Document Generated: 10/13/2026

Learning Style: Virtual Classroom

Technology: Cisco

Difficulty: Intermediate

Course Duration: 2 Days

Introduction to SD-Access and DNA Center (SDAINT)

About this course:

DNA Center and SD-Access offer Cisco’s next-generation programmable digital network to help automate common network access security features and streamline the redundant, complex configuration required to allow different groups of users access to the network infrastructure. This 2-day network security training course allows network administrators to quickly allow differentiated access for end users on

the network while allowing the network to react automatically to day zero and other types of attacks. Students who enroll in this course should have a basic understanding of Cisco CCNA Routing & Switching, of Software Defined Networks, and have experience with Cisco IOS, IOS XE, and CLI. Find additional course information below.

Course Objective:

Upon completing this course, the learner will be able to meet these overall objectives:

- Know and understand Cisco's SD-Access concepts, features, benefits, terminology and the way this approach innovates common administrative tasks on today's networks.
- Differentiate and explain each of the building blocks of SD-Access Solution
- Explain the concept of "Fabric" and the different node types that conform it (Fabric Edge Nodes, Control Plane Nodes, Border Nodes)
- Describe the role of LISP in Control Plane and VXLAN in Data Plane for SD-Access Solution
- Understand the role of DNA Center as solution orchestrator and Intelligent GUI
- Be familiar with workflow approach in DNA Center and its 4 Steps: Design, Policy, Provision and Assurance

Audience:

The primary audience for this course is as follows:

- Anyone interested in knowing about DNA Center and SD-Access
- Personnel involved in SD-Access Design and Implementation
- Network Operations team with SD-Access solution
- Network admin staff that deal with User Access
- Channel Partner SEs and other sales support
- Network Access Control administration
- Network Administrators
- Network Architects
- Network Engineers

Prerequisite:

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

- Knowledge level equivalent to Cisco CCNA Routing & Switching
- Basic knowledge of Software Defined Networks
- Basic knowledge and experience with Cisco IOS, IOS XE and CLI

Course Outline:

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

- SD-Access Overview
- SD-Access Benefits
- SD-Access Key Concepts
- SD-Access Main Components
    - Campus Fabric
        - Wired
        - Wireless
    - Nodes
        - Edge
        - Border
        - Control Plane
    - DNA Controller
    - ISE (Policy)
    - NDP (Analytics and Assurance)

Module 2: SD-Access Campus Fabric

- The concept of Fabric
- Node types
- Fabric Edge Nodes
- Control Plane Nodes
- Border Nodes
- LISP as protocol for Control Plane
- VXLAN as protocol for Data Plane
- Concept of Virtual Network
- Fabric-enabled WLAN
    - Fabric Enabled WLC
    - Fabric Enabled AP's

Module 3: DNA Center and Workflow for SD-Access

- Introduction to DNA Center
- Workflow for SD-Access in DNA Center
    - Design Step overview
    - Policy Step overview
    - Provision Step overview
    - Assurance Step overview
- Integration with Cisco ISE for Policy Enforcement
- Integration with Cisco NDP for Analytics and Assurance
- Relationship with APIC-EM controller

Module 4: DNA Center Workflow First Step - Design

- Creating Enterprise and Sites Hierarchy
- Discuss and Demonstrate General Network Settings
- Loading maps into the GUI
- IP Address Administration
- Administering Software Images

- Network Device Profiles

Module 5: DNA Center Workflow Second Step - Policy

- 2-level Hierarchy
    - Macro Level: Virtual Network (VN)
    - Micro Level: Scalable Group (SG)
- Policy Types
    - Access Policy
    - Access Control Policy
    - Traffic Copy Policy
- ISE Integration with DNA Center
- Cross Domain Policies

Module 6: DNA Center Workflow Third Step - Provision

- Devices Onboarding
    - Discovering Devices
    - Assigning Devices to a site
    - Provisioning device with profiles
- Fabric Domains
    - Understanding Fabric Domains
    - Using Default LAN Fabric Domain
    - Creating Additional Fabric Domains
- Adding Nodes
    - Adding Fabric Edge Nodes
    - Adding Control Plane Nodes
    - Adding Border Nodes

Module 7: DNA Center Workflow Fourth Step – Assurance

- Introduction to Analytics
- NDP Fundamentals
- Overview of DNA Assurance
- Components of DNA Assurance
- DNA Center Assurance Dashboard

Module 8: Implementing WLAN in SD-Access Solution

- WLAN Integration Strategies in SD-Access Fabric
    - CUWN Wireless Over The Top (OTT)
    - SD-Access Wireless (Fabric enabled WLC and AP)
- SD-Access Wireless Architecture
    - Control Plane: LISP and WLC
    - Data Plane: VXLAN
    - Policy Plane and Segmentation: VN and SGT
- Sample Design for SD-Access Wireless

Module 9: Campus Fabric External Connectivity for SD-Access

- Enterprise Sample Topology for SD-Access
- Role of Border Nodes
- Types of Border Nodes
    - Border
    - Default Border
- Single Border vs. Multiple Border Designs
- Collocated Border and Control Plane Nodes
- Distributed (separated) Border and Control Plane Nodes

Lab Outline:

- Connecting and getting familiar with DNA Center GUI
- Performing SD-Access Design Step in DNA Center
- Performing SD-Access Policy Step in DNA Center
- Performing SD-Access Provision Step in DNA Center
- Performing SD-Access Assurance Step in DNA Center

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