

Course Description: Implementing Cisco Data Center Network Infrastructure 1 (DCNI-1) v2.0 is a five-day, data center-oriented course. The course starts with an overview of current data center trends, the evolution of data centers, and how to position available Cisco platforms for access, aggregation, and core layers of the data center.

The course content is primarily focused on the Cisco Catalyst 6500 Series Switches, Cisco Catalyst 4900 Series top-of-rack switches, and, to a lesser degree, Cisco Blade Switches.

The course describes the hardware and software options for the Cisco Catalyst 4900 Series Switches, and considers platforms in the context of a data center network. Next, a detailed discussion on Cisco Catalyst 6500 Series Switch hardware and software architecture follows, focusing on the Cisco Catalyst 6500 Series Switch chassis, power supply, supervisor engine, line cards, and service module options. A new Virtual Switching System (VSS) functionality and configuration steps on how to deploy it are described. Then different features are discussed, with focus on the Cisco Catalyst 6500 Series Switch—the Cisco IOS modularity, quality of service (QoS) policy options and deployment, NetFlow, Cisco IOS Embedded Event Manager (EEM), Automated Diagnostic Tools, Switched Port Analyzer (SPAN), Remote SPAN (RSPAN), and Encapsulated RSPAN (ERSPAN).

Since security is a vital part of the Data Center network, the course continues with the description of the Cisco Catalyst 6500 Series Firewall Services Module (FWSM), hardware and software architecture, available features such as address translation, transparent versus routed mode, management and traffic control options, device virtualization with contexts, routing deployment, failover, and deep packet inspection functionality.

Network monitoring is also seen as an important part of data center network policy. Thus, the course gives an overview of network monitoring—the benefits of and reasons to deploy network monitoring. The course describes Network Analysis Module (NAM) hardware and software architecture, the steps to provide initial configuration, and the data center-oriented NAM usage cases and configuration.

The course concludes with a discussion on high availability, focusing on Hot Standby Router Protocol (HSRP), Virtual Router Redundancy Protocol (VRRP), and Gateway Load Balancing Protocol (GLBP) first-hop failure solutions, and Cisco Catalyst 6500 Series Switch supervisor redundancy options—namely, Route Processor Redundancy (RPR), Route Processor Redundancy Plus (RPR+), Stateful Switchover (SSO), and SSO with Nonstop Forwarding (NSF).

The goal of the DCNI-1 curriculum is to enable customers to build scalable, reliable, and intelligent data center networks using Cisco Catalyst 6500 Series Switches equipped with FWSM and NAM service modules, Cisco Catalyst 4900 Series Switches, and Cisco Blade Switches.

Who Should Attend: The primary audience for this course are Channel partner resellers and the secondary audience for this course are Field Engineers.

Prerequisites: The knowledge and skills that a student must have before attending this course include Cisco CCNP® or Cisco CCIE® Routing & Switching, or CCIE Service Provider, or equivalent experience and Building Scalable Cisco Internetworks (BSCI) v3.0. Other knowledge needed includes Building Cisco Multilayer Switched Networks (BCMSN) v3.0, Optimizing Converged Cisco Networks (ONT) v1.0, and Implementing Secure Converged Wide Area Networks (ISCW) v1.0.

Benefits of Attendance: Upon completion of this course, students will be able to:

- Describe the Cisco Catalyst 6500 and 4900 Series Switches, as well as Cisco Blade Switch family hardware options, data center architecture, and Cisco Catalyst 6500 Series Switch advanced configuration, management, and maintenance features.
- Identify and implement traffic flows, including FWSM routed and transparent modes, supervisor-based packet acceleration, and FWSM-PISA integration.
- Describe NAM hardware, implement initial configuration, and use Cisco NAM to monitor network traffic.
- Describe and deploy high-availability features in the data center.

Course Outline:

Course Introduction

Overview
Course Goal and Objectives
Course Flow
Additional References
Your Training Curriculum

Module 1: Implementing the Cisco Catalyst 6500 Series, Cisco Catalyst 4900 Series, and Blade Switches

Describing Data Center Architecture for Cisco Catalyst 6500 and 4900 Series Switches
Describing and Positioning the Cisco Catalyst 6500 and 4900 Series Switches
Describing the Cisco Catalyst 6500 Series Switch Supervisors
Describing the Cisco Catalyst 6500 Series Switch Module

and Power Supply Options
Implementing VSS 1440
Upgrading Cisco IOS Software Using Software Modularity
Implementing NetFlow
Implementing QoS
Implementing EEM
Utilizing Automated Diagnostics
Implementing SPAN, RSPAN, and ERSPAN
Describing the Cisco Blade Switch Family
Lab 1-1: Deploying and Examining the VSS 1440 Operation
Lab 1-3: Deploying QoS
Lab 1-4: Deploying and Examining EEM
Lab 1-5: Deploying Automated Diagnostics
Lab 1-6: Deploying SPAN

Module 2: Implementing FWSM for a Data Center Network Infrastructure

Implementing Traffic Flows
Implementing Management Access
Implementing ACLs
Implementing Contexts
Implementing Routing
Implementing Failover
Implementing Deep Packet Inspection
Lab 2-1: Deploying the FWSM in Transparent Mode
Lab 2-2: Deploying Multiple Contexts on FWSM
Lab 2-3: Deploying the FWSM in Routing Mode
Lab 2-4: Deploying the FWSM Failover

Module 3: Implementing Network Analysis with Cisco NAM

Introducing Cisco NAM
Implementing Initial Configuration
Monitoring, Viewing, and Saving Data

NAM Maintenance
Lab 3-1: Deploying the Initial Cisco NAM Configuration
Lab 3-2: Deploying Collection Mechanisms

Module 4: Implementing High-Availability Data Center Features

Implementing High-Availability Features in the Cisco Catalyst 6500 Series Switch
Implementing Stateful Switchover
Implementing Nonstop Forwarding
Lab 4-1: Deploying High Availability on Cisco Catalyst 6500 Series Switch