

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

Module 1: Introduction to Cisco's Software Defined Access (SD-Access)

- Understanding Cisco Intent-Based Networking
- Understanding Cisco SDA Use Cases customer's benefits including business and technical outcomes and capabilities
- Cisco DNA Center Introduction
- SD-Access Overview
- SD-Access Benefits
- SD-Access Key Concepts
- SD-Access Main Components
 - Fabric Control Plane Node
 - Fabric Border Node
 - Fabric Edge Node
 - Fabric Wireless LAN Controller and Fabric Enabled Access Points
- Cisco DNA Center Automation
- Cisco ISE (Policy)
- Cisco StealthWatch (Traffic Analysis)
- DNA Center Assurance

Module 2: Deployment and Initial setup for the Cisco DNA-Center

- Cisco DNA-Center Appliances
- Cisco DNA-Center Deployment Models
 - Single Node Deployment
 - Clustered Deployment
- Installation Procedure
- Initial Setup and Configuration
- GUI Navigation

Module 3: SDA - Design

- Network design options
- Sites

- Creating Enterprise and Sites Hierarchy
- Configuring General Network Settings
- Loading maps into the GUI
- IP Address Management
- Software Image Management
- Network Device Profiles
- AAA
- SNMP
- Syslog
- IP address pools
- Image management
- Creating Enterprise and Guest SSIDs
 - Creating the wireless RF Profile
 - Creating the Guest Portal for the Guest SSIDs
- Network profiles
- Authentication templates

Module 4: SDA - Policy

- 2-level Hierarchy
 - Macro Level: Virtual Network (VN)
 - Micro Level: Scalable Group (SG)
- Policy
 - Policy in SD-Access
 - Access Policy: Authentication and Authorization
 - Access Control Policy
 - Application Policy
 - Extending Policy across domains
 - Preserving Group Metadata across Campus, WAN and DC
 - Enforcing policy in Firewall domains
 - Cross Domain Policies

Module 5: SDA - Provision

- Devices Onboarding
 - Lifecycle stages of network device discovery
 - Discovering Devices
 - Assigning Devices to a site

- Provisioning device with profiles
- Plug-and-Play
- LAN Automation
- Templates
 - Templates for day 0
 - Templates for day N operations
- IP Transits
 - How to connect the Fabric Sites to the external network
 - Creating the IP Transit
 - Considerations for a SD-Access Border Node Design
 - BGP Hand-Off Between Border and Fusion
- Fabric Domains
 - Understanding Fabric Domains and Sites
 - Using Default LAN Fabric Domain
 - Creating Additional Fabric Domains and Sites
- Adding Nodes
 - Adding Fabric Edge Nodes
 - Adding Control Plane Nodes
 - Adding Border Nodes

Module 6: SDA - Assurance

- Overview of DNA Assurance
- Cisco DNA Center Assurance- Use Cases Examples
- Network Health & Device 360
- Client Health & Client 360
- Application Health & Application 360
- Cisco SD- Application Visibility Control (AVC) on DNA-Center
- Proactive troubleshooting using Sensors

Module 7: Cisco SD-Access Distributed Campus Design

- Introduction to Cisco SD-Access Distributed Campus Design – The Advantage?
- Fabric Domain vs Fabric Site
- SD-Access Transits:
 - IP-Based Transit
 - Cisco SD-Access Transit
 - Cisco SD-WAN Transit

- Deploying the Cisco Distributed Campus with SD-Access Transit
 - Site considerations
 - Internet connectivity considerations
 - Segmentation considerations
 - Role of a Cisco Transit Control Plane
- Cisco SD-Access Fabric in a Box
 - The need for FiaB
 - Deploying the FiaB

Module 8: Cisco SD-Access Brownfield Migration

- Cisco SD-Access Migration Tools and Strategies
- Two Basic Approaches:
 - Parallel Deployment Approach
 - Incremental Deployment Approach
 - Integration with existing Cisco ISE in the network – Things to watch out for!
- Choosing the correct Fusion Device
 - Existing Core as Fusion
 - Firewall as Fusion
- When do you need the SD-Access Layer-2 Border?
 - L2 Border – Understanding the requirement
 - Designing and Configuring the L2 Border
 - L2 Border – Not a permanent solution

Module 9: Cisco DNA Center Automation- Use Cases Examples

- DAY0: Onboarding new devices using Zero Touch Deployment
- DAY1: Configurations using Templates
- DAYN: Security Advisories based on Machine Reasoning Engine
- DAYN: Simplified Software Management based on Golden Images
- DAYN: Defective Device Replacement - RMA

Module 10: 3rd Party Integrations

- ServiceNow
 - Integration
 - Management
- InfoBlox IPAM
 - Integration

- Management

Module 11: Specific Use Cases

- Use Case: STACK LAN Automation
- Use Case: Silent Hosts
- Use Case: Wake on LAN
- Use Case: The need for L2 flooding
- Use Case: Multicast in the SD-Access Fabric

Module 12: Cisco SD-Access Multi-Domain Integrations

- Cisco SD-Access to ACI Integrations
 - Phase-1: Policy Plane Integration
 - Phase-2: Data Plane Integration
- Cisco SD-Access to Cisco SD-WAN Integrations
 - What is possible today? SD-WAN Transit setup.
 - Phase-1: The one box solution
 - Phase-2: The two box solution

Module 13: Troubleshooting

- Fabric
- Layer 3 forwarding
- Layer 2 forwarding
- Multicast Forwarding
- Security in the Fabric
- Troubleshooting Multi-Site Deployments