Mindsets

Network Security Consulting and Training Services

IT SOLUTIONS BASED ON EGYPT

Engineered Training

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COURSE OUTLINES

CISCO SD-ACCESS **V2.0**

CISCO TECHNOLOGIES

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CISCO SD-ACCESS – COURSE OUTLINES

COURSE OVERVIEW

The Cisco SD-Access is a Cisco Technologies course that is developed for whom seeking to understand SDN Technologies along with generic foundational knowledge in Enterprise Networking Solutions. In this course, you will learn how to design, deploy, configure, and operate the Cisco Software-Defined Access (SD-Access) solution in large-scale enterprise networks.

We are going to look at the best practices for designing, as well as how to implement advanced Network Wireless with SDA Solution

COURSE RELATED CERTIFICATIONS

There are no specific prerequisites for this course, although it's recommended to fulfill below points to better understand technologies and features

- Recommended to have at least CCNA R&S
- Recommended to have good knowledge of VRF and MP-BGP
- Recommended to have at least 1 – 3 years of networking experience.
- Recommended to have a laptop in Lab sessions.

COURSE PREREQUISITES

This Cisco SD-ACCESS course is not aligned with any specific Cisco exam. It is custom-developed for Cisco DNA Technology and can be recommended for anyone planning to take the following exams:

- 350-401 ENCOR v1.1: This exam focuses on core enterprise networking technologies.
- CCIE Enterprise v1.1: This is for those pursuing the prestigious Cisco Certified Internetwork Expert (CCIE) .

This course provides valuable knowledge and skills that will be beneficial in preparing for these certifications, even though it is not directly aligned with any specific exam

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CISCO SD-ACCESS – COURSE OUTLINES

COURSE OBJECTIVES

After completing this course, you should be able to:

- Bringing Up Cisco DNA Center
- Bringing up Cisco SD-Access Solution
- Configure Advanced Policies for SD-A Network
- Use the GUI and CLI for administration and Troubleshooting
- Control Enterprise network Through policies
- Making New Design for Cisco SD-Access Solution
- Operate the Solution through GUI and CLI
- Talk about the Technology as a pre-sales Engineer
- Monitor All Enterprise Devices through Cisco DNAC
- Integration Between SD-A and SD-WAN Solution
- Integration Between SD-A and Cisco ACI

TARGET AUDIENCE

Who Should Attend:

- Networking professionals Engineers
- Solution Architects
- Implementation Engineers
- Operation Engineers
- Pre-sales Engineers

DURATION

The Cisco SD-Access course has a duration of 40 hours. This includes all instructional content, hands-on labs, and any additional training materials

DELIVERY

- Online Classroom (Not available right now)
- Onsite Classroom (Not available right now)
- Recorded Videos (Available)
- Free Version (Not available right now)

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CISCO SD-ACCESS – COURSE OUTLINES

TOOLS AND MATERIALS

- Recorded Video's
- Animated Presentation
- Official Guide
- Software for Labs
- Configuration Templates
- Lab Topologies EVE-ng

COURSE INDEX

SDA-DD Introduction
- Traditional LAN Network
- SDN Idea
- Underlay / Overlay Network
- Fabric Components Overview
- Hardware Supported
  - Wired Devices 9K Family
  - Wireless Devices Air0s and IOS-XE
- DNA Cluster
- DNA License
  - Essential
  - Advantage

SDA Fabric Components
- DNA-Center / ISE
- Fusion Router
- Control Plane Node
- Border and Edge Fabric
  - Border Type
    - Anywhere – External - Internal
- Fabric Bring up
  - Manual
  - LAN Automation

Fabric Operations
- Lisp Locator ID Separation Protocol
- Lisp Control Plane - Data Plane
- SDA Data Plane VXLAN

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CISCO SD-ACCESS – COURSE OUTLINES

- **SDA Policy Plane**
  - Cisco Trust Sec
  - Scalable Groups / SGT
- SDA - Fabric operation
  - Control plane operation
  - Data plane operation
  - Wireless in SD-Access fabric

SDA Fabric Configuration – Manual

- SDA Fabric Underlay Configuration
- SDA Fabric_Edges Overlay Configuration
  - Lisp Configuration
  - Vxlan Configuration
  - Macro-Segmentation Configuration
- SDA Border and Control Plane Node
  - Collocated Design (Border + CP Node)
  - Distributed Design (Border, CP Node)
  - Different Border Types
- Intra VN Communications - Validation
- Lisp Mobility - SMR
- SDA Security Plane
  - Micro Segmentation
  - SGT - Trust Sec
  - Policy Enforcement
- SDA Connection to External Networks
  - Border Node Configuration - BGP
  - Dummy Loopbacks
  - Fusion Router Configuration
- Inter VN Communications
- DHCP Traffic Flow

Fabric considerations

- Fabric deployment models
- SDA Fabric Site
- SDA for distributed Campus
  - IP transit
  - Software-Defined WAN transit (SD-WAN)
  - SD-Access transit (native)
- VN anchoring
- Shared services (DHCP, DNS, IPAM etc.)
- Uses of SD-Access VN extranet
- Uses of a fusion router and/or firewall

DNA-C and ISE Deployment

- DNA Center Initial Configuration
- ISE Integration with DNA-C

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CISCO SD-ACCESS- COURSE OUTLINES

DNA-C Interfaces and HA

- Installation Using Vlan Mode
- Installation Using Vlan Mode + LACP
- DNA-C Disaster Recovery

SDA Fabric Configuration

- Introduction to DNA Center Web Interface
  - Using the DNA Center Discovery Tool
  - DNA Center Inventory Tool
- SDA Fabric Configurations
- Integrating DNA Center With (ISE)
- Using the DNA Center Policy Application
- Using the DNA Center Provision Application
- Provisioning the Underlay (LAN Automation)
- Creating the Fabric Overlay
- DNA Center Host Onboarding
- Discussion on Fabric Border Nodes

Fabric packet forwarding and flows

- Client DHCP operation
- ARP operation
- Unicast wired-to-wireless
- Wireless mobility
- Unicast from fabric to external client with sender and receiver in the same sub-net (between SD-Access and external networks)
- Unicast from fabric to external client with sender and receiver in different sub-nets (between SD-Access and external networks)
- Broadcast support

DNA-C Assurance

Cisco AI Endpoint Analytics

- Overview
- Data Sources
- Deployment Types
- Connect to Machine Learning (ML)/AI Cloud Services
- AI Cloud registration
- Enabling DNAC as Netflow Collector
- Enabling netflow on network devices
- SD-AVC setup
- Cisco Traffic Telemetry Appliance
  - Physical connections
  - Cisco TTA Appliance pre-configuration
  - Adding Telemetry Box to DNAC inventory
  - Enable CBAR

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SDA Device Replacement

- Summary
- Cisco DNA Center Inventory Overview
- Cisco DNA Center RMA Workflow
- Feature Summary and Prerequisite
- One-Touch and Zero-Touch RMA Workflow
- Limitations of RMA Workflow
- Device Replacement Lab
  - Extended Node Replacement
  - Access Point Replacement - AP
  - Fabric Edge Replacement
    - Catalyst 9300 - 9400
    - Supervisor Replacement
      - Option I: Manual Method
      - Option II: RMA Workflow Method
    - Line Card Replacement
    - Chassis Replacement
- Border/Control Plane Replacement
- Switch Stack Member Replacement
- Fusion Replacement

SDA Policy Extended Node Configuration

- Introduction for Extended Node
- Configure DNA Center for Policy Extended Node
  - Site Level Credentials
  - IP Pools for Policy Extended Node
  - Create Port Channel
  - Host Onboarding
  - Assign Port - FE to Policy Extended Node
- Verify Policy Extended Node Bring-up

SDA Fabric Wireless

- SD-Access Wireless
  - SD-Access Wireless architecture
  - Components of the SDA Wireless architecture
- SDA Wireless protocols and interfaces
- SDA Wireless platform support
- SDA Wireless network deployment
- RMA Process for Fabric wireless
- 9800 Embedded Wireless LAN Controller (EWC)
- Peer to Peer Blocking

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AP Connection to the Fabric Edge

- SDA Wireless - Summary
  - Adding a WLC to the fabric
  - AP join flow
  - Client onboarding flow
- Cisco Unified Wireless Network wireless OTT
  - Cisco UWN wireless OTT network design
  - Client traffic flow
  - Traffic flow between a wireless and Wired client
  - Wireless as an overlay (OTT) – design considerations
- SDA Wireless guest access design
  - The OTT solution Using a guest anchor controller
  - A dedicated guest virtual network
  - A dedicated guest fabric domain
- High availability in SD-Access Wireless
  - Stateful redundancy with SSO
  - Stateless redundancy with N+1
  - Control plane redundancy

SDA || SD-WAN integration (Integrated Domain)

- Cisco SD-WAN Solution Components
- Cisco Software-Defined Access Overview
- Cisco SD-WAN Design Overview
- Integrated Domain Design Considerations
- Deployment Lab Integrated Domain

SDA || SD-WAN integration (Independent Domain)

- Independent Domain Protocol Integrations
- Independent Domain Design Considerations
- SGT Propagation Using Inline Tagging
- Configure SGT Inline Tagging Using CLI
- Deployment Lab Independent Domain

SDA Fabric ACI integration

- SD-Access and ACI Integration
- Enabling ISE to ACI Integration
- ACI Settings in ISE
- APIC Internal EPGs to Security Groups
- Trust-Sec SG converted to ACI External EPGs
- ISE IP Mappings are converted to External EPG Subnets
- Contract Creation on APIC
- Enabling Group-Based Enforcement on the SDA Border

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First 6th of October, October Gardens, Giza Governorate