Developing Applications Using Cisco Platforms and APIs

Durée: 5 Jours **Réf de cours: DEVCOR** **Version: 1.0**

Résumé:

La formation Cisco Développement d'applications à l'aide des plates-formes et API Cisco Core (DEVCOR) permet notamment de se préparer à la certification Cisco DevNet Professional et aux rôles d'ingénieur en automatisation de réseau de niveau professionnel. Vous apprendrez à implémenter des applications réseau en utilisant les plates-formes Cisco® comme base, de la conception logicielle initiale à l'intégration de systèmes diversifiés, en passant par l'automatisation des tests et du déploiement. Le cours fournit une expérience pratique de la résolution de problèmes du monde réel à l'aide des interfaces de programmation d'applications (API) Cisco et des outils de développement modernes.
Pour profiter pleinement de ce cours, vous devez avoir trois à cinq ans d'expérience dans la conception et la mise en œuvre d'applications basées sur les plates-formes Cisco.
Veuillez noter que ce cours est une combinaison de formation en classe et d'auto-apprentissage - 5 jours d'interaction avec l'instructeur Cisco et environ 3 jours de contenu disponible en elearning.
Le suivi de cette formation permet de valider un total de **64 crédits** dans le cadre du programme d'Education Continue Cisco (CCE) pour les professionnels qui souhaitent renouveler leur titre de certification.

Public visé:

This course is designed for anyone who performs or seeks to perform a developer role and has one or more years of hands-on experience developing and maintaining applications that are built on top of Cisco platforms, as well as network engineers looking to expand their knowledge to include software and automation.
This course covers specialized material about designing, developing, and debugging applications using Cisco APIs and platforms, and managing and deploying applications on Cisco infrastructure.

Objectifs pédagogiques:

- **After completing this course you should be able to:**
- Describe the architectural traits and patterns that improve application maintainability
- Describe the architectural traits and patterns that improve application serviceability
- Identify steps to design and build a ChatOps application
- Implement robust Representational State Transfer (REST) API integrations with network error handling, pagination, and error flow control
- Describe the necessary steps for securing user and system data in applications
- Describe the necessary steps for securing applications
- Identify common tasks in automated application release process
- Describe best practices for application deployment
- Describe methodologies for designing distributed systems
- Describe the concepts of infrastructure configuration management and device automation
- Utilize Yet Another Next Generation (YANG) data models to describe network configurations and telemetry
- Compare various relational and nonrelational database types and how to select the appropriate type based on requirements

Pré-requis:

Attendees should meet the following prerequisites:

- Knowledge of program design and coding with focus on Python
- Familiarity with Ethernet, TCP/IP, and Internet-related networking
- Understand the utilization of APIs
- Understanding of software development and design methodologies
- Hands-on experience with a programming language (specifically

Test et certification

Recommended as preparation for the following exam:

- **350-901** - DEVCOR Exam

By passing this exam, you satisfy the core exam requirement toward Cisco Certified DevNet Professional, and you earn the Cisco Certified DevNet Specialist – Core certification

Python)
- DEVASC - Developing Applications and Automating Workflows using Cisco Platforms

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

- DEVIOT - Developing Solutions using Cisco IoT and Edge Platforms
- DEVWBX - Developing Application for Cisco Webex and Webex Devices
- C-DEVOPS - Implementing DevOps Solutions and Practices using Cisco Platforms
- ENAUI - Implementing Automation for Cisco Enterprise Solutions
- CLAUI - Implementing Automation for Cisco Collaboration Solutions
- DCAUI - Implementing Automation for Cisco Data Center Solutions
- SAUI - Implementing Automation for Cisco Security Solutions
- SPAUI - Implementing Automation for Cisco Service Provider Solutions

Contenu:

Designing for Maintainability (Self-study)

- Functional and Non-Functional Requirements
- Non-Functional Requirements and Application Quality
- Maintainability Through Design
- Maintainability Through Implementation
- Modularity in Application Design
- Dependency Injection

Designing for Serviceability (Self-study)

- Observability in Application Design
- Scalability in Application Design
- High Availability and Resiliency
- Latency and Rate Limiting
- Architectural Patterns
- Sequence Diagrams

Implementing ChatOps Application

- Introducing ChatOps
- ChatOps with Cisco Webex Teams
- API Sequence Diagramming
- ChatOps Application Design
- Managing SSIDs and Retrieving Location Data Using Cisco Meraki API

Describing Advanced REST API Integration

- Consuming Paginated REST API Endpoints
- REST API Network Error Strategies
- REST API Error Control Flow
- Optimizing API Usage

Securing Application Data (Self-study)

- Data Storage and Protecting Data Privacy
- Storing Application Secrets
- Public Key Infrastructure
- Configuring Public Key Certificates for Applications
- Applying End-to-End Encryption for APIs

Securing Web and Mobile Applications (Self-study)

- OWASP Top 10
- Injection Attacks and Data Validation
- Cross-Site Scripting and Request Forgery
- OAuth Authorization Framework
- OAuth 2.0 Three-Legged Authorization Flow

Automating Application-Release

- Release Packaging and Dependency Management
- Advanced Version Control with Git
- Branching Strategies
- Continuous Testing and Static Code Analysis in CI Pipeline
- Identifying CI/CD Pipeline Failures

Deploying Applications

- 12-Factor App Methodology
- Containerizing Applications Using Docker
- Kubernetes Introduction
- Integrating Applications into Exisiting CI/CD Environment
- Hosting Applications on Network Devices

Understanding Distributed Systems

- Distributed Application Concepts
- Custom Dashboard Example
- Event-Driven Architecture Concepts
- Microservice Architecture Concepts
- Effective Distributed Application Logging Strategies
- Using Distributed Logging to Diagnose Problems
- Application Monitoring with Cisco AppDynamics
- Limitations of Distributed Systems and CAP Theorem
- Overcoming Challenges in Distributed Systems

Orchestrating Network and Infrastructure

- Configuring Servers Using Cisco UCS APIs
- Infrastructure as Code with Terraform
- Differentiating Configuration Management Solutions
- Configuring Network Parameters Using Puppet
- Configuring Network Parameters Using Ansible
- Defining Network Automation Source of Truth
- Creating and Deleting Objects Using Firepower Threat Defense API

Modeling Data with YANG

- YANG Overview
- XPath Query Language
- YANG Language Syntax
- Data Model Modularity
- Network Configuration Using RESTCONF
- Model-Driven Telemetry
- Streaming Telemetry with gNMI

Using Relational and Non-Relational Databases (Self-study)

- Evaluating Database Types to Meet Application Needs
- Relational Database Concepts
- Key-Value Database Concepts
- Document-Based Database Concepts
- Graph-Based Database Concepts
- Columnar-Based Database Concepts
- Time-Series Database Concepts

Labs

- Construct Sequence Diagram
- Construct Web Sequence Diagram
- Use Cisco Webex Teams™ API to Enable ChatOps
- Integrate Cisco Meraki™ API to List Service Set Identifiers (SSIDs) and Retrieve Location Data
- Use Paginated REST API Endpoint
- Utilize REST API Error Control Flow Techniques
- Evaluate Application for Common Open Web Application Security Project (OWASP) Vulnerabilities
- Resolve Merge Conflicts with Git
- Diagnose Continuous Integration and Continuous Delivery (CI/CD) Pipeline Failures
- Containerize Application Using Docker
- Integrate Application into Existing CI/CD Environment
- Diagnose Problems Using Application Logs
- Configure Network Parameters Using Ansible and Puppet
- Synchronize Firepower Device Configuration
- Utilize RESTCONF for Network Configuration
- Query Relational Database
- Query Document Store
- Query Time Series Database
- Query Graph Database

Méthodes pédagogiques :

Explore the DevNet Certification area for specific topics and labs related to this course and certification:
https://developer.cisco.com/certification/

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.
• Modalités d'évaluation : le participant est invité à s'auto-évaluer par rapport aux objectifs énoncés.
• Chaque participant, à l'issue de la formation, répond à un questionnaire de satisfaction qui est 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 vous utilisez votre Compte Personnel de Formation pour financer votre inscription, vous devrez respecter un délai minimum et non négociable fixé à 11 jours ouvrés.