Troubleshooting Cisco Data Center Infrastructure

Duration: 5 Days   Course Code: DCIT   Version: 7.1

Overview:

The Troubleshooting Cisco Data Center Infrastructure (DCIT) course shows you how to troubleshoot LAN, SAN, Cisco Data Center Unified Fabric, Cisco Unified Computing System (UCS), and Cisco Application-Centric Infrastructure (ACI). You will get extensive hands-on practice troubleshooting installation, configuration and interconnectivity issues on Cisco MDS switches, Cisco Nexus switches, Cisco Fabric Extenders (FEXs), Cisco UCS, Cisco ACI, and more.

This course helps you to prepare to take the Troubleshooting Cisco Data Center Infrastructure (300-615 DCIT) exam, which is one of the concentrations for **CCNP Data Center.** You will also achieve the **Cisco Certified Specialist - Data Center Operations** certifications.

This course is worth 50 Continuing Education Credits (CE).

Target Audience:

Engineers involved in the troubleshooting of LAN, SAN, Cisco Data Center Unified Fabric, Cisco Unified Computing System (UCS) and Cisco Application Centric Infrastructure (ACI).

Objectives:

- **After completing this course you should be able to:**

- Describe how to troubleshoot the data center network

- 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 that are related to: VLANs and PVLANs, port channels and virtual port channels; VXLAN

- Describe troubleshooting of routing and high-availability protocols

- Describe troubleshooting of the 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 NPV mode

- Identify and resolve issues that are 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

- Describe Cisco UCS B-Series Blade Server operation and troubleshoot related issues

- Describe Cisco UCS B-Series LAN, SAN, and Fibre Channel operations, including in-depth troubleshooting procedures

- Describe Cisco 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 Cisco UCS C-Series LAN and SAN connectivity, avoiding issues with the VIC, and troubleshooting connectivity issues

- Troubleshoot 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

Prerequisites:

Attendees should meet the following prerequisites:

Testing and Certification

Recommended as preparation for exam:

- 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
- CCNA - Implementing and Administering Cisco Solutions
- DCFNDU - Understanding Cisco Data Center Foundations
- DCCOR - Implementing and Operating Cisco Data Center Core Technologies

- **300-615 - DCIT -** Troubleshooting Cisco Data Center Infrastructure
To achieve CCNP Data Center Certification you will also need to pass the DCCOR - 350-601 exam.

Content:

Troubleshooting Process Overview

- Troubleshooting Overview
- Narrow Down the Cause of the Problem

Understanding CLI Troubleshooting Tools

- Ping, Pong, and Traceroute
- Debugging, Event History, and System Monitoring
- SPAN and Encapsulated Remote SPAN
- Ethanalyzer and Data Plane Sampling Capture
- Logging
- Cisco Generic Online Diagnostics
- SNMP, Cisco EEM, and RMON

Troubleshooting VLANs and PVLANs

- Troubleshoot VTP
- Troubleshoot Layer 2 Issues
- VLANs and SVIs on Cisco Nexus Series Switches
- Troubleshoot VLANs, PVLANs, and SVIs
- Troubleshoot Rapid PVST+

Troubleshooting Port Channels and Virtual Port Channels

- Port Channel Overview
- vPC Overview
- Common vPC Issues

Troubleshooting VXLAN

- VXLAN Overlay Features
- VXLAN MP-BGP Ethernet VPN
- Common VXLAN Issues
- VXLAN Troubleshooting

Troubleshooting Routing and High-Availability Protocols

- Troubleshoot Basic Routing Issues
- Troubleshoot OSPFv2 and OSPFv3
- Troubleshoot EIGRP
- Troubleshoot PIM
- Troubleshoot FHRP
- Troubleshoot Data Center LAN Security
- Troubleshoot AAA and RBAC
- Troubleshoot First-Hop Security
- Troubleshoot ACLs

Troubleshooting Platform-Specific Issues

- Cisco Fabric Services Overview
- Troubleshoot Cisco Fabric Services
- Configure and Troubleshoot Configuration Profiles
- Common VDC Issues
- Troubleshoot VDC
- Troubleshoot VRF
- Cisco FEX Troubleshooting

Troubleshooting Fibre Channel Interfaces

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

Troubleshooting Fibre Channel Fabric Services

- Troubleshoot VSANs
- Troubleshoot Fibre Channel Domain and Name Services
- Troubleshoot Zoning and Fabric Merges
- Troubleshoot Cisco Fabric Services

Troubleshooting NPV Mode

- NPIV and NPV Overview
- Troubleshoot NPV Mode
- Troubleshooting FCoE
- FCoE and FIP Overview
- Troubleshoot FIP
- Troubleshoot FCoE- and QoS-Related Issues
- Troubleshoot DCB

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
- Cisco Intersight Overview
- Cisco Nexus Dashboard Overview

Troubleshooting Cisco UCS Configuration

- Stateless Computing
- Troubleshoot Service Profile Association Issues
- Cisco UCS Manageability
- Troubleshoot Authentication Failures

Troubleshooting Cisco UCS B-Series Servers

- Troubleshoot Cisco UCS B-Series Server Boot
- Troubleshoot Operating System Drivers
- Troubleshoot Remote Access
- Troubleshoot Server Hardware

Troubleshooting Cisco UCS B-Series LAN and SAN Connectivity

Troubleshooting Cisco UCS C-Series Servers

- Troubleshoot Cisco UCS C-Series Initialization and Cisco IMC
- Troubleshoot Cisco UCS C-Series Hardware and Firmware
- 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 LUN
- Troubleshoot Cisco UCS C-Series iSCSI Boot

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

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

Troubleshoot Automation and Scripting Tools

- Troubleshoot Cisco IOS EEM
- Troubleshoot the Cisco NX-OS Scheduler

Troubleshooting Programmability

- Troubleshoot Bash Shell and Guest Shell for NX-OS
- Troubleshoot REST API, JSON, and XML Encodings
- On-Box Programmability on Cisco NX-OS

Labs

- Discovery Lab 1: Document the Network Baseline
- Discovery Lab 2: Troubleshoot Rapid PVST+
- Discovery Lab 3: Troubleshoot LACP
- Discovery Lab 4: Troubleshoot vPC

- Troubleshoot Cisco ISSU

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

- Discovery Lab 5: Troubleshoot VXLAN
- Discovery Lab 6: Troubleshoot OSPF
- Discovery Lab 7: Troubleshoot FHRP
- Discovery Lab 8: Troubleshoot Cisco Fabric Services
- Discovery Lab 9: Troubleshoot VRF
- Discovery Lab 10: Troubleshoot Cisco FEX
- Discovery Lab 11Troubleshoot Fibre Channel Interfaces
- Discovery Lab 12: Troubleshoot Fibre Channel VSANs, Zones, and Domain Services
- Discovery Lab 13 Troubleshoot NPV Mode
- Discovery Lab 14 Troubleshoot FCoE
- Discovery Lab 15: Troubleshoot DCB
- Discovery Lab 16: Troubleshoot Cisco UCS Management and Service Profile Deployment
- Discovery Lab 17: Troubleshoot Cisco UCS C-Series Server LAN Connectivity
- Discovery Lab 18: Troubleshoot Cisco UCS C-Series Server Boot from the Fibre Channel LUN
- Discovery Lab 19: Troubleshoot Cisco UCS C-Series Server Management Connectivity
- Discovery Lab 20: Troubleshoot Cisco ACI Integration with VMware vCenter
- Discovery Lab 21 Troubleshoot Contracts in Cisco ACI
- Discovery Lab 22: Troubleshoot Cisco ACI External Layer 3 Connectivity
- Discovery Lab 23: Troubleshoot Cisco ACI External Layer 2 Connectivity

Additional Information:

Students looking to achieve their CCNP in Data Center will also require :**350-601 DCCOR- Implementing and Operating Cisco Data Center Core Technologies**

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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