Cisco Software-Defined Access (SDA): Use Case Implementation, Operations, & Troubleshooting

Duration: 5 Days **Course Code: N1-SDAOTS** **Version: 1.0** **Delivery Method: Closed Events**

Overview:

Unlock the full potential of Cisco Software Defined Access (SDA) in this immersive, 5-day Deep Dive designed for Network Professionals who want to lead the shift to Intent Based Networking and explore Cisco SDA Capabilities. This hands-on course goes beyond theory, guiding learners through the practical implementation of Cisco SDA, from Single Fabric to Dual Fabric and Interconnectivity. Participants gain a clear understanding of how Cisco SDA transforms Network Design, Segmentation, Micro Segmentation, Security, Policy and Assurance; for a complete Day-0 to Day-N Solution; while building the confidence to Support, Optimize, and Troubleshoot the underlying platform components in real world environments. By the end of the course, learners are equipped with the skills needed to Deploy and Manage modern, scalable Campus and Branch Enterprise Networks with precision and control. The course qualifies for 50 Cisco Continuing Education Credits (CE).

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Target Audience:

The primary audience for this course is as follows:
- IT management, to understand how to address key business requirements with greater efficiency and flexibility in network service delivery
- IT solution architects, to understand the role that SDA plays in enabling such efficiency and flexibility for network services in the context of IT solution delivery
- IT and network security architects, to understand how the integrated capabilities of the SDA solution are used to design and implement network segmentation-based security
- IT operations engineers, integrating network and application visibility and root cause analysis into integrated IT case handling workflows
- Networking Admin and Operations installing, integrating, configuring and operating Cisco DNA Center, Cisco Identity Services Engine (ISE), and other solution components, in the context of Cisco SDA based network services
- Networking Field Engineers using capabilities of Cisco Catalyst Center to deploy, monitor and maintain network infrastructure for SDA based network services

Objectives:

- After this course participants should be able to:
- Articulate what is Intent-Based Networking and how it differentiates from traditional approach
- Explain what is Software Defined Access (SDA), its key concepts and building blocks
- Explain SDA benefits, business impact and use cases
- Position Cisco Catalyst Center as the key component of SDA solutions, its form factors and deployment options
- Identify the workflows available in Cisco Catalyst Center for network design, provisioning, policy enablement and health assurance
- Design, deploy, and operate SDA with Cisco Catalyst Center end-to-end, including device discovery and onboarding, site hierarchy, design settings, image management, fabric building, segmentation, policy and assurance
- Understand the Integration Capabilities of Cisco Catalyst Center with Cisco ISE, Cisco Thousand Eyes and third-party components.
- Define a Campus Fabric, identify the underlay and overlay
- Implement and extend policy & segmentation using Virtual Networks and TrustSec/SGTs, consistently enforced across campus, WAN, data center, and firewall domains
- Automate onboarding and provisioning at scale with Plug-and-Play, LAN Automation, and Day-0/Day-N templates
- Describe Fabric Border concepts, deployment options for multi-site/fabric domains and SDA Transit Types
- Assure overall health and user experience with Network/Client/Application 360 views and proactive sensors
- Discuss the strategies for migration from traditional campus to Cisco SDA-based Solution
- Identify the similarities and relationships between multiple Software Defined Networking domains like Cisco SD-Access, Cisco SD-WAN and Cisco ACI
- Recognize the strategies to integrate Cisco Wireless CUWN into Cisco SDA Solution
- Apply modern troubleshooting tools to Diagnose and Solve common networking problems, following different strategies and enhancing Visibility and Understanding using a set of available tools

components and the key elements in the control plane (LISP), data plane (VxLAN) and policy plane (CTS)

Prerequisites:

The knowledge and skills that the learner should have before attending this course are as follows:

- Implementation of Enterprise LAN networks
- Basic Understanding of Enterprise Switching, and Centralized Wireless Architecture
- Basic Understanding of Enterprise Routing Connectivity
- Basic Understanding of AAA (Authentication, Authorization, and Accounting) process and workflow
- Programming knowledge such as Python, Rest API is useful but not required

Testing and Certification

- N/A

Follow-on-Courses:

- None Recommended

Content:

Course Outline

Module 1: Cisco Software-Defined Access (SDA) Overview

- Understanding Cisco Intent-Based Networking
- Understanding Cisco SDA Use Cases, Customer's Benefits including Business and Technical Outcomes and Capabilities
- Cisco Catalyst Center (formerly DNAC) Introduction
- Cisco SD-Access Overview
- Cisco SD-Access Benefits
- Cisco SD-Access Key Concepts
- Cisco SD-Access Main Components
- Fabric Control Plane Node
- Fabric Border Node
- Fabric Edge Node
- Fabric-Enabled Wireless LAN Controller and Fabric-Enabled Access Points
- Cisco Catalyst Center Automation
- Cisco ISE (AAA Server w/Cisco TrustSec)
- Cisco Catalyst Center Assurance

Module 2: Cisco Catalyst Center Form Factors and Deployments

- Cisco Catalyst Center Appliances
- Cisco Catalyst Center Deployment Models
- Single Node Deployment
- Clustered Deployment
- Installation Procedure
- Initial Setup and Configuration
- GUI Navigation
- Backup and Restore
- Cisco SD–Access Requirements
- Cisco Catalyst Center and Cisco ISE Integration

Module 3: Cisco Catalyst Center Workflows

- Introduction to Workflows
- Design, Policy, Provision and Assurance
- Creating Sites and Building Site Hierarchy (Area, Building, Floor)
- Standardizing Network Settings (Servers, Credentials, Telemetry, Wireless)
- Adding Map to Floor
- IP Address Management
- Software Image Management
- Network Discovery

Module 4: Cisco Catalyst Center Appliance and Cisco SDA Campus Fabric

- Overlay/Fabric (Terminology)
- Underlay (Manual vs. Automated)
- Cisco SD-Access Constructs
- Cisco SD-Access Fabric Broadcast Capabilities
- Cisco SD-Access Key Components (LISP,

Module 5: VRF-Lite

- Layer 3 Handoff
- Peer Device Configuration
- Route Leaking

Module 6: Fabric Border Design Options: Collocated vs. Distributed

- Collocated Border
- Distributed Border
- Layer 2 Border
- Layer 2 Border Deployment Model

Module 7: Cisco SD-Access Transit Types

- IP as Transit or Peer Network
- Cisco SD-Access as Transit
- Cisco SD-Access
- Multisite Forwarding and Packet Walk
- Cisco SD-Access Multisite
- Data Center, WAN, and Shared Services Forwarding
- Cisco SD-Access Multisite Internet Access Forwarding

Module 8: Summary of Cisco Fabrics

- SD-Access and SD-WAN Integration
- Cisco SD-Access and Cisco ACI Integration

Module 9: Introduction to SDA Wireless

- SDA Wireless: Supported Products
- SDA Wireless: Workflows
- SDA Wireless: Fabric Mode Design
- SDA Wireless: Over the Top (OTT) Mode Design
- SDA Wireless: Guest Design
- SDA Wireless: High Availability

Module 10: Migration Philosophy, Tools, and Strategies

- Cisco Catalyst Center Setup and ISE Integration
- Border Node Concerns
- Border Node Migration
- Fusion Node
- Layer 2 Flooding and Layer 2 Border

Module 11: Troubleshooting

- Logging
- Cisco Catalyst Center ISE Integration

Module 12: Cisco SD-Access Fabric Troubleshooting Host Onboarding

- Assurance Overview
- Assurance Use Cases

Module 13: Addendum: New Concepts

- Cisco SD-Access LISP Publisher and Subscriber
- Cisco SD-Access IP-Directed Broadcast
- Background to Extended Nodes
- Introduction to Policy Extended Nodes
- Catalyst 9K Policy Extended Node Deployment Plan
- FEW with N+1 High Availability and Rolling AP Upgrade
- What's New in Cisco Catalyst Center Software v3.1.6

Lab Outline

- Discovery Lab 1: Navigate Cisco Catalyst Center
- Discovery Lab 2: Integrate Cisco ISE with Cisco Catalyst Center (Instructor Demo)
- Discovery Lab 3: Design Cisco Catalyst Network
- Discovery Lab 4: Using the Cisco Catalyst Center Discovery Tool
- Discovery Lab 5: Using the Cisco Catalyst Center Inventory Tool
- Discovery Lab 6: Using the Cisco Catalyst Center Policy Application
- Discovery Lab 7: Fabric Provisioning
- Discovery Lab 8: Host (Wired and Wireless) and AP Anycast Gateway Configuration
- Discovery Lab 9: Configure External Connectivity with Fusion Router
- Discovery Lab 10: Configuring Cisco ISE Policies for User Onboarding
- Discovery Lab 11: Verify and Troubleshoot Access Points
- Discovery Lab 12: Onboarding and Provisioning Access Points
- Discovery Lab 13: Fabric and Segmentation Verification

VxLAN, CTS)
- Underlay Automation
- Fabric Border Concepts

- Discovery Lab 14: CATC Integration with Umbrella
- Discovery Lab 15: Configuring a Layer 2 Border to Extend the Same IP Pool
- Discovery Lab 16: Transitioning the Traditional User to the SDA Anycast Gateway
- Discovery Lab 17: Testing IP Connectivity Between SD-Access User and Traditional User
- Discovery Lab 18: Configure an SDA-Transit and the Transit Control Plane (TCP)
- Discovery Lab 19: Designing a Second Fabric Site with the Design Application
- Discovery Lab 20: Deploying a Second Fabric Site–Fabric in a Box
- Discovery Lab 21: Deploying a New Fabric Edge–Leveraging Cisco Catalyst Center LAN Automation
- Discovery Lab 22: Automate Network Devices Using Day-N
- Discovery Lab 23: Add an Edge Node to Fabric Site-2
- Discovery Lab 24: Host Onboarding at Fabric Site-2
- Discovery Lab 25: Connecting the Two Fabric Sites Using SD-Access Transit
- Discovery Lab 26: Testing IP Connectivity Between Fabric Site-1 and Fabric Site-2
- Discovery Lab 27: Energy Management

Further Information:

For More information, or to book your course, please call us on 00 966 92000 9278

training@globalknowledge.com.sa

www.globalknowledge.com/en-sa/

Global Knowledge - KSA, 393 Al-Uroubah Road, Al Worood, Riyadh 3140, Saudi Arabia