



## TROUBLESHOOTING CISCO DATA CENTER INFRASTRUCTURE (DCIT) V7.0

The Troubleshooting Cisco Data Center Infrastructure (DCIT) v7.0 course shows you how to troubleshoot LAN, SAN, Cisco® Data Center Unified Fabric, Cisco Unified Computing System™ (Cisco UCS®), and Cisco Application-Centric Infrastructure (Cisco ACI®). You will learn methodologies and tools to identify issues that may occur in data center network architecture. You will get extensive hands-on practice troubleshooting installation, configuration and interconnectivity issues on Cisco Multilayer Director Switch (MDS) switches, Cisco Nexus® switches, Cisco Fabric Extenders (FEXs), Cisco UCS, Cisco ACI, and more.

This course helps prepare you to take the exam:  
300-615 Troubleshooting Cisco Data Center Infrastructure (DCIT)

### How you'll benefit

This course will help you:

- Learn how to deploy and troubleshoot various components of Cisco data center infrastructure to support performance, resiliency, scalability needs
- Gain knowledge and skills through Cisco's unique combination of lessons and hands-on practice using enterprise-grade Cisco learning technologies, data center equipment, and software
- Qualify for professional-level job roles
- Earn 50 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 how to troubleshoot the data center network, troubleshooting tools and methodologies available from the Command-Line Interface (CLI) that are used to identify and resolve issues in a Cisco data center network architecture
- Identify and resolve issues that are related to: Virtual LANs (VLANs) and private VLANs (PVLANS); port channels and virtual port channels; Overlay Transport Virtualization (OTV); and Virtual Extensible LAN (VXLAN)
- Describe troubleshooting of routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Protocol-Independent Multicast (PIM), and LAN security features
- Identify and resolve issues that are related to a single device
- Identify and resolve issues that are related to Fibre Channel interface operation
- Identify and resolve Fibre Channel switching issues when the Cisco NX-OS Software is used in switched mode, and in N-Port Virtualization (NPV) mode
- Identify and resolve issues that are related to Fibre Channel over Ethernet (FCoE) and FCoE Initialization Protocol (FIP), 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, Cisco UCS B-Series Blade Server operation and troubleshoot related issues
- Describe LAN, SAN, and Fibre Channel operations, including in-depth troubleshooting procedures
- Describe Cisco Integrated Management Controller (IMC) tools for validating performance and facilitating data-gathering activities for Cisco UCS C-Series server troubleshooting, and the troubleshooting approach for hardware and firmware failures
- Define the proper procedures for configuring LAN and SAN connectivity, avoiding issues with the VIC, troubleshooting connectivity issues and Cisco UCS C-Series server integration with Cisco UCS Manager
- Identify the tools, protocols, and methods to effectively troubleshoot Cisco ACI
- Describe how to troubleshoot automation, scripting tools, and programmability, automation, scripting tools, and programmability

#### Course Duration

5 day

#### Course Price

\$4,895.00

#### Methods of Delivery

- Instructor Led
- Virtual ILT

#### Certification Exam

300-615 DCIT

#### Cisco CE Credits

50

### Who Should Attend

The primary audience for this course is as follows:

- Network Designers
- Network Administrators
- Network Engineers



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- System Engineers
- Data Center Engineers
- Consulting Systems Engineers
- Technical Solutions Architects
- Server Administrators
- Network Managers
- Cisco Integrators and Partners

### Prerequisites

To fully benefit from this course, you should have the following knowledge and skills:

- Configure, secure, and maintain LAN and SAN based on Cisco Nexus and MDS switches
- Configure, secure, and maintain Cisco Unified Computing System
- Configure, secure, and maintain Cisco ACI

The following Cisco courses may help you meet these prerequisites:

- Implementing and Administering Cisco Networking Technologies (CCNA®)
- Understanding Cisco Data Center Foundations (DCFNDU)
- Implementing and Operating Cisco Data Center Core Technologies (DCCOR)
- Introducing Cisco NX-OS Switches and Fabrics in the Data Center (DCINX)
- Configuring Cisco NX-OS Switches and Fabrics in the Data Center (DCCNX)
- Introducing Cisco Unified Computing System (DCIUCS)
- Configuring Cisco Unified Computing System (DCCUCS)

### Course Outline

#### Module 1: Describing the Troubleshooting Process

- Troubleshooting Overview
- Narrow Down the Cause of the Problem

#### Module 2: Understanding CLI Troubleshooting Tools

- Ping, Pong, and Traceroute
- Debugging, Event History, and System Monitoring
- Switched Port Analyzer (SPAN) and Encapsulated Remote SPAN
- Ethalyzer, Embedded Logic Analyzer Module (ELAM), and Data Plane Sampling Capture



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- Logging
- Cisco Generic Online Diagnostics
- Simple Network Management Protocol (SNMP), Cisco Embedded Event Manager (EEM), and Remote Network Monitor (RMON)

### Module 3: Troubleshooting VLANs and PVLANS

- Troubleshoot VLAN Trunking Protocol (VTP)
- Troubleshoot Layer 2 Issues
- VLANs and Switched Virtual Interfaces (SVIs) on Cisco Nexus Series Switches
- Troubleshoot VLANs, PVLANS, and SVIs
- Troubleshoot Rapid Per VLAN Spanning Tree+ (PVST+)

### Module 4: Troubleshooting Port Channels and Virtual Port Channels

- Port Channel Overview
- Virtual Port Channel (vPC) Overview
- Troubleshoot vPCs
- Common vPC Issues

### Module 5: Troubleshooting Cisco Overlay Transport Virtualization (OTV)

- Cisco OTV Features
- Common Cisco OTV Issues
- Cisco OTV Troubleshooting
- Hot Standby Routing Protocol (HSRP) Isolation Between Data Centers Using Cisco OTV

### Module 6: Troubleshooting Virtual Extensible LAN (VXLAN)

- VXLAN Overlay Features
- VXLAN Multiprotocol Border Gateway Protocol (MP-BGP) Ethernet VPN
- Common VXLAN Issues
- VXLAN Troubleshooting

### Module 7: Troubleshooting Routing and High-Availability Protocols

- Troubleshoot Basic Routing Issues



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- Troubleshoot OSPFv2 and OSPFv3
- Troubleshoot EIGRP
- Troubleshoot PIM
- Troubleshoot First Hop Redundancy Protocol (FHRP)

### Module 8: Troubleshoot Data Center LAN Security

- Troubleshoot Authentication, Authorization, and Accounting (AAA) and Role-Based Access Control (RBAC)
- Troubleshoot First-Hop Security
- Troubleshoot Control Plane Policing (CoPP)
- Troubleshoot Access Control Lists (ACLs)

### Module 9: Troubleshooting Platform-Specific Issues

- Cisco Fabric Services Overview
- Troubleshoot Cisco Fabric Services
- Configure and Troubleshoot Configuration Profiles
- Common Virtual Device Contexts (VDC) Issues
- Troubleshoot VDC
- Troubleshoot Virtual Routing and Forwarding (VRF)
- Cisco FEX Troubleshooting
- Troubleshoot Cisco In-Service Software Upgrade (ISSU)

### Module 10: Troubleshooting Fibre Channel Interfaces

- Fibre Channel Overview
- Troubleshoot Fibre Channel Interfaces and Device Registration
- Troubleshoot Fibre Channel Port Channels
- Troubleshoot Port Security and Fabric Binding

### Module 11: Troubleshooting Fibre Channel Fabric Services

- Troubleshoot Virtual Storage Area Networks (VSANs)
- Troubleshoot Fibre Channel Domain and Name Services
- Troubleshoot Zoning and Fabric Merges
- Troubleshoot Cisco Fabric Services

### Module 12: Troubleshooting NPV Mode



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- N-Port ID Virtualization (NPV) and NPV Overview
- Troubleshoot NPV Mode

### Module 13: Troubleshooting FCoE

- FCoE and FIP Overview
- Troubleshoot FIP
- Troubleshoot FCoE- and QoS-Related Issues
- Troubleshoot Data Center Bridging (DCB)

### Module 14: Troubleshooting Cisco UCS Architecture and Initialization

- Troubleshoot Fabric Interconnect in Standalone and Cluster Mode
- Troubleshoot Cisco UCS Management Access
- Troubleshoot Cisco UCS Manager CLI
- Troubleshoot Cisco UCS with Embedded Tools
- Troubleshoot Cisco UCS Hardware Discovery

### Module 15: Troubleshooting Cisco UCS Configuration

- Stateless Computing
- Troubleshoot Service Profile Association Issues Due to Unavailable Addresses
- Other Service Profile Association Issues
- Cisco UCS Manageability
- Troubleshoot Authentication Failures

### Module 16: Troubleshooting Cisco UCS B-Series Servers

- Troubleshoot Cisco UCS B-Series Blade Server
- Troubleshoot Firmware Upgrade and Operating System Drivers
- Troubleshoot Remote Access
- Troubleshoot Server Hardware

### Module 17: Troubleshooting Cisco UCS B-Series LAN and SAN Connectivity

- Troubleshoot Link-Level Issues
- Troubleshoot Connectivity Issues for Specific Servers
- Troubleshoot Intermittent Connectivity
- Troubleshoot Disjoint Layer 2 Networks
- Troubleshoot Redundant Connectivity
- Troubleshoot Cisco UCS B-Series SAN Connectivity



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- Troubleshoot Directly Attached Storage
- Troubleshoot Server Boot from SAN and iSCSI
- Use SPAN for Troubleshooting
- Analyze Packet Flow

### Module 18: Troubleshooting Cisco UCS C-Series Servers

- Troubleshoot Cisco UCS C-Series Initialization and Cisco IMC
- Troubleshoot Cisco UCS C-Series Hardware and Firmware

### Module 19: Troubleshooting Cisco UCS C-Series LAN and SAN Connectivity

- Troubleshoot the Cisco UCS C-Series VIC Module and Connectivity to Cisco IMC
- Troubleshoot Cisco UCS C-Series LAN Connectivity
- Troubleshoot Cisco UCS C-Series SAN Connectivity
- Use SPAN to Capture Cisco UCS C-Series Server Traffic
- Troubleshoot Cisco UCS C-Series Boot from the Fibre Channel Logical Unit Number LUN
- Troubleshoot Cisco UCS C-Series iSCSI Boot

### Module 20: Troubleshooting Cisco UCS C-Series and Cisco UCS Manager Integration

- Integrate Cisco UCS C-Series Servers with Cisco UCS Manager
- Troubleshoot FEX Discovery and VIC Issues

### Module 21: Exploring the Tools and Methodologies for Troubleshooting Cisco ACI

- Troubleshoot the Fabric Discovery Process
- Traditional Troubleshooting Methods in Cisco ACI Atomic Counters, Faults, and Health Scores
- Troubleshoot Tenant-Based Policies
- Packet Flow Through Cisco ACI Fabric
- Troubleshoot AAA and RBAC

### Module 22: Troubleshoot Automation and Scripting Tools

- Troubleshoot Cisco Internetwork Operating System (IOS) EEM
- Troubleshoot the Cisco NX-OS Scheduler

### Module 23: Troubleshooting Programmability

- Troubleshoot Bash Shell and Guest Shell for NX-OS



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- Troubleshoot Representational State Transfer (REST) API, JavaScript Object Notation (JSON), and Extensible Markup Language (XML) Encodings

### LAB OUTLINE

- Designing Enterprise Connectivity
- Designing an Enterprise Network with BGP Internet Connectivity
- Designing an Enterprise Campus LAN
- Designing Resilient Enterprise WAN
- Designing QoS in an Enterprise Network
- Designing an Enterprise IPv6 Network