Troubleshooting Cisco Data Center Infrastructure (DCIT) v6.2

What you’ll learn in this course

The Troubleshooting Cisco Data Center Infrastructure (DCIT) v6.2 course helps you prepare for the Cisco CCNP® Data Center certification and for professional-level data center roles. In this course, you will master the professional-level skills and technologies needed to configure and troubleshoot Cisco® data center infrastructure, including LAN and SAN protocols, network virtualization, Cisco Application Centric Infrastructure (Cisco ACI™), and compute platforms.

IT professionals with Cisco CCNP Data Center training and certification are uniquely qualified for professional or higher roles in enterprise-class data center environments. The Cisco CCNP certification equips you with skills in a broad range of technologies and industry best practices to help you succeed in these in-demand roles.

Course duration

- Instructor-led training: 5 days in the classroom with hands-on lab practice
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 5 days of instruction with hands-on lab practice, videos, and challenges

How you’ll benefit

This course will help you:

- Identify, troubleshoot, and fix problems in Cisco data center infrastructure, including issues with networking, compute, virtualization, storage, and security
- Master the practical and theoretical knowledge necessary to troubleshoot LANs, SANs, Cisco Unified Fabric, Cisco Unified Computing System™ (Cisco UCS™), and Cisco ACI
- Prepare for the Cisco CCNP Data Center certification through a combination of lessons and practice that enables you to validate your skills
- Qualify for professional-level job roles in the high-demand area of enterprise-class data center environments

Who should enroll

IT professionals with five to eight years of experience in these roles:

- Data center administrator
- Data center engineer
- Network administrator
- Network engineer
- System administrator
- Systems engineer
- Network designer
- Consulting systems engineer
● Technical solutions architect
● Cisco integrator or partner

How to enroll
● For instructor-led training, visit the Cisco Learning Locator.
● For e-learning, visit the Cisco Learning Network Store.
● For private group training, visit Cisco Private Group Training.
● For digital library access, visit Cisco Platinum Learning Library.
● For e-learning volume discounts, visit Cisco Training on Demand.

Technology areas
● Data center
● Networking

Course details
Objectives
After taking this course, you should be able to:

● Outline the troubleshooting process and highlight which questions to ask
● Describe troubleshooting tools and methodologies that are available from the Command-Line Interface (CLI) and are used to identify and resolve issues in a Cisco data center network architecture
● Identify and resolve issues related to VLANs and private VLANs, port channels and virtual port channels, Cisco FabricPath, Overlay Transport Virtualization (OTV), Virtual Extensible LAN (VXLAN), and Locator/ID Separation Protocol (LISP)
● Describe troubleshooting routing protocols such as Open Shortest Path First (OSPF), Intermediate System to Intermediate System (IS-IS), and Protocol Independent Multicast (PIM)
● Describe troubleshooting Authentication, Authorization, and Accounting (AAA) and Role-Based Access Control (RBAC)
● Identify and resolve issues related to a single device
● Identify and resolve issues related to Fibre Channel interface operation
● Identify and resolve issues related to Fibre Channel switching when the Cisco NX-OS software switch is in switched mode
● Identify and resolve issues related to Fibre Channel switching when the Cisco NX-OS software is in N-Port Virtualization (NPV) mode
● Identify and resolve issues related to FCoE Initialization Protocol (FIP) and Fibre Channel over Ethernet (FCoE), including FCoE performance
● Describe the Cisco UCS architecture, initial setup, tools, and service aids that are available for Cisco UCS troubleshooting and output interpretation
● Describe Cisco UCS configuration and troubleshoot related issues
● Describe Cisco UCS B-Series operation and troubleshoot related issues
● Describe LAN, SAN, and Fibre Channel operations, including in-depth troubleshooting procedures
● Describe Cisco Integrated Management Controller (IMC) utilities to validate performance and facilitate data-gathering activities for Cisco UCS C-Series troubleshooting, as well as troubleshooting hardware and firmware failures
- Define proper procedures to configure LAN and SAN connectivity and avoid issues with the P81E Virtual Interface Card (VIC)
- Troubleshoot integration of Cisco UCS C-Series servers with Cisco UCS Manager
- Identify tools, protocols, and methods to troubleshoot Cisco ACI

**Prerequisites**

Before taking this course, you should be able to:

- Configure, secure, and maintain LAN and SAN based on Cisco Nexus and MDS switches
- Configure, secure, and maintain Cisco UCS
- Configure, secure, and maintain Cisco ACI

To fully benefit from this course, you should have completed the following courses or obtained the equivalent level of knowledge:

- **Introducing Cisco Data Center Networking (DCICN)** v6.0 or higher
- **Introducing Cisco Data Center Technologies (DCICT)** v6.0 or higher
- **Implementing Cisco Data Center Infrastructure (DCII)** v6.0 or higher
- **Implementing Cisco Data Center Virtualization and Automation (DCVAI)** v6.0 or higher
- **Implementing Cisco Data Center Unified Computing (DCUCI)** v6.0 or higher

**Outline**

**Troubleshooting the Data Center LAN Network**

- Overview of the Troubleshooting Process
- Understanding CLI Troubleshooting Tools
- Troubleshooting VLANs and Private VLANs
- Troubleshooting Port Channels and Virtual Port Channels
- Troubleshooting Cisco FabricPath
- Troubleshooting Cisco OTV
- Troubleshooting VXLAN
- Troubleshooting LISP
- Troubleshooting Routing Protocols
- Troubleshooting Data Center LAN Security
- Troubleshooting Platform-Specific Issues

**Troubleshooting Data Center SAN**

- Troubleshooting Fibre Channel Interfaces
- Troubleshooting Fibre Channel Fabric Services
- Troubleshooting NPV Mode
- Troubleshooting FCoE
Troubleshooting Data Center Unified Computing

- Troubleshooting Cisco UCS Architecture and Initialization
- Troubleshooting Cisco UCS Configuration
- Troubleshooting Cisco UCS B-Series Servers
- Troubleshooting Cisco UCS B-Series LAN and SAN Connectivity
- Troubleshooting Cisco UCS C-Series Servers
- Troubleshooting Cisco UCS C-Series LAN and SAN Connectivity
- Troubleshooting Cisco UCS C-Series and Cisco UCS Manager Integration

Troubleshooting Data Center ACI

- Exploring the Tools and Methodology of Troubleshooting Cisco ACI

Lab outline

- Document the Network Baseline
- Troubleshoot LAN—RSTP
- Troubleshoot LAN—LACP
- Troubleshoot LAN—vPC
- Troubleshoot LAN—FabricPath
- Troubleshoot LAN—OTV
- Troubleshoot LAN—VXLAN
- Troubleshoot LAN—OSPF
- Troubleshoot LAN—FHRP
- Troubleshoot LAN—CFS
- Troubleshoot LAN—VRF
- Troubleshoot LAN—FEX
- Troubleshoot SAN—Fibre Channel Interfaces
- Troubleshoot SAN—Fibre Channel VSANs, Zones, and Domain Services
- Troubleshoot SAN—NPV Mode
- Troubleshoot SAN—FCoE
- Troubleshoot SAN—DCB
- Troubleshoot Compute—Cisco UCS Management and Service Profile Deployment
- Troubleshoot Compute—Cisco UCS Integrated C-Series Server Boot from SAN
- Troubleshoot Compute—LAN Connectivity, Part 1
- Troubleshoot Compute—LAN Connectivity, Part 2
- Troubleshoot Compute—Cisco UCS C-Series Server Boot from SAN
- Troubleshoot Compute—Network Connectivity
- Troubleshoot Cisco ACI—Bare-Metal Hosts
- Troubleshoot Cisco ACI—VMM
- Troubleshoot Cisco ACI—Contracts
- Troubleshoot Cisco ACI—External Layer 3
- Troubleshoot Cisco ACI—External Layer 2