Implementing and Operating the Network

Designing for Cisco Internetwork Solutions (DESGN) v2.0

Reviewing Design and Implementation Resources

Implementing and Operating the Network

Solution Reference Network Design Guides

- Focus on the specific solution
- Provide an overview of relevant technologies
- Give a description of the architecture
- Offer recommended design practices
- Provide configuration examples
- Are available for the following areas:
  - Campus
  - Data center
  - Branch office
  - Teleworker
  - WAN and MAN
  - Security
  - Unified communications
  - Wireless

Cisco Networkers Online Subscription

200+ technical training sessions, including:

- Application Optimization Technologies
- Contact Center Technologies
- Data Center Technologies
- Network Access and Aggregation Technologies
- Network Management Services Technologies
- Optical and Metro Ethernet Technologies
- Routing and Switching Technologies
- Security Technologies
- Storage Technologies
- Voice and Video Technologies

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Summary of Cisco CCNP Courses

- *Building Cisco Multilayer Switched Networks* (BCMSN)
  - Recommended prerequisite for *Designing for Cisco Internetwork Solutions*
- *Building Scalable Cisco Internetworks* (BSCI)
- *Implementing Secure Converged Wide Area Networks* (ISCW)
- *Optimizing Converged Cisco Networks* (ONT)

Building Cisco Multilayer Switched Networks v3.0

- Use the Cisco hierarchical network model for campus networks
- Define VLANs to segment network traffic and use
- Implement spanning-tree operation
- Implement and verify inter-VLAN routing
- Implement high-availability technologies and techniques
- Describe and configure wireless LAN access
- Describe and implement security features
- Describe and configure switch to support voice

Covers skills required to build enterprise-class switched networks with integrated VoIP and wireless applications

Building Cisco Multilayer Switched Networks v3.0 Course Flow

	Day 1	Day 2	Day 3	Day 4	Day 5
AM	Course Introduction	Implementing Spanning Tree	Inter-VLAN Routing	Wireless LAN	Configuring Campus Switches for Voice
AM	Network Requirements				Minimizing Service Loss
AM	Defining VLANS				
	Lunch				
PM	Defining VLANS	Implementing Spanning Tree	Implementing High Availability	Wireless LAN	Minimizing Service Loss
PM	Implementing Spanning Tree	Inter-VLAN Routing			

Building Scalable Cisco Internetworks v3.0

- Explain routing in the enterprise network
- Implement and verify EIGRP operations
- Build a scalable multiarea network with OSPF
- Configure integrated IS-IS in a single area
- Implement Cisco IOS routing features
- Implement and verify BGP for enterprise ISP connectivity
- Implement and verify multicast forwarding using PIM
- Implement IPv6 in an enterprise network

Covers skills required to build enterprise router networks with mixed, integrated internal and external routing protocols

Building Scalable Cisco Internetworks v3.0 Course Flow

	Day 1	Day 2	Day 3	Day 4	Day 5
AM	Course Introduction	Configuring OSPF	Configuring IS-IS Protocol	Implementing BGP	Implementing Multicast
AM	Network Requirements	Configuring OSPF	Manipulating Routing Updates	Implementing BGP	Implementing IPv6
AM	Configuring EIGRP	Configuring OSPF	Manipulating Routing Updates	Implementing BGP	Implementing IPv6
	Lunch				
PM	Configuring EIGRP	Configuring OSPF	Manipulating Routing Updates	Implementing BGP	Implementing IPv6
PM	Configuring OSPF	Configuring IS-IS Protocol	Implementing BGP	Implementing Multicast	Implementing IPv6

Implementing Secure Converged Wide Area Networks v1.0

- Explain the Cisco hierarchical network model as it pertains to the WAN
- Describe and implement teleworker configuration and access
- Implement and verify frame mode MPLS
- Describe and configure a site-to-site IPsec VPN
- Describe and configure Cisco Easy VPN
- Explain the strategies used to mitigate network attacks
- Describe and configure Cisco device hardening
- Describe and configure Cisco IOS firewall features

Covers skills for securing and expanding the reach of the enterprise network to teleworkers and remote sites. The focus is on securing remote access and VPN client configuration.

Implementing Secure Converged Wide Area Networks v1.0 Course Flow

	Day 1	Day 2	Day 3	Day 4	Day 5
AM	Course Introduction	Implementing Frame Mode MPLS	IPsec VPNs	Cisco Device Hardening	Cisco IOS Threat Defense Features
AM	Network Requirements	Lab: 3-1	Lab: 4-2	Lab: 5-1	Lab: 6-1
AM	Connecting Teleworkers	Implementing Frame Mode MPLS	IPsec VPNs	Cisco Device Hardening	Cisco IOS Threat Defense Features
AM			Lab: 4-3		
	Lunch				
PM	Connecting Teleworkers	IPsec VPNs	IPsec VPNs	Lab: 5-2	Lab: 6-2
PM	Simulation: 2-1		Lab: 4-4	Cisco Device Hardening	Cisco IOS Threat Defense Features
PM	Implementing Frame Mode MPLS	Lab: 4-1	Cisco Device Hardening	Lab: 5-3	Lab: 6-3

Optimizing Converged Cisco Networks v1.0

- Explain the Cisco hierarchical network model as it pertains to an end-to-end enterprise network
- Describe specific requirements for implementing a VoIP network
- Describe the need to implement QoS and the methods for implementing QoS on a converged network
- Explain the key IP QoS mechanisms used to implement the DiffServ QoS model
- Configure Auto QoS for Enterprise
- Describe and configure wireless security and basic wireless management

Covers techniques and skills to optimize QoS in converged networks supporting voice, wireless, and security applications

Optimizing Converged Cisco Networks v1.0 Course Flow

	Day 1	Day 2	Day 3	Day 4	Day 5
AM	Course Introduction	Introduction to IP QoS	Implement the DIffServ QoS Model	Implement the DIffServ QoS Model	Implement Wireless Scalability
	Describing Network Requirements		Lab: 4-1	Lab: 4-6	Lab: 6-1
	Describe Cisco VoIP Implementations		Implement the DIffServ QoS Model		
			Lab: 4-2	Implement the DIffServ QoS Model	Lab: 6-2
	Lunch				
PM	Lab: 2-1	Case Study: 3-1	Implement the DIffServ QoS Model	Lab: 5-1	Lab: 6-3
	Describe Cisco VoIP Implementations	Lab: 3-2	Lab: 4-3	Lab: 5-2	Implement Wireless Scalability
			Implement the DIffServ QoS Model		
	Lab: 2-2	Implement the DIffServ QoS Model	Lab: 4-4	Lab: 5-3	Lab: 6-4
			Lab: 4-5		

Designing Cisco Network Service Architectures (ARCH) v1.2

- Presents the Cisco AVVID framework
- Create intermediate network designs for:
  - Enterprise campus infrastructure
  - Enterprise edge infrastructure
  - Network management
  - High availability
  - Security
  - QoS
  - IP multicast
  - VPNs
  - Wireless
  - IP telephony

This is the next course in the design certification track.

Designing Cisco Network Service Architectures v1.2 Course Flow

	Day 1	Day 2	Day 3	Day 4	Day 5
AM	Course Introduction	Designing Enterprise Edge Connectivity	Designing High-Availability Services	Designing QoS	Designing IP Telephony Services
AM	Introducing Cisco Network Service Architectures			Designing IP Multicast Services	
AM	Designing Enterprise Campus Networks				
	Lunch				
PM	Designing Enterprise Campus Networks	Designing Enterprise Edge Connectivity	Designing Security Services	Designing VNPs	Wrap-Up
PM		Designing Network Management Services		Designing Enterprise Wireless Networks	

Foundation Courses for Channel Partners

- Foundation Express for Account Managers (FXS)
- Foundation Express for System Engineers (CFXSE)
- Foundation Express for Field Engineers (CFXFE)

Security Courses

- *Securing Cisco Network Devices* (SND)
- *Securing Networks with Cisco Routers and Switches* (SNRS)
- *Implementing Cisco Intrusion Prevention System* (IPS)
- *Securing Networks with PIX and ASA* (SNPA)
- *Cisco Secure Virtual Private Networks* (CSVPN)

Voice Courses

- *Implementing Cisco Quality of Service* (QOS)
- *Cisco Voice over IP Fundamentals* (CVF)
- *Cisco Voice over IP* (CVOICE)
- *Cisco IP Telephony Part 1* (CIPT1)
- *Cisco IP Telephony Part 2* (CIPT2)
- *IP Telephony Troubleshooting* (IPTT)
- *Implementing Cisco Voice Gateways and Gatekeepers* (GWGK)
- *IP Telephony Design* (IPTD)

Wireless Courses

- *Aironet Wireless LAN Fundamentals and Site Survey* (AWFSS)
- *Aironet Wireless LAN Advanced Topics* (AWLAT)
- *Cisco Wireless LAN Fundamentals* (CWLF)
- *Cisco Wireless LAN Advanced Topics* (CWLAT)
- *Cisco Unified Wireless Networking* (CUWN)
- *Cisco Wireless Mesh Networking* (CWMN)

Summary

- SRND guides provide deployment scenarios incorporating Cisco products and technologies into a tested architecture.
- Cisco Networkers Online provides introductory to advanced training sessions on a subscription basis.
- The *Building Scalable Cisco Internetworks, Implementing Secure Converged Wide Area Networks* and *Optimizing Converged Cisco Networks* courses provide additional theory and detailed configuration information that supports enterprise network design and implementations.
- *Designing Cisco Network Service Architectures* is the next course in the design certification track.
- Cisco specialization courses provide in-depth, hands-on training supporting security, voice, and wireless.