



## Implementing DevOps Solutions and Practices using Cisco Platforms (DEVOPS) v1.0

The Implementing DevOps Solutions and Practices using Cisco Platforms (DEVOPS) v1.0 course teaches you how to automate application deployment, enable automated configuration, enhance management, and improve scalability of cloud microservices and infrastructure processes on Cisco® platforms. You will also learn how to integrate Docker and Kubernetes to create advanced capabilities and flexibility in application deployment.

This course prepares you for the 300-910 Implementing DevOps Solutions and Practices using Cisco Platforms (DEVOPS) certification exam.

### How you'll benefit

This course will help you:

- Gain the high-demand knowledge and skills to implement automation, streamline container orchestration, and enhance scalability
- Learn the skills to maximize the lightweight design of containers to scale more quickly and allow more responsiveness to website traffic load
- Earn 40 CE credits toward recertification

### Why Attend with Current Technologies CLC

- Our Instructors are the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses



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### Objectives

Upon completing this course, the student will be able to meet these objectives:

- Describe the DevOps philosophy and practices, and how they apply to real-life challenges
- Explain container-based architectures and available tooling provided by Docker
- Describe application packaging into containers and start building secure container images
- Utilize container networking and deploy a three-tier network application
- Explain the concepts of Configuration Item (CI) pipelines and what tooling is available
- Implement a basic pipeline with Gitlab CI that builds and deploys applications
- Implement automated build testing and validation
- Describe DevOps principles applied to infrastructure
- Implement on-demand test environments and explain how to integrate them with an existing pipeline
- Implement tooling for metric and log collection, analysis, and alerting
- Describe the benefits of application health monitoring, telemetry, and chaos engineering in the context of improving the stability and reliability of the ecosystem
- Describe how to implement secure DevOps workflows by safely handling sensitive data and validating applications
- Explain design and operational concepts related to using a mix of public and private cloud deployments
- Describe modern application design and microservices architectures
- Describe the building blocks of Kubernetes and how to use its APIs to deploy an application
- Explain advanced Kubernetes deployment patterns and implement an automated pipeline
- Explain how monitoring, logging, and visibility concepts apply to Kubernetes

#### Course Duration

5 day

#### Course Price

\$4,500

#### Methods of Delivery

- ILT
- V-ILT

#### Certification Exam

300-910

#### Cisco CE Credits

40

### Who Should Attend

The job roles best suited to the material in this course are:

- Systems Engineer
- Wireless Engineer
- Consulting Systems Engineer



## Implementing DevOps Solutions and Practices using Cisco Platforms (DEVOPS) v1.0

- Technical Solutions Architect
- Network Administrator
- Wireless Design Engineer
- Network Manager
- Sales Engineer
- Account Manager

### Prerequisites

Before taking this course, you should have the following knowledge and skills:

- Basic understanding of compute virtualization
- Ability to use Linux, text-driven interfaces, and CLI tools, such as Secure Shell (SSH), bash, grep, ip, vim/nano, curl, ping, traceroute, and telnet
- Foundational understanding of Linux-based OS architecture and system utilities
- CCNA® level core networking knowledge
- Foundational understanding of DevOps concepts
- Awareness and familiarity with continuous integration, continuous deployment, and continuous delivery (CI/CD) concepts
- Hands-on experience with Git

The following Cisco courses can help you gain the knowledge you need to prepare for this course:

- Developing Applications and Automating Workflows Using Cisco Core Platforms (DEVASC)
- Developing Applications Using Cisco Core Platforms and APIs (DEVCOR)

### Course Outline

**Module 1: Introducing the DevOps Model**

**Module 2: Introducing Containers**

**Module 3: Packaging an Application Using Docker**

**Module 4: Deploying a Multitier Application**



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**Module 5: Introducing CI/CD**

**Module 6: Building the DevOps Flow**

**Module 7: Validating the Application Build Process**

**Module 8: Building an Improved Deployment Flow**

**Module 9: Extending DevOps Practices to the Entire Infrastructure**

**Module 10: Implementing On-Demand Test Environments at the Infrastructure Level**

**Module 11: Monitoring in NetDevOps**

**Module 12: Engineering for Visibility and Stability**

**Module 13: Securing DevOps Workflows**

**Module 14: Exploring Multicloud Strategies**

**Module 15: Examining Application and Deployment Architectures**

**Module 16: Describing Kubernetes**

**Module 17: Integrating Multiple Data Center Deployments with Kubernetes**

**Module 18: Monitoring and Logging in Kubernetes**

### LAB OUTLINE

- Interact with GitLab Continuous Integration (CI)
- Explore Docker Command-Line Tools
- Package and Run a WebApp Container
- Build and Deploy Multiple Containers to Create a Three-Tier Application
- Explore Docker Networking
- Build and Deploy an Application Using Docker Compose
- Implement a Pipeline in Gitlab CI
- Automate the Deployment of an Application
- Validate the Application Build Process



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- **Validate the Deployment and Fix the Infrastructure**
- **Build a Yaml Ain't Markup Language (YAML) Infrastructure as Code (IaC) Specification for the Test Environment**
- **Manage On-Demand Test Environments with Terraform**
- **Build Ansible Playbooks to Manage Infrastructure**
- **Integrate the Testing Environment in the CI/CD Pipeline**
- **Implement Pre-deployment Health Checks**
- **Set Up Logging for the Application Servers and Visualize with Kibana**
- **Create System Dashboard Focused on Metrics**
- **Use Alerts Through Kibana**
- **Instrument Application Monitoring**
- **Use Alerts and Thresholds to Notify Webhook Listener and Cisco Webex® Teams™ Rooms**
- **Secure Infrastructure in the CI/CD Pipeline**
- **Explore Kubernetes Setup and Deploy an Application**
- **Explore and Modify a Kubernetes CI/CD Pipeline**
- **Kubernetes Monitoring and Metrics—Elasticsearch, Logstash, and Kibana (ELK)**