



# Catalyst 6500 Implementation for Data Center Business Solutions

**Length**  
5 days

**Format**  
Lecture/lab

**Track**  
Design &  
Deploy

**Version**  
1.0

## Course Description

The Cisco Catalyst 6500 Series switch supports a wide range of services that are increasingly essential in today's data center. This 5-day hands-on course provides the knowledge and skills needed to design data center solutions using key architectural features of the Catalyst 6500 Series switch.

Beginning with an overview of the Catalyst 6500 Supervisor Engines, line cards, and services modules, you will learn how to set up a highly available network from an out-of-the-box state. You will then learn about the significant Layer 2 and Layer 3 enhancements that Cisco introduced with the Supervisor 720, including VLAN enhancements, Spanning Tree enhancements, key security features for DoS protection, and fault management tools.

In the lab, you will learn how to deploy these features to increase the reliability, scalability, and performance of enterprise data center networks.

## Who Should Attend

This course provides in-depth technical training for system engineers, network engineers, and field engineers who deploy, configure, and manage Catalyst 6500 switches.

## Recommended Prerequisites

CCNP-level certification or equivalent knowledge and experience is highly recommended for students who take this course.

# CAT6KS

## Learning Objectives

After you complete this course, you will be able to:

- Identify the components of the Catalyst 6500 platform
- Complete initial configuration of the Catalyst 6500 Series switch
- Configure supervisor redundancy features
- Select and configure Layer 2 and Layer 3 enhancements to meet specified design requirements
- Effectively deploy the Catalyst 6500 within a reliable, scalable, and high-performance network environment

## Course Topics

- Applying the Enterprise Composite Model
- Catalyst 6500 Architecture Overview
- Catalyst 6500 Software
- Supervisor Redundancy
- Supervisor Layer 2 Enhancements
- Supervisor Layer 3 Enhancements
- Designing Enterprise Solutions with the Catalyst 6500 Series





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## Course Outline

### Module 1: Applying the Enterprise Composite Model

#### Lesson 1: Describing the Campus/Data Centre Infrastructure Module

- Issues in a Poorly Designed Network
- Devices in a Nonhierarchical Network
- Multilayer Switches
- The Enterprise Composite Network Model

#### Lesson 2: Deploying Technology in the Campus Infrastructure Module

- Interconnection Technologies
- Designing a Hierarchical IP Addressing Scheme
- Traffic Types

### Module 2: Catalyst 6500 Architecture Overview

#### Lesson 1: Configuring the Catalyst 6500 Chassis

- Chassis Overview
- Supervisors, Line Cards, Service and Switched-Fabric Modules
- Catalyst 6500 Backplane Architecture
- Installing Supervisors, Line Cards, Service and Switched-Fabric Modules
- Power Supplies
- Power Supply Design
- Using the Cisco Power Calculator

#### Lesson 2: Supervisor Modules

- Shared-Bus and Switch-Fabric Architectures
- Supervisor Engine 2 Overview
- Supervisor Engine 32 Overview
- Supervisor Engine 720 Key Features
- Supervisor Summary and Comparison
- Supervisor Module Operating Systems

#### Lesson 3: Line Cards

- Line Card Overview
- Line Card Architectures
- Line Card Packet Flow
- Deploying Line Cards
- Port Density
- Oversubscription
- Line Card Interoperability

### Module 3: Catalyst 6500 Software

#### Lesson 1: Catalyst 6500 Initial Configuration

- Initial Configuration Requirements
- Accessing the CLI
- Using Shortcut Keys
- Understanding Configuration Modes

#### Lesson 2: Recovering the Supervisor Password

- Bypassing the Privileged and Console Passwords
- Restoring the NVRAM Configuration
- Compact Flash Slots on the Supervisor 720
- File Systems on the Supervisor 720
- The Switch Fabric Module
- Using Boot Commands

### Module 4: Supervisor Redundancy

#### Lesson 1: RPR and RPR+

- Software Modularity
- Route Processor Redundancy and RPR+
- Configuring RPR and RPR+
- Copying Files to the Redundant Supervisor

#### Lesson 2: SSO and NSF

- SSO Overview
- NSF with SSO
- Using MMLS NSF with SSO
- NSF with SSO Failover Comparisons



Learning Solutions



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## Module 5: Layer 2 Enhancements

### Lesson 1: VLAN Features

- VTP Configuration Guidelines and Restrictions
- Understanding How VLANs Work
- Internal VLANs
- VLAN Tagging
- Mapping DOT1Q to ISL VLANs
- Configuring VLANs
- Configuring VLAN Trunks

### Lesson 2: PVLAN Features

- What is a PVLAN?
- Private PVLANS Across the Campus
- PVLAN Guidelines and Restrictions
- Configuring Private VLANs

### Lesson 3: Spanning-Tree, Rapid Spanning-Tree and 802.1s

- Spanning-Tree Overview
- Understanding RSTP (802.1w)
- BPDU Guard and BPDU Filter
- STP Extensions
- 802.1s MST Overview
- Configuring and Verifying 802.1s MST

### Lesson 4: UDLD

- Understanding UDLD
- UDLD Exchange Parameters
- UDLD Defaults
- Configuring UDLD

### Lesson 5: EtherChannel

- EtherChannel Overview
- Automating EtherChannel Creation
- Configuring EtherChannel
- Verifying EtherChannel configuration

### Lesson 6: SPAN, RSPAN, and ERSPAN

- SPAN Overview
- RSPAN Overview
- ERSPAN Overview
- Configuring SPAN
- Configuring RSPAN
- Configuring ERSPAN

## Module 6: Layer 3 Enhancements

### Lesson 1: Network Security

- Overview of Network Security
- Using MAC Address Traffic Blocking
- TCP Flows
- TCP Intercept
- Configuring TCP Intercept
- Understanding Unicast RPF
- Unicast RPF Check Methods
- Multiple-Path URPF Check Mode
- Configuring URPF

### Lesson 2: Storm Control

- Reasons to Use Storm Control
- Storm Control
- Configuring Storm Control

### Lesson 3: ACLs

- Router ACLs
- Understanding VACLs
- Configuring VACLs

### Lesson 4: QoS

- QoS Processing in the Catalyst 6500
- The Basics of QoS and ToS
- Understand Ingress QoS
- QoS Policing and Policers
- Egress Policing
- VLAN-Based QoS
- Modular QoS CLI
- Configuring QoS

### Lesson 5: Netflow and NDE

- Netflow and NDE
- Configuring Netflow and NDE

### Lesson 6: Fault Management Tools

- TDR Overview
- Using the Embedded Event Manager (EEM)
- Generic Online Diagnostics (GOLD)
- SoftHA Detection, Isolation, and Action
- Troubleshooting the Catalyst 6500





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## Course Outline

### **Module 7: Designing Enterprise Solutions with the Catalyst 6500 Series**

#### **Lesson 1: Designing Multi-Layer Campus Networks**

- Requirements of the Campus Design
- Composition of the Campus Design
- Campus Design Foundation Services
- Converged IP Communications
- Wireless LAN and Wireless Mobility
- Security Issues within the Campus
- Verified Design Recommendations

#### **Lesson 2: Designing Multi-Layer Data Center Networks**

- Data Center Overview
- Service Oriented Architecture
- N-Tier Server Farms
- Load-Balanced Servers
- Scaling Bandwidth with Gigabit EtherChannel and 10GE
- Service-Layer Switches
- Security Issues

## Course Labs

- Lab 1: Using the Cisco Power Calculator
- Lab 2: Getting Started with the Catalyst 6500 Series
- Lab 3: Recovering the Supervisor Password
- Lab 4: Upgrading the Supervisor Image
- Lab 5: Configuring Software Modularity
- Lab 6: Configuring VLANs
- Lab 7: Configuring Spanning-Tree and IEEE Enhancements
- Lab 8: Configuring EtherChannel
- Lab 9: Using Fault Detection Tools
- Lab 10: Configuring MAC Address Blocking
- Lab 11: Configuring VACLs
- Lab 12: Configuring Basic QoS Parameters



Learning  
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