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# Cisco DevNet Expert™ Certification Training

ALL-IN-ONE: EXAMINATION INCLUDED IN PRICE

5 days (35 hours)

## Presentation

Opt for Cisco DevNet Expert™ certification and demonstrate your expertise in the advanced design, development and deployment of software solutions for Cisco network environments.

The Cisco DevNet Expert™ exam assesses your mastery of several key modules, from software development and design to infrastructure automation and application security.

Our training course prepares participants for every aspect of the exam, providing tips on the latest DevNet program updates and covering every point of the [official exam topic](#) in depth.

You'll benefit from the latest technological advances and industry best practices to optimally prepare for the exam and excel in your role as a Cisco DevNet Certified Professional Expert™.

## Objectives

- Understand advanced software development and design principles
- Master the use of REST APIs and common authentication mechanisms
- Acquire the skills needed to deploy applications in complex and varied network environments
- Learn how to automate your network infrastructure

## Target audience

- Software developers
- Application developers
- Network engineers

## Prerequisites

- In-depth computer and network knowledge
- Excellent programming skills, particularly in Python, with significant experience in developing complex software applications
- Extensive practical experience in network automation and management, including the use of automation and management tools such as Ansible, Terraform, and virtualization technologies like Docker and Kubernetes.
- A solid understanding of REST APIs and authentication methods
- [Cisco DevNet Professional™ training](#) is an excellent prerequisite.
- Five to seven years' experience in the design, deployment, operation and optimization of NetDevOps technologies and solutions

*Note: Ambient IT does not own Cisco Certifications™, this certification belongs to Cisco, Inc.*

## Cisco Devnet Expert™ training program

### Software design, development and deployment

- Introduction to software design and deployment concepts
- Analysis of deployment factors
- Maintainability
- Modularity
- Containers
- Orchestration
- Automation
- Infrastructure requirements
- Reliability
  - High availability
  - Resilience
- Performance
  - Scalability
  - Latency
  - Flow limitation
- Infrastructure
  - Monitoring
  - Observability
  - Measurement (placement and deployment)
- Recommendation of deployment strategies
- Using Git in a CI/CD development workflow
- Troubleshooting CI/CD pipeline problems
  - Malfunctions
  - Incompatible tools

### Infrastructure as Code

- Introduction to Infrastructure as Code (IaC) and its benefits
- Creating a scalable infrastructure automation solution
  - Impact on the network
  - Risks
  - Tool selections
- Managing and operating a Python REST API with a web application framework
  - End points
  - HTTP request
  - Answer
- Create and run a Python CLI application using a REST API
- Consuming and using a new REST API, based on documentation
- RESTCONF / NETCONF
- Loop control
- Conditional
- Plug-ins
  - Network CLI
  - HTTPAPI
  - NETCONF
- Resource graph
- Using variables
- Search for resources
- Resource provision
- Manage the status of available resources

## Network programmability and automation

- Script automation with Python for Cisco APIs
- Automated configuration of a Cisco IOS XE network device
  - Architecture
  - Interfaces
  - Static routes
  - VLANs
  - Access control lists
  - BGP pairing
  - BGP and OSPF routing tables
- Deploying an application on a Cisco IOS XE device with Guest Shell
- Modifying and troubleshooting automated tests with pyATS
- Design of a model-based telemetry solution

## Containers

- Creating a Docker image and using Dockerfile
- Packaging and deploying a solution with Docker Compose
- Packaging and deploying a solution with Kubernetes
- Creating, consuming and troubleshooting Docker networks

## Security

- Integration of OWASP security practices into software solutions.

- Create CSRs with OpenSSL and use SSL certificates to secure a web application.
- Using OAuth2+ to obtain an authentication token.
- Secret management to secure an application.
- Using tokens, headers and secrets to secure a REST API

## Strategy and methods for exam success Mock

exam

## Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

## Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

## Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

## Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

## Sanction

A certificate will be issued to each trainee who completes the course.