



# Designing Data Center Application Services

**Length**  
5 days

**Format**  
Lecture/lab

**Track**  
DCAS Design Specialist

**Version**  
2.0

## Course Description

In this course, you will learn how to design intelligent network services using the Catalyst 6500 Application Control Engine Service Module, the Cisco Application Control Engine 4710 Appliance, and the Cisco Global Site Selector (GSS).

This course covers all of the key features of the Cisco ACE, including resource virtualization and management, server load balancing (Layer 2-4 and Layer 7), SSL termination and offload, application-layer protocol inspection and fixups, and web application optimization features that are available on the ACE Appliance. Site-to-site failover with the Cisco GSS is also covered.

## Who Should Attend

This course is designed for Cisco Channel Partner Systems Engineers (SEs) who are planning to achieve the Cisco Data Center Application Services (DCAS) Design Specialist Certification.

## Recommended Prerequisites

You will gain the most from this course if you have a basic understanding of the following topics:

- CCDA or CCDP Certification
- Basic network management skills
- Familiarity with common web application protocols, such as HTTP and HTML
- Familiarity with common traffic control and monitoring protocols, such as RHI and QoS

## Related Training

- Implementing Data Center Application Services (DCASI) v1.0

# DCASD

## Learning Objectives

After completing this course, you will be able to:

- Describe the key functions provided by Cisco Data Center Application Services, and the products that support those functions
- Describe the structure and function of the Modular Policy CLI
- Describe the web acceleration feature set and how those features can be used in the multi-tier application and data center design
- Describe the configuration tasks necessary to deploy the Global Site Selector
- Describe the high-availability features of the ACE Family of products, which are used to provide reliable application networking services
- Describe the capabilities of the Cisco WAAS solution
- Configure the core access point and bridge
- Design an application services architecture that includes resource virtualization, server load-balancing, application security, web acceleration, and site-to-site load balancing





# Designing Data Center Application Services

Course Outline

## Module 1: Data Center Application Services Overview

### Lesson 1: IP-Based Data Center Applications

- IP Application Review
- Web Technology Overview
- GSLB Overview
- Describe Wide Area Application Acceleration

### Lesson 2: Data Center Application Architecture

- Multi-Tier Applications
- Intra-Datacenter Redundancy
- Multi-Datacenter Redundancy
- Application Delivery Products

### Lesson 3: Deploying the ACE Appliance and Service Module

- Connecting ACE to the Network
- Network Topologies
- ACE 4710 Installation Procedure
- ACE Appliance GUI
- Virtualization
- Resource Management
- Authorizing Management Users
- Configuring Interfaces
- What You Need
- Virtualization and Resource Management Design

## Module 2: Designing Server Load Balancing Solutions

### Lesson 1: Modular Policy CLI

- Class Maps
- Policy Maps
- Applying Policy Maps

### Lesson 2: Managing the ACE Appliance and Service Module

- Permitting Management Traffic
- SNMP Manageability
- Application Networking Manager

### Lesson 3: Security Features

- IP Access Control Lists
- ACL Object Groups
- TCP/IP Fragmentation/Reassembly
- TCP/IP Normalization
- SYN Cookies
- Network Address Translation

### Lesson 4: Layer 4 Load Balancing

- Load-Balancing Concepts
- Load-Balancing Algorithms
- Configuring Layer 4 Load Balancing
- Traffic Rate Limiting
- Load-Balancing Concepts What You Need
- Server Load-Balancing Design Considerations

### Lesson 5: Health Monitoring

- Health Monitoring Overview
- Active Health Probes
- HTTP Error Code Monitoring
- Using TCL Scripting
- Route Health Injection
- Backup Servers/Server Farms
- What You Need
- Health Monitoring Design Considerations

### Lesson 6: Layer 7 Protocol Processing

- Configuring HTTP Layer 7 Load Balancing
- Persistent and Pipelined HTTP Extensions
- Server Reuse
- HTTP Modifications
- Session Persistence
- Protocol Inspection
- HTTP Inspection
- FTP Protocol Processing
- RDP Protocol Processing
- Radius Protocol Processing
- RTSP Protocol Processing
- SIP Protocol Processing
- Generic Protocol Parsing
- Other Inspected Protocols
- What You Need
- Layer 7 Design Considerations



Learning Solutions



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## Course Outline

### Lesson 7: Processing Secure Connections

- Digital Encryption Technologies
- SSL Service Options
- Configuring a Public Key Infrastructure
- Configuring SSL Proxy Services
- SSL Session Reuse Functional Overview
- SSL Queue Delay Functional Overview
- SSL Client Authentication Functional Overview
- What You Need
- SSL Design Considerations

### Lesson 8: Migrating From CSS and CSM

- Overview of CSS and CSM
- Migrating CSS Configurations
- Migrating CSM Configurations

## Module 3: Designing Web Application Acceleration Solutions

### Lesson 1: Web Application Acceleration Overview

- Web Performance Factors
- Web Acceleration Architecture

### Lesson 2: Deploying Application Acceleration and Optimization

- FlashForward
- Delta Optimization
- Smart Redirect
- Fast Redirect
- FlashConnect
- Just-in-Time Object Acceleration
- Adaptive Dynamic Cache
- Compression Overview
- Configuring Compression
- What You Need
- Web Acceleration Design Considerations

## Module 4: Designing Site-to-Site Load Balancing Solutions

### Lesson 1: Deploying the GSS

- Introducing GSS
- Purpose of GSLB
- ACE GSS Installation Procedure
- Connect the GSS to the network

### Lesson 2: Managing the GSS

- Default Management Roles
- Configuring Management Roles
- GSS Network Management

### Lesson 3: Designing Global Server Load Balancing

- GSLB Methods
- GSS Load and Keep Alive Tracking
- KAL-AP Integration
- Using Network Proximity
- GSS Zones and Locations
- Proximity Subsystem and Database
- Proximity Network Design Guidelines
- Configuring Network Proximity
- Using DNS Sticky
- DNS Sticky Configuration and Monitoring
- What You Need

## Module 5: Optimizing the DCAS Solution

### Lesson 1: High Availability

- Redundancy
- Object Tracking
- Failover
- State Replication
- Fault-Tolerance Configuration
- GSS Redundancy

### Lesson 2: WAN Optimization

- Introduction to Cisco WAAS
- Cisco WAAS Products
- WAN Application Performance Factors
- WAN Optimization Overview
- Application Acceleration Overview
- Load-Balancing WAES
- Firewall Design and WAAS

### Lesson 3: Designing Application Services

- Analyzing Network Requirements
- Sizing Guidelines
- Designing Virtualization
- Designing Server Load Balancing Services
- Designing Application Security Services
- Designing Web Acceleration Services
- Designing Site-to-Site Load Balancing
- Building an Application Services Demo



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