



Troubleshooting Cisco Data Center Infrastructure

DURATION: 5 DAYS

COURSE CODE: DCIT

FORMAT: LECTURE/LAB

COURSE DESCRIPTION

The Troubleshooting Cisco Data Center Infrastructure (DCIT) course is designed to help students prepare for the Cisco CCNP Data Center certification and for professional-level data center roles.

The focus of this skills-building course is troubleshooting of LANs, SANs, Cisco Unified Fabric, Cisco Unified Computing System (UCS), and Cisco Application Centric Infrastructure (ACI).

The course provides rich hands-on experience in resolving problems on Cisco MDS switches, Cisco Nexus switches, Cisco fabric extenders (FEXs), Cisco UCS, and Cisco ACI. You'll master the professional-level skills and technologies needed to troubleshoot Cisco data center infrastructure.

PREREQUISITES

To fully benefit from this course, students attending this training 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

It is recommended, but not required, to have the following skills and knowledge before attending this course:

- Configure, secure, and maintain LANs and SANs based on Cisco Nexus and MDS switches

- Configure, secure, and maintain Cisco UCS

- Configure, secure, and maintain Cisco ACI

WHO SHOULD ATTEND

Network Administrator

Network Engineer

Systems Engineer

Consulting Systems Engineer

Cisco Integrators/Partners.

LEARNING OBJECTIVES

Outline the troubleshooting process, and highlight which questions to ask

Describe the troubleshooting tools and methodologies that are available from the CLI and are used to identify and resolve issues in a Cisco Data Center network architecture

Identify and resolve issues related to VLANs and PVLANS

Identify and resolve issues related to port channels and virtual port channels

Identify and resolve issues related to Cisco FabricPath

Identify and resolve issues related to OTV

Identify and resolve issues related to VXLAN

Identify and resolve issues related to LISP

Describe troubleshooting of routing protocols, such as OSPF, ISIS, and PIM.

Describe troubleshooting of the AAA and 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 used in switched mode (vs. NPV mode)

Identify and resolve issues related to Fibre Channel switching when the NX-OS switch is used in N Port Virtualization (NPV) mode

Identify and resolve issues related to FIP and FCoE, including FCoE performance

Describe Cisco UCS architecture, initial setup, tools and service aids that are available for Cisco UCS troubleshooting and interpretation of the output

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 IMC utilities to validate performance and facilitate data-gathering activities for Cisco UCS C-Series troubleshooting, as well troubleshooting approach to 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 effectively troubleshoot Cisco ACI

COURSE OUTLINE

1. 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

2. Troubleshooting Data Center SAN

- Troubleshooting Fibre Channel Interfaces
- Troubleshooting Fibre Channel Fabric Service
- Troubleshooting NPV Mode
- Troubleshooting FCoE

3. 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

4. Troubleshooting Data Center ACI

- Exploring the Tools and Methodology of Troubleshooting Cisco ACI

DISCOVERY LABS

- 1: Document the Network Baseline
- 2: Troubleshoot LAN—RSTP
- 3: Troubleshoot LAN—LACP
- 4: Troubleshoot LAN—vPC
- 5: Troubleshoot LAN—FabricPath
- 6: Troubleshoot LAN—OTV
- 7: Troubleshoot LAN—VXLAN
- 8: Troubleshoot LAN—OSPF
- 9: Troubleshoot LAN—FHRP
- 10: Troubleshoot LAN—CFS
- 11: Troubleshoot LAN—VRF
- 12: Troubleshoot LAN—FEX
- 13: Troubleshoot SAN—Fibre Channel Interfaces
- 14: Troubleshoot SAN—Fibre Channel VSANs, Zones, and Domain Services
- 15: Troubleshoot SAN—NPV Mode
- 16: Troubleshoot SAN—FCoE
- 17: Troubleshoot SAN—DCB
- 18: Troubleshoot Compute—Cisco UCS Management and Service Profile Deployment
- 19: Troubleshoot Compute—Cisco UCS Integrated C-Series Server Boot from SAN
- 20: Troubleshoot Compute—LAN Connectivity, Part 1
- 21: Troubleshoot Compute—LAN Connectivity, Part 2
- 22: Troubleshoot Compute—Cisco UCS C-Series Server Boot from SAN
- 23: Troubleshoot Compute—Network Connectivity
- 24: Troubleshoot ACI—Bare-Metal Hosts
- 25: Troubleshoot ACI—VMM
- 26: Troubleshoot ACI—Contracts
- 27: Troubleshoot ACI—External Layer 3
- 28: Troubleshoot ACI—External Layer 2