Network Service Architectures (ARCH)

Table of Contents

MODULE 3 DESIGNING ENTERPRISE EDGE CONECTIVITY

LESSON ONE: REVIEWING THE ENTERPRISE EDGE NETWORK DESING METHODOLOGY

- Enterprise Edge Design Within the Enterprise Composite Model
- Typical Requirements for the Enterprise Edge
- Enterprise Edge Design Methodology
- Analyzing Network Traffic Patterns

LESSON TWO: DESIGNING THE CLASSICWAN MODULDE

- Enterprise Needs for the WAN
- Selecting the WAN Topology
- Selecting a Service provider
- Selecting the Data Link Layer
- Selecting the Physical Layer
- Selecting WAN Features
- Selecting Cisco Edge Routing Solutions
- Routing Protocol and IP Addressing Considerations
- Example: WAN Design

LESSON THREE: DESIGNING THE REMOTE ACCESS MODULE

- Enterprise Needs for Remote Access
- Selecting the Remote-Access Type and Termination
- Selecting the Remote-Access Physical Connectivity
- Selecting the Remote-Access Protocol
- Selecting the Remote-Access Routing Solutions
- Example; Enterprise Remote-Access Designs

LESSON FOUR: DESIGNING THE INTERNET CONECTIVITY MODULE

- Enterprise Requirements for the Internet
- Using NAT at the Enterprise Edge
- Designing ISP Connectivity Solutions
- Internet Connectivity Example

MODULE 4 DESIGNING NETWORK MANAGEMENT SERVICES

LESSON ONE: DEVELOPING AN ENTERPRISE NETWORK MANAGEMENT STRATEGY

- Goals for Network Management
- Network Management Policies and Procedures
- Network Management Module Functions
- Cisco Networks Management Strategy
- CiscoWorks Features
- CiscoWorks LAN Management Solution
- CiscoWorks Routed LAN Management Solution

LESSON TWO: DESIGNING THE NETWORK MANAGEMENGT ARCHITECTURE

- Network Management Design Considerations
- Network Management Deployment Recommendations

- Example: Network Management Design

MODULE 5 DESIGNING HIGH-AVAILABILITY SERVICES

LESSON ONE: REVIEWING HIGH-AVAILABILITY FEATURES

- Network Requirements for High Availability
- Cisco IOS High-Availability Architecture
- Fault Tolerance and Hardware Redundancy
- Options for Layer 3 Redundancy
- Redundancy and Spanning Tree Protocols

LESSON TWO: DESIGNING HIGH-AVAILABILITY ENTERPRISE NETWORKS

- Design Guidelines for High Availability
- Best Practices for High-Availability Network Design
- Enterprise Campus Design Guidelines for High Availability
- Enterprise Edge Design Guidelines for High Availability
- High-Availability Design Example

MODULE 6 DESIGNING SECURITY SERVICES

LESSON ONE: EVALUATING NETWORK SECURITY POLICIES

- Network Vulnerabilities
- Defining a Security Policy
- Network Security as a Process
- Risk Assessment and Management

LESSON TWO: REVIEWING CISCO SECURITY SOLUTIONS

- Key Elements of Networks Security
- Networks Security Attacks and Solutions
- Firewall Design Options
- Intrusion Detections System Design Options
- Authentication, Authorization, and Accounting
- IP Security
- Device Security Options

LESSON THREE: IMPLEMENTING NETWORK SECURITY USIGNS THE CISCO SAFE SECURITY BLUEPRINT

- Cisco SAFE Architecture Overview
- SAFE Security Strategies for Small Networks
- SAFE Security Strategies for Medium Networks
- SAFE Security Strategies for Large Networks
- SAFE Security Strategies for Enterprise Edge

MODULE 7 DESIGNING QOS

LESSON ONE: IDENTIFY QOS MECHANISMS

- Enterprise Network Requirements for QoS
- IntServ and DiffServ QoS Architectures
- Classification and Marking

- Congestion Avoidance
- Congestion Management
- Traffic Conditioning
- Signaling
- Link Efficiency Mechanisms

LESSON TWO: DESIGNING QOS FOR ENTERPRISE NETWORKS

- QoS Design Guidelines
- Designing QoS for Enterprise Networks
- Example QoS Solution

MODULE 8 DESIGNING IP MULTICAST SERVICES

LESSON ONE: EXAMINING IP MULTICAST SERVICES

- Introducing IP Multicast
- IP Multicast Data Delivery Principles
- Multicast Forwarding
- IP Multicast Group Membership and Distribution Tree
- Protocols Independent Multicast
- IP Multicast Control Mechanisms

LESSON TWO: DESIGNING IP MULTICAST SOLUTIONS FOR ENTERPRISE NETWORKS

- IP Multicast Design Considerations for Enterprise Campus
- Designing IP Multicast for a Small Campus
- Designing IP Multicast for a Large Enterprise Campus
- Designing IP Multicast over a WAN

MODULE 9 DESIGNING VIRTUAL PRIVATE NETWORKS

LESSON ONE: IDENTIFYING VPN TECHNOLOGIES

- Enterprise VPN Requirements
- VPN Tunneling
- VPN Security
- VPN Termination
- VPN Management

LESSON TWO: DESIGNING SITE-TO-SITE VPNS

- Site-to-Site VPN Requirements
- Key Design Considerations for Site-to-Site VPNs
- Using a Routing Protocols over the VPN
- Minimizing Packet Fragmentation
- Implementing IPSec Security
- Site-to-Site VPNs Examples

LESSON THREE: DESIGNING REMOTE-ACCESS VPNS

- Remote Access VPN Requirements
- Remote Access VPN Design Considerations
- Capacity Planning for Remote Access VPNs

- Network Address translation Issues

MODULE 10 DESIGNING ENTERPRIS EWIRELESS NETWORKS

LESSON ONE: REVIEWING THE WIRELESS LAN SOLUTION

- Emerging Wireless Enterprise Network Needs
- Wireless Communications Architecture
- 802.11Standards
- Cisco Wireless Solutions

LESSON TWO: DESIGNING WIRELES LANS FOR ENHANCED ENTERPRISE COMMUNICATIONS

- Enterprise WLAN Design Considerations
- WLAN Security Extensions
- Small Office WLAN Design Model
- Enterprise WLAN Design Model
- Remote-Access and Telecommute WLAN Design Model

MODULE 11 DESIGNING IP TELEPHONY SOLUTIONS

LESSON ONE: REVIEWING THE CISCO IP THELEPHONY SOLUTION

- Introducing the Cisco IP Telephony Solution
- Cisco CallManager
- Gateways and Control Protocols
- Transcoders and Conferencing
- Cisco IP Telephony Applications

LESSON TWO: DESIGNING THE NETWORKS FOR CISCO IP THEPHONY

- Cisco CallManager Cluster Design Considerations
- Designing Single-Site IP Telephony Solutions
- Designing Multisite with Centralized Call Processing IP Telephony Solutions
- Designing Multisite with Distribute Call Processing IP Telephony Solutions
- Clustering over the IP WAN
- Network Infrastructure Design Considerations
- Intelligent Network Services for IP Telephony and Voice

MODULE 12 DESIGNING CONTENT NETWORKING SOLUTIONS

LESSON ONE: REVIEWING THE CONTENT NETWORKING SOLUTION

- Enterprise Content Networking Requirements
- Content Caching
- Content Switching
- Content Routing
- Content Distribution and Management
- Intelligent Network Services Integration

LESSON TWO: DESIGNING THE CONTENT NETWORKS SOLUTIONS

- Content Networking Design Considerations
- Content Networking Solutions for Web Content Delivery

- Content Networking Solutions for E-Commerce
- Content Networking Solutions for Streaming Media

MODULE 13 DESIGNING STORAGE NETWORKING SOLUTIONS

LESSON ONE: REVIEWING THE CISCO STORAGE NETWORKING SOLUTION

- Enterprise Needs for Storage Networking
- Cisco Storage Networking Architecture
- Network Storage Models
- Networking Technology Enables for Storage Networking
- Intelligent Network Services for Storage Networking

LESSON TWO: DESIGNING A STORAGE NETWORKING ARCHITECTURE WITH IP ACCESS

- Designing a storage Networking Architecture
- IP Access to Storage
- Storage over WAN
- Network-Attached Storage