as Code, and automation tools supported on Cisco Catalyst 9000 Series switches.
- Describe the new QoS, IoT, and BGP EVPN Features on Cisco Catalyst 9000 Series Switches.
- Describe the maintenance features on Cisco Catalyst 9000 Series switches.
- Explore the SD-Access solution fundamentals, deployment models for the Cisco Catalyst 9000 Series Switch, and the use of Cisco DNA Center to manage infrastructure devices.
- Automate Day 0 device onboarding with Cisco DNA Center LAN Automation and Network PnP.
- Describe how to manage and host applications on Cisco Catalyst 9000 Series switches using Cisco DNA Center.
- Explore a modern approach to cloud-managed networking for Cisco Catalyst 9000 Series switches and wireless access points that uses the Meraki Dashboard and analytics.
- Describe the Cisco Catalyst 9200 Series Switch architecture, model types, port types, uplink modules, components including power supplies, and other switch features and capabilities.
- Describe the Cisco Catalyst 9300 Series Switch architecture, model types, port types, uplink modules, and components, including power supplies and stacking cables.
- Describe the Cisco Catalyst 9400 Series Switches, different modular chassis, supervisor and line card options, architectural components, uplink, and power redundancy, and Multigigabit ports
- Describe the Cisco Catalyst 9500 Series Switches, model types, switch components, RFID support, architecture, and switch profiles.
- Describe the Cisco Catalyst 9600 Series Switch architecture, supervisor and line card options, and high availability features.

Pré-requis:

Attendees should meet the following prerequisites:

- Cisco CCNP Enterprise certification or equivalent experience
- Knowledge of configuring LAN routing and switching with legacy Cisco Catalyst switches
- Familiarity with the Cisco IOS XE operating system
- Familiarity with using network management software
- Familiarity with Cisco Intent-based networking and policy-based management automation technologies
- CCNA - Mettre en oeuvre et administrer des solutions réseaux Cisco
- ENAUI - Implementing Automation for Cisco Enterprise Solutions
- SDAFND - Comprendre les fondamentaux de Cisco SDA

Test et certification

Recommended as preparation for the following exams:

- There are no exams currently aligned to this course

Après cette formation, nous vous conseillons le(s) module(s) suivant(s):

- SISE - Mettre en oeuvre et configurer la solution Cisco Identity Services Engine

Contenu:

Introducing Cisco Catalyst 9000 Series Switches

- Introducing Cisco Catalyst 9000 Platforms
- Introducing Cisco UDAP ASIC 2.0 and 3.0
- Cisco UDAP 2.0 and 3.0 Core Architecture
- Packet Walk with ASIC
- Cisco Open IOS XE
- Role of Cisco Catalyst 9000 Series Switches in Cisco DNA Architecture
- Meraki Management for Catalyst 9000 Series
- Cisco Catalyst 9000 Series Licensing

Positioning Cisco Catalyst 9000 Switches

- Positioning Cisco Catalyst 9200 Switches
- Positioning Cisco Catalyst 9300 Switches
- Positioning Cisco Catalyst 9400 Switches
- Positioning Cisco Catalyst 9500 Switches
- Positioning Cisco Catalyst 9600 Switches
- Migrating from the Cisco Catalyst 2960-X/XR to Cisco Catalyst 9200
- Migrating from the Cisco Catalyst 3850 to Cisco Catalyst 9300
- Migrating from the Cisco Catalyst 4500E to the Cisco Catalyst 9400
- Migrating from the Cisco Catalyst 4500X, 6840X and 6880 to Catalyst 9500
- Migrating from the Cisco Catalyst 6500 and 6800 to Cisco Catalyst 9600

Cisco Catalyst Silicon One Architecture

- Campus Network Architecture Principles
- Cisco Catalyst 9000 Products
- Cisco Silicon One Family Architecture
- Campus Features on Silicon One Q200
- Catalyst 9000 IPv4 and IPv6 Protocols

Exploring Cisco Catalyst 9000 Series Switches Management Capabilities

- Cisco IOS XE Software CLI
- Onboard Cisco IOS XE Software Web User Interface GUI
- Simple Network Management Protocol
- Network Programmability Features
- ThousandEyes Enterprise Agent
- Intent-Based Networking with Cisco DNA Center
- Cisco Prime Infrastructure
- Cisco Prime Infrastructure with Cisco DNA Center
- Cisco DNA Center Platform Extensibility

Scale and Performance Features on Cisco Catalyst 9000 Series Switches

- Cisco StackWise Virtual Topology in N-Tier Network Topology
- Bandwidth Per Stack
- Uplinks

QoS, IoT and BGP EVPN Features on Cisco Catalyst 9000 Series Switches

- QoS Features and Packet Walk
- IoT Convergance Features on Cisco Catalyst 9000 Series Switches
- BGP EVPN Overview

Maintenance Features on Cisco Catayst 9000 Series Switches

- Open IOS XE Patchability and Software Management
- Software Upgrades, Backup and Restore
- Graceful Insertion and Removal
- New Licensing Packaging Structure

Cisco SD-Access Solution in Cisco Catalyst 9000 Series Switches

- Cisco SD-Access Solutions Overview
- Cisco SD-Access Components and Roles
- Cisco SD-Access in Cisco DNA Center
- Role of the Cisco Catalyst 9000 Series in the Cisco SD-Access Solution
- Deploying Cisco Catalyst 9000 Series in SD-Access Fabric

Application Hosting on Cisco Catalyst 9000 Series Switches

- Open IOS XE Containers and Hosted Applications
- ThousandEyes for Cisco Catalyst 9000 Series Switches
- SD-Access Extension Overview
- Cisco AI Endpoint Analytics Overview

Cloud Management for Catalyst 9000 Series Using Meraki Dashboard

- Introduction to Cloud Management
- Meraki Management for Catalyst 9000 Series
- Implementation Aspects of Monitoring and Conversion
- Work with the Meraki API
- Features, Integrations and Troubleshooting Details
- Troubleshoot Activity: Cloud Management Troubleshooting

Automating Network Changes with Cisco DNA Center

- Exploring Cisco DNA Center Design Workflow
- Cisco DNA Center and Cisco ISE Integration
- Automating Device Onboarding with Cisco Network Plug and Play

Introducing Cisco Catalyst 9200 Series

Introducing Cisco Catalyst 9300 Series Switches (Self-Study)

- Cisco Catalyst 9300 Product Overview
- Switch Models
- Cisco Catalyst 9300 Switch Uplink Models
- Cisco Catalyst 9300 Series Switches, Power Supplies, Stacking and Stack Cables
- Enhanced Storage Options on Cisco Catalyst 9300
- Cisco Catalyst 9300 Port Layouts
- Multigigabit Ports

Introducing Cisco Catalyst 9400 Series Switches (Self-Study)

- Cisco Catalyst 9400 Product Overview
- Cisco Catalyst 9400 4-slot Modular Switch Chassis
- Cisco Catalyst 9400 7-Slot Modular Switch Chassis
- Cisco Catalyst 9400 10-Slot Modular Switch Chassis
- Cisco Catalyst 9400 Supervisor and Line Cards
- Power Supplies
- Cisco Catalyst 9400 High Availability Features
- Cisco Catalyst 9400 Architecture
- Cisco Catalyst 9400 Supervisor Uplinks and Uplink Redundancy
- Cisco Catalyst 9400 Power Redundancy Modes
- Cisco Catalyst 9400 Multigigabit Ports

Introducing Cisco Catalyst 9500 Series Switches (Self-Study)

- Cisco Catalyst 9500 Product Overview
- Cisco Catalyst 9500-32C Series Switch
- Cisco Catalyst 9500-32QC Series Switch
- Cisco Catalyst 9500-48Y4C Series Switch
- Cisco Catalyst 9500-24Y4C Series Switch
- Cisco Catalyst 9500-24Q Series Switch
- Cisco Catalyst 9500-12Q Series Switch
- Cisco Catalyst 9500-40X Series Switch
- Cisco Catalyst 9500-16X Series Switch
- Cisco Catalyst 9500 Redundant Platinum Rated Power Supply
- Cisco Catalyst 9500 Modular Fans
- Cisco Catalyst 9500 Series Switch RFID
- Cisco Catalyst 9500-32C Series Architecture
- Cisco Catalyst 9500-32QC Series Architecture
- Cisco Catalyst 9500-48Y4C Series Architecture
- Cisco Catalyst 9500-24Y4C Series Architecture
- Cisco Catalyst 9500-24Q Series 40G Architecture
- Cisco Catalyst 9500-12Q Series 40G

- Multigigabit Technology
- Flexible NetFlow
- Forwarding TCAM Resources, Flexible Lookup Tables Shared Across Cores, FlexTables
- Cisco Catalyst 9500 Series Flexible ASIC Templates
- Hierarchical VPLS with MPLS Access
- Routed Pseudowire IRB for IPv4 Unicast
- VRF Aware NAT
- Loop Detection Guard
- VLAN Load Balancing for FlexiLink+

Security Features on Cisco Catalyst 9000 Series Switches

- Group-Based policy and Cisco TrustSec SGT for Wired and Wireless
- Hardware Encryption
- LAN MACsec
- Encrypted Traffic Analytics
- Switched Integrated Security Features
- Cloud Security Integration
- Extend Security to Infrastructure with Trustworthy Systems
- Cisco Zero Trust

Automation Features on Cisco Catalyst 9000 Series Switches

- Automation Features on Cisco Catalyst 9000 Series Switches Overview
- API
- Infrastructure as Code Overview
- Automation Tools Supported on Cisco Catalyst 9000 Series Switches

Switches (Self-Study)

- Cisco Catalyst 9200 Product Overview
- Cisco Catalyst 9200 Series Architecture
- Fabric Edge Node for SD-Access
- MACsec-128 Link Encryption
- Cisco Catalyst 9200 Series Front Panel
- Cisco Catalyst 9200 Series Rear Panel
- Cisco Catalyst 9200 Series Switch Models
- Cisco Catalyst 9200 Switch Uplink Modules
- Cisco Catalyst 9200 Series Switches Power Supplies, Stacking and Stack Cables.
- Cisco Catalyst 9200 Series Switches Features and Capabilities

Architecture

- Cisco Catalyst 9500-40X Series10G Architecture
- Cisco Catalyst 9500-16X Series Architecture

Introducing Cisco Catalyst 9600 Series Switches (Self-Study)

- Cisco Catalyst 9600 Product Overview
- Cisco Catalyst 9600 Series Switch Architecture
- Cisco Catalyst 9600 Supervisor and Line Cards
- Cisco Catalyst 9600 Power Supplies
- Cisco Catalyst 9600 High Availability Features

Labs

- Configure and Troubleshoot Network Issues using WebGUI
- Application Hosting on Cisco Catalyst 9000 Series Switches Using the CLI
- Configure a Switch Stack Using Cisco Catalyst 9300 Series Switches
- Enable and Verify Switch-to-Switch MACSec
- Enable and Verify Encrypted Traffic Analytics
- Explore Switch Management Automation and Programmability
- Network Automation using Ansible Playbooks and Terraform Scripts on the Cisco IOS XE
- Configure Perpetual PoE and Fast PoE on a Cisco Catalyst 9000 Series Switch
- Configure Packet Capture on a Cisco Catalyst 9300 Series Switch
- Perform GIR on a Cisco Catalyst 9000 Series Switch
- Application Hosting on Cisco Catalyst 9300 Using Cisco DNA Center
- Integrate Cisco DNA Center and Cisco ISE
- Provision Underlay Networks with Cisco DNA Center LAN Automation

Autres moyens pédagogiques et de suivi:

• Compétence du formateur : Les experts qui animent la formation sont des spécialistes des matières abordées et ont au minimum cinq ans d'expérience d'animation. Nos équipes ont validé à la fois leurs connaissances techniques (certifications le cas échéant) ainsi que leur compétence pédagogique.
• Suivi d'exécution : Une feuille d'émargement par demi-journée de présence est signée par tous les participants et le formateur.
• En fin de formation, le participant est invité à s'auto-évaluer sur l'atteinte des objectifs énoncés, et à répondre à un questionnaire de satisfaction qui sera ensuite étudié par nos équipes pédagogiques en vue de maintenir et d'améliorer la qualité de nos prestations.

Délais d'inscription :

• Vous pouvez vous inscrire sur l'une de nos sessions planifiées en inter-entreprises jusqu'à 5 jours ouvrés avant le début de la formation sous réserve de disponibilité de places et de labs le cas échéant.
• Votre place sera confirmée à la réception d'un devis ou """"booking form"""" signé. Vous recevrez ensuite la convocation et les modalités d'accès en présentiel ou distanciel.
• Attention, si cette formation est éligible au Compte Personnel de Formation, vous devrez respecter un délai minimum et non négociable fixé à 11 jours ouvrés avant le début de la session pour vous inscrire via moncompteformation.gouv.fr.

Accueil des bénéficiaires :

• En cas de handicap : plus d'info sur globalknowledge.fr/handicap