



Presentation Title	CCNA Curricula Overview
Topic	Comprehensive overview of the CCNA curricula, CCNA Discovery and CCNA Exploration
Content Date	Valid as of July 2009
Presentation Tips	<ol style="list-style-type: none"> 1. Please tailor this presentation to your goals, audience, and time constraints 2. Notes are provided on many slides in this presentation to identify key speaking points and provide additional background 3. As some of the slides are animated, this presentation is best viewed in slideshow mode



CCNA Curricula Overview



July 2009

Cisco | Networking Academy®
Mind Wide Open™



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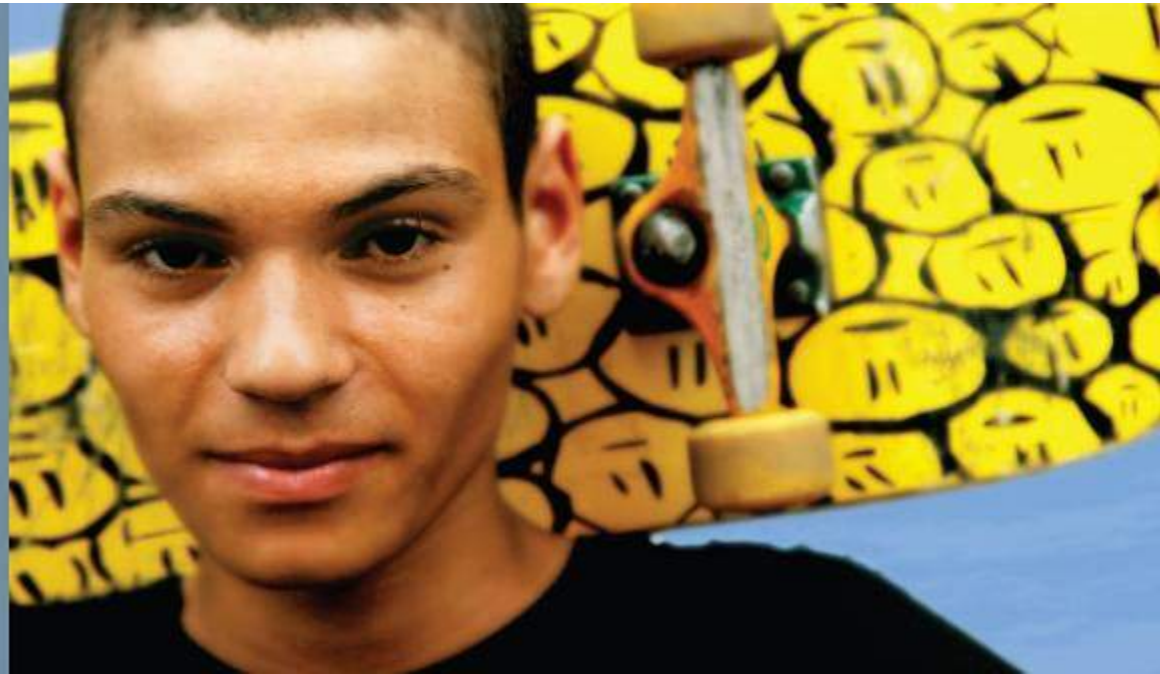
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Networking Academy Curricula





CCNA Curricula Meet Growing Demand

- Global studies show a growing demand for IT professionals and a critical shortage of qualified candidates to fill the positions
- The Cisco Networking Academy provides the skills needed to meet the demand with a comprehensive learning experience delivered consistently worldwide
- Our CCNA curricula prepare students for entry-level career opportunities, continuing education, and globally-recognized Cisco certifications





CCNA Skills for Student Success

- CCNA-level skills and knowledge open a world of possibilities for students looking to gain a competitive edge and be successful in a wide range of networking careers today and in the future





The CCNA Learning Experience

Student-Centered Interactive Learning

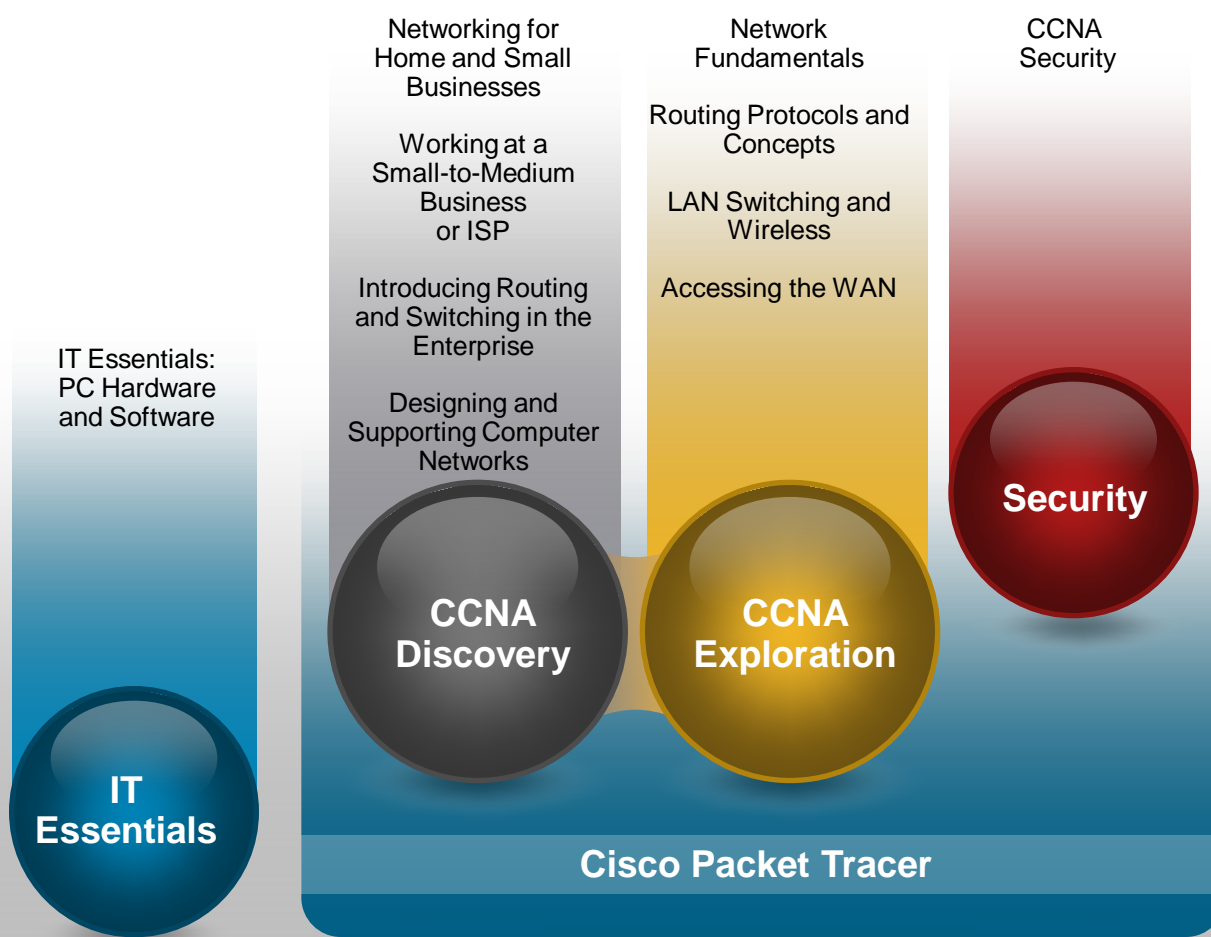
- ✓ Online curricula and in-person instruction
- ✓ Innovative online assessments
- ✓ Simulation-based learning
- ✓ 21st century skills
- ✓ Highly interactive e-doing activities, videos, games, and quizzes
- ✓ Hands-on labs with real equipment
- ✓ Balance of theory and practical application of skills



Cisco Networking Academy

Curricula Portfolio

IT Technician
Network Technician
Network Associate
Network Specialist
Network Professional



Building Scalable Internetworks

Implementing Secured Converged Wide-Area Networks

Building Multilayer Switched Networks

Optimizing Converged Networks

CCNP

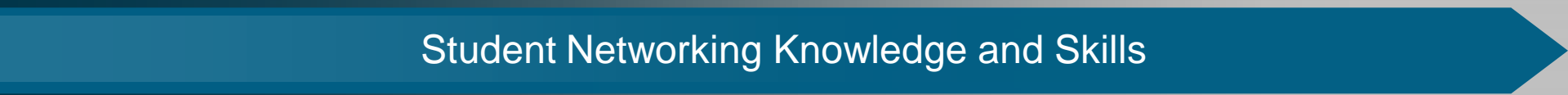
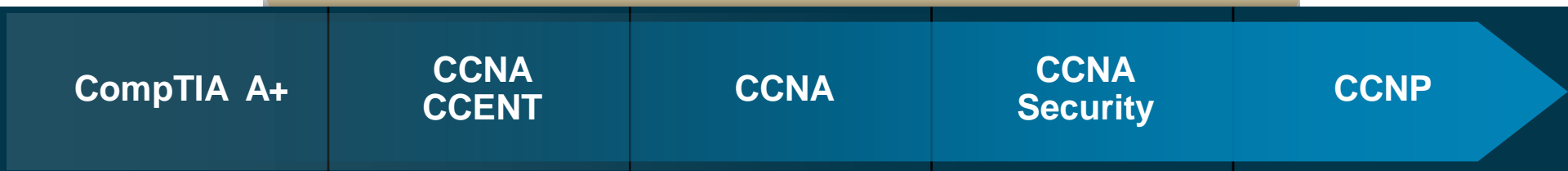
Student Networking Knowledge and Skills



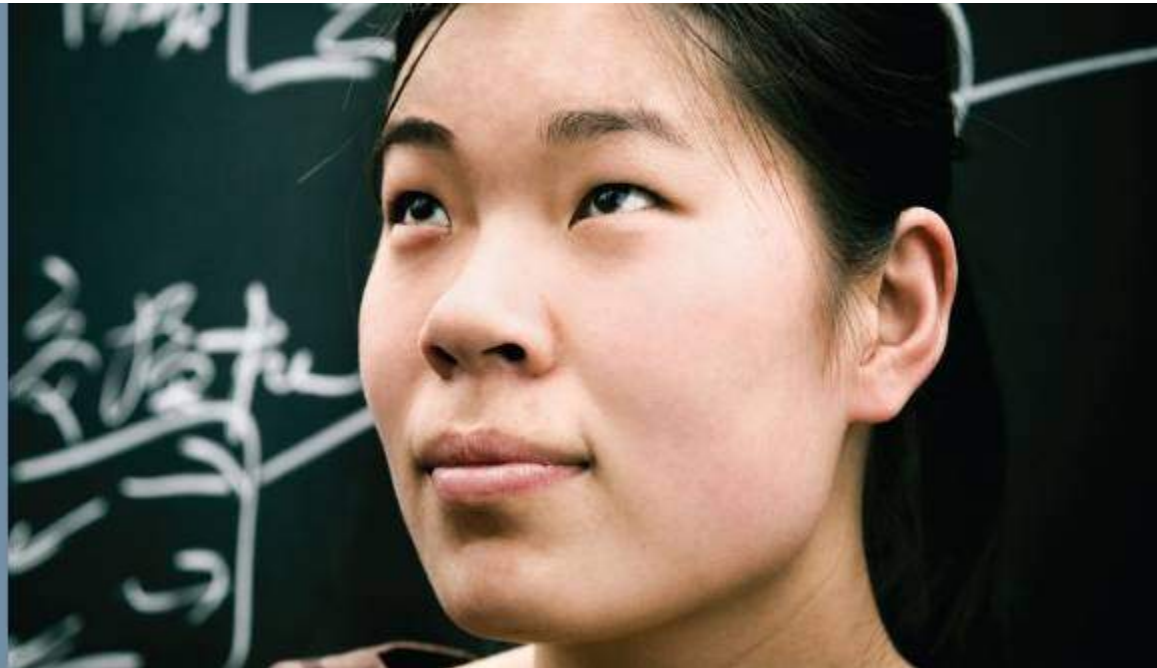
Cisco Networking Academy

Curricula Portfolio

Alignment to Certifications



CCNA Curricula Overview





Why Two CCNA Curricula?

CCNA Discovery and CCNA Exploration are:

- Designed to meet the diverse needs of different types of students
- Use different methodologies to teach the same core concepts
- Target different student segments based on academic experience, skills, and goals
- Accommodates varied educational approaches and learning styles to help all students succeed



Core Skills for Certification and Careers

Basics of Routing and Switching

CCNA Discovery

- Networking based on application
- Spiral approach, concepts build in context of network environments
- General theory and career exploration

CCNA Exploration

- Networking based on technology
- Top-down approach, deep into protocols and theory
- Integrates with engineering concepts

Core Skills for CCNA Certification

Skills for Entry-level Careers Such as:

- Help desk technician
- Network technician
- Network installer
- Network administrator
- Network engineer

Key Factors in Obtaining Jobs: Education, Experience, and Certification



Key Features of Both Curricula

- Emphasize critical thinking, problem solving, collaboration, and the practical application of skills
- Offer embedded, highly interactive e-doing activities that stimulate learning and improve knowledge retention
- Include hands-on labs, simulation-based learning activities, and innovative online assessments
- Help prepare students for entry-level career opportunities, continuing education, and globally-recognized Cisco certifications
- Provide learning pathways from secondary to postsecondary institutions



Skills for the 21st Century

The Learner at the Center

Problem Solving and Decision Making:

- Hands-on labs and the Packet Tracer simulation-based learning environment for configuring and troubleshooting networks
- Challenging assessments, including chapter tests and skills based exams
- Problem-based interactive online activities and complex labs



Creative and Critical Thinking:

- Packet Tracer allows students to explore concepts, conduct experiments, and test understanding
- Case studies present problems, projects and career activities students will encounter on the job
- Students can create their own activities, games, or virtual networks of any size with Packet Tracer

Intellectual Curiosity and the Ability to Find, Select, Structure, and Evaluate Information:

- Challenge labs encourage exploration and research
- Real-world case studies give students the opportunity to structure projects that expand their knowledge
- Labs require students to organize information, consider alternatives and use higher-order thinking skills



Collaboration, Communication, and Negotiation:

- Group lab assignments reinforce teamwork and communication
- Multiuser Packet Tracer activities require collaboration and coordination
- Realistic business scenarios provide practice in communicating and negotiating with customers

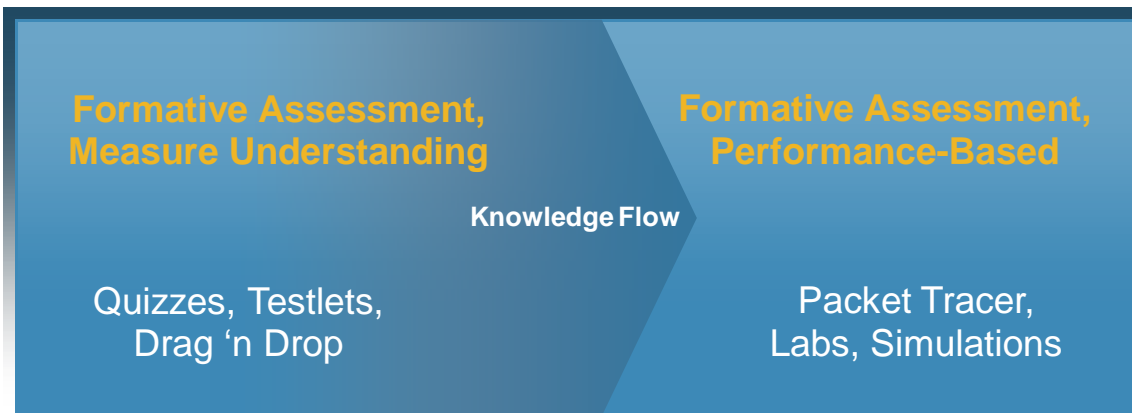




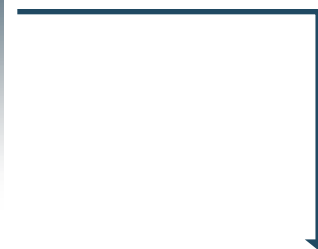
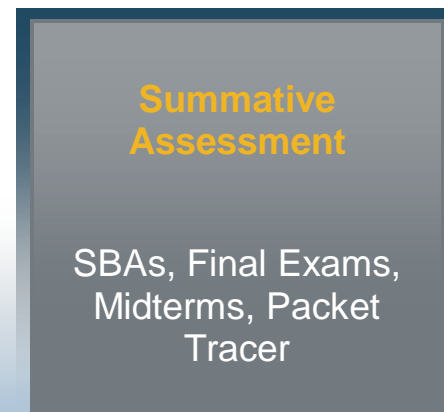
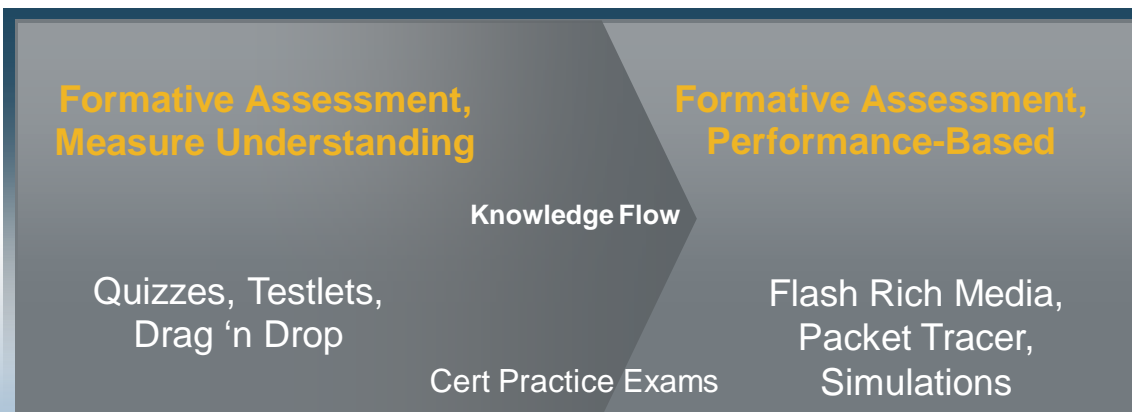
Innovative Assessments

Assessment Framework

Student Initiated



Instructor Initiated





Assessments in CCNA Curricula

- Student-initiated interactive quizzes are embedded in all courses
- Online chapter, practice final, and final exams are scored immediately and provide personalized feedback
- Cisco certification practice exams help students prepare with rich media tasks similar to those found on the actual certification exams
- Students must successfully complete skills-based assessments that test their skills on real equipment
- Packet Tracer-based practice exams support student success by providing an assessment that helps prepare students for the critical skills exam (coming in late 2009)



CCNA Curricula Selection Considerations

- Student academic experience
- Student abilities
- Student learning styles
- Student goals
- Instructional approach
- Teaching style





Different Methodologies

CCNA Discovery

- Teaches networking based on application, in context of network environments
- From small office and home office (SOHO) networking to more complex enterprise and theoretical networking models later in the curriculum



CCNA Exploration

- Teaches networking based on technology, using a top-down, theoretical approach
- From network applications to the network protocols and services provided to those applications by the lower layers of the network





Curricula Overview

CCNA Discovery

- General networking theory
- Hands-on, career-oriented approach to learning networking
- Emphasizes practical experience and career opportunities and encourages additional IT education
- Designed to make IT relevant and applicable to a student's daily life
- Prepares students for entry-level IT careers as early as the first two courses

CCNA Exploration

- Covers protocols and theory in depth
- Uses language that allows for integration with engineering concepts
- Provides skills needed to succeed in networking-related degree programs
- Prepares students for entry-level IT careers after the completion of the four-course curriculum



Curricula Overview

CCNA Discovery

- Many interactive activities break up reading of the content and reinforce understanding of networking concepts
- Explains networking concepts using simple, straightforward language that works well for learners at all levels, including introductory level and less experienced learners

CCNA Exploration

- Fewer interactive activities and more content promoting a deeper, theoretical understanding of networking concepts
- The curriculum discusses networking concepts in greater depth, providing more details and theory for experienced learners with advanced problem-solving and analytical skills



Hands-On Labs

CCNA Discovery

- Starts with structured, easy-to-follow labs with detailed instructions to help students develop and practice their understanding
- Progresses to more challenging tasks that build critical thinking and problem solving skills
- A large number of labs included to encourage additional hands-on practice

CCNA Exploration

- Starts with structured, easy-to-follow labs
- Progresses to more advanced labs that build critical thinking and problem solving skills and encourage exploration and research
- Students may need to rely on additional resources to derive final solutions for the more complex labs



Learning Environment

CCNA Discovery

- Can be delivered as an independent curriculum or integrated into a broader course of study, such as technology or continuing education programs
- Appropriate for students at many education levels and types of institutions including high schools, secondary schools, universities, colleges, career and technical schools, community organizations, and other non-traditional learning environments

CCNA Exploration

- Can be delivered as an independent curriculum or integrated into a broader course of study, such as degree programs in IT, engineering, math, or science or continuing education programs
- While primarily designed for postsecondary institutions, this curriculum is appropriate for students at many education levels if they have the required skills, and if the instructional approach complements their learning style and educational goals



Student Abilities and Learning Styles

CCNA Discovery

- Designed for students with basic PC skills and foundational math and problem solving skills
- Students are not expected to have knowledge of binary math and algorithms detailed explanations and tools such as a binary calculator are provided
- Offers an engaging learning experience for more visual and kinetic learners

CCNA Exploration

- Designed for students with advanced problem solving and analytical skills, such as students pursuing degrees in engineering, information technology, math, or science
- Students are expected to know binary math and understand the concept of algorithms
- Offers a comprehensive and theoretical learning experience for analytical students



Student Goals

CCNA Discovery

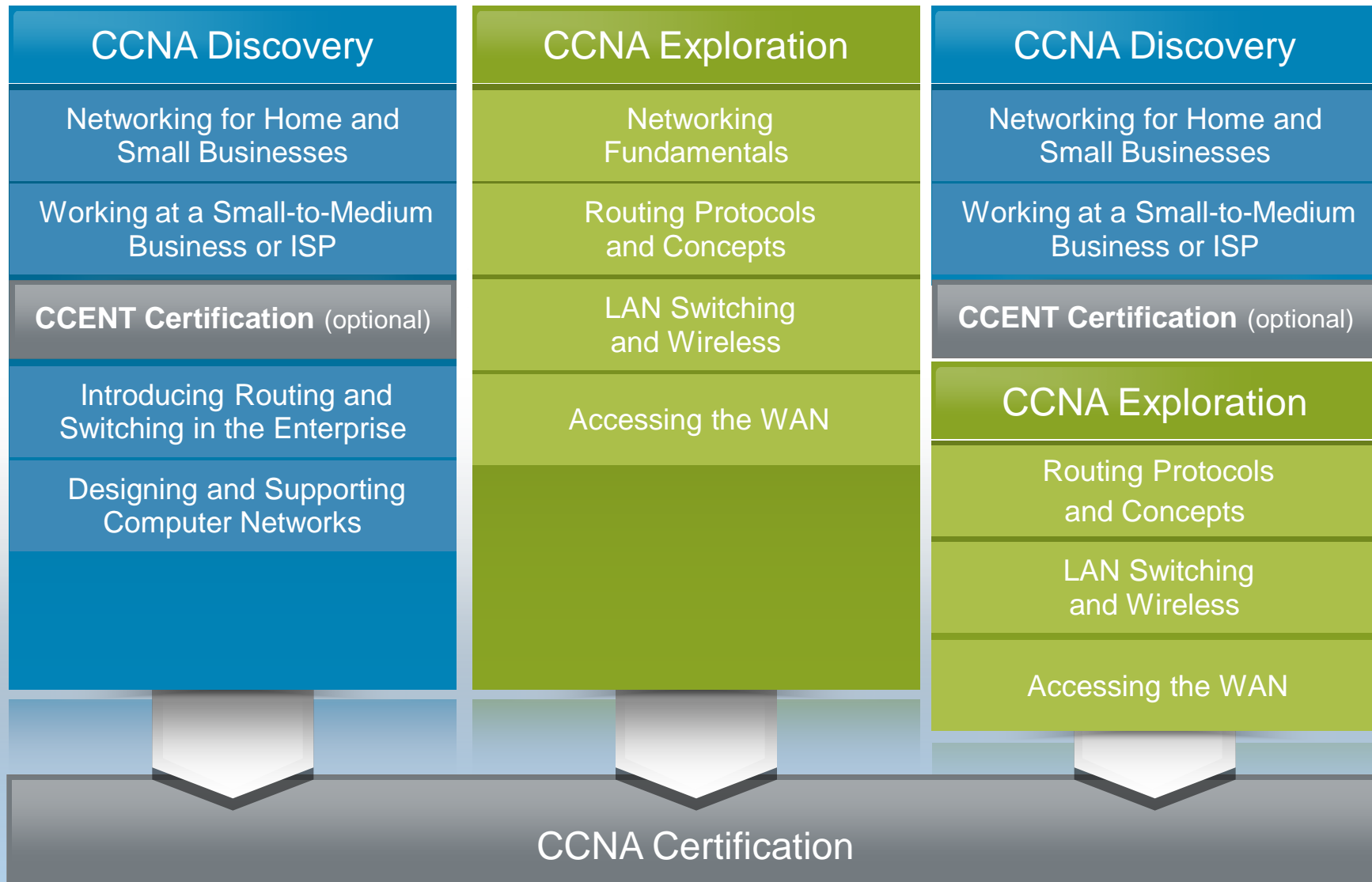
- Offers a pathway for students who plan to pursue additional IT education or begin their careers
- Prepares students for entry-level IT careers as early as the first two courses
- The first two courses help students prepare for the CCENT certification exam
- The entire four course series helps students prepare for the CCNA certification exam

CCNA Exploration

- Helps students advance their technical knowledge and skills for academic success and career readiness
- Prepares students for entry-level IT careers after the completion of the four-course curriculum
- The entire four course series helps students prepare for the CCNA certification exam



Paths to CCNA Certification

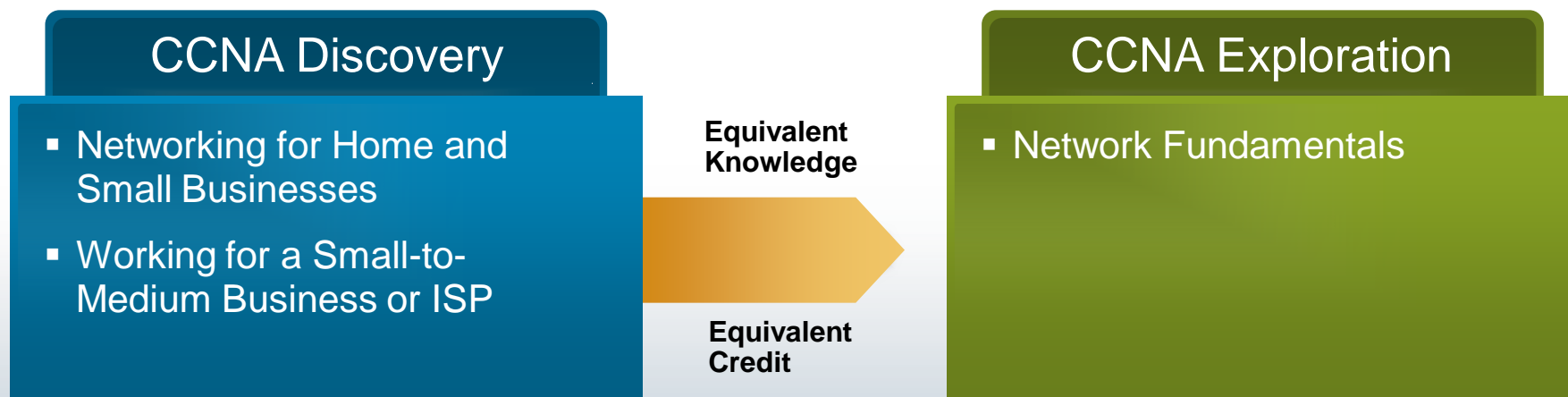




CCNA Curricula Articulation

Course Credit

- Generally developed at the institutional level based on existing programs and pathways



- Students who complete all four CCNA Discovery or CCNA Exploration courses will be prepared to begin the CCNP curriculum
- An institution may choose to grant CCNA Exploration credit for students who complete the CCNA Discovery curriculum

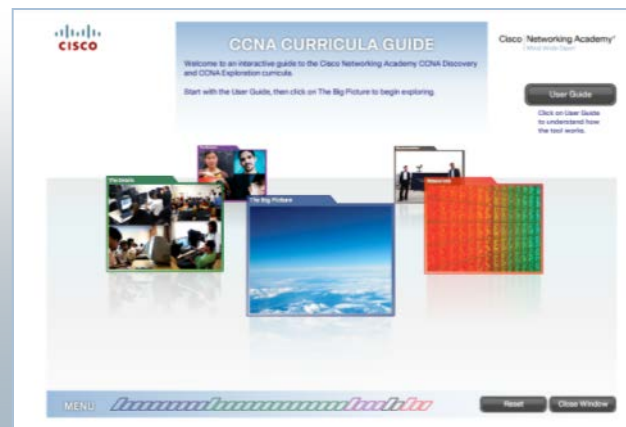
Tools and Resources





CCNA Curricula Guide

- An interactive guide to our CCNA Curricula
- See http://www.cisco.com/web/learning/netacad/course_catalog/newCCNA.html
- Presents similarities and differences between CCNA Discovery and CCNA Exploration
- Make selections to generate a curriculum recommendation best suited for your needs
- Features real examples of e-doing activities, labs, and games from the actual curricula - experience the curricula instead of just reading about it





Resources on Academy Connection

- Datasheets
- Scope and sequence documents
- Detailed equipment list
- Product demos
- FAQs
- At-A-Glance
- CCNA overview presentation
- CCNA Topic Comparison
- Job framework information
- Website areas for:
 - CCNA Servers
 - Packet Tracer
 - Translations
 - Assessments
 - Certifications
- Link to Cisco Learning Institute (CLI) instructor materials
- Link to Cisco press

And More...See [Course Catalog](#) and [Tools](#)
Pages on Academy Connection



Academy Connection Homepage

[My Profile](#) | [Contacts & Feedback](#) | [Help](#) | [Logout](#)

ACADEMY CONNECTION

▶ ADMINISTRATOR HOME

INSTRUCTOR HOME

Packet Tracer

Cisco Learning Institute

AcademyNetSpace.com

Administrator Home

Headlines Subscribe

[Retired CCNA Certification Exam Availability Ends July 31, 2009](#)
(05/21/2009)

[Availability Ends July 31 for CCNA v3.1 and ITE v3.x Curricula](#)
(05/21/2009)

[PDF and HTML Versions of the Cisco Product Quick Reference Guide Now Available](#) (05/21/2009)

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CLI Instructor Materials

Interactive Course Guides

- Provide instructional support consistent with learning by doing approach
- Contain ideas for activities, discussions, and reflection
- Also key ideas, critical concepts, teaching goals, case studies, and tools

Pacing Guides

- Provide guidance on time management and content difficulty ratings for instructors

PowerPoint Presentations

- Building blocks for instructors, who can alter the presentations to fit their needs
- Include chapter objectives and section-level objectives with graphics and summaries

Instructor Reference Guides

- Provide comparison of existing curricula with CCNA v3.x



Cisco Press Textbooks Available

CCNA Discovery

For Each Course

- Learning Guide

CCNA Exploration

For Each Course

- Companion Guide
- Lab and Study Guide

Check www.ciscopress.com or sign up for their [Newsletter](#) for more Information



Packet Tracer Simulation-Based Learning

What Is Packet Tracer?

- Comprehensive networking technology simulation software
- Powerful simulation, visualization, authoring, assessment, and collaboration capabilities

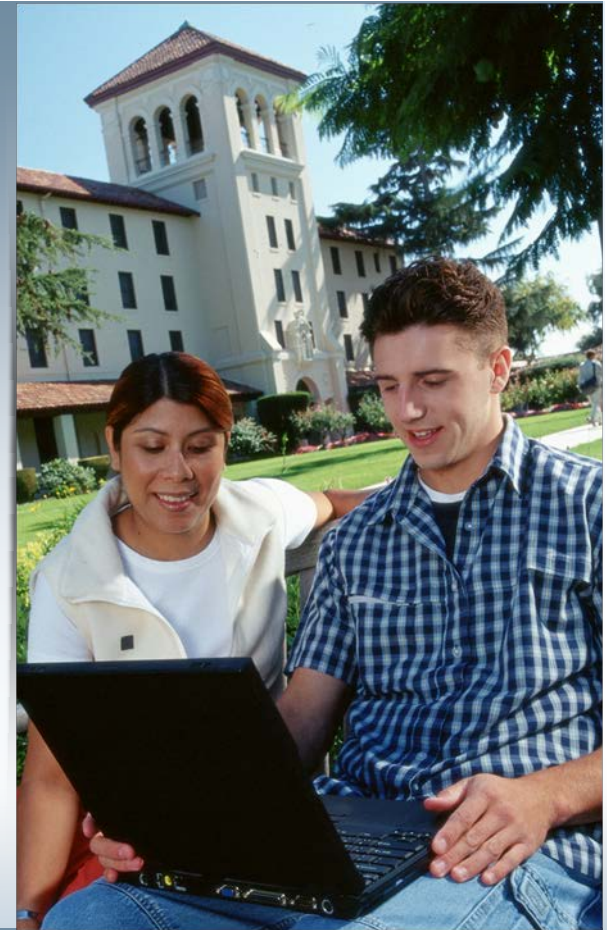
Design, Build, Configure, and Troubleshoot Networks Using Virtual Equipment

- Allows practice outside of the physical classroom and lab
- Supplements physical classroom equipment

Supports Lectures, Group and Individual Labs, Homework, Exams, Games, and Competitions

Helps Students Develop Critical 21st Century Skills

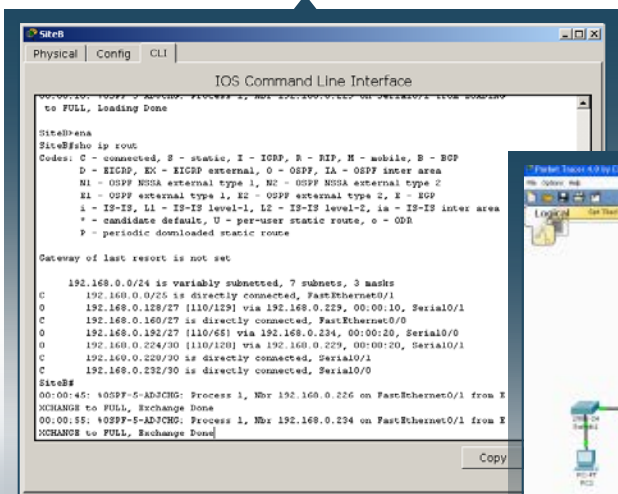
- Problem solving, decision making, creative, and critical thinking



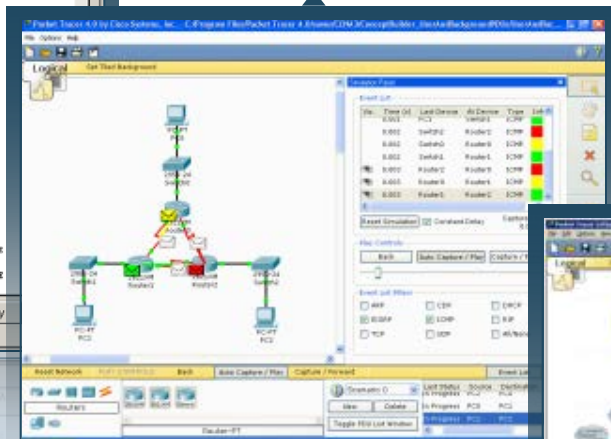


Simulation, Visualization, Collaboration

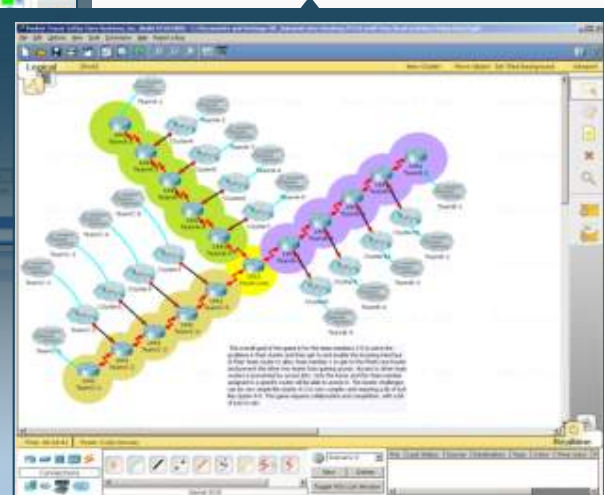
Simulate IOS Commands



Visualize Network Traffic



Collaborate on Multiuser Activities





Supports Homework and Pre-Lab Prep

Packet Tracer 4.0 by Cisco Systems, Inc. - C:/Documents and Settings/dfrezza/Local Settings/Temporary Internet Files/OLK242/121hwVLSM.pkt

Logical Set Tiled Background

2 users

Router-PT Router0 Router-PT Router1

2950-24 Switch0 2950-24 Switch1 2950-24 Switch2 2950-24 Switch3

PC-PT PC0 PC-PT PC1 PC-PT PC2 PC-PT PC3

55 users 28 users 12 users 100 users

Subnet the 192.1.1.0/24 network address to satisfy the user requirements for this network.

Use RIP v2 to support the VLSM routing.

Configure the routers and host devices. operation using pings between the host devices.

Don't forget to save your configurations!

Save the file and bring to class or email to me.

Reset Network

Scenario 0

Routers

2620XM 2621XM Generic

Select a Device to Drag and Drop to the Workspace

Toggle PDU List Window

Packet Tracer 4.0 by Cisco Systems, Inc. - C:/Program Files/Packet Tracer 4.0/saves/CCNA2/SkillBuilder_Traceroute/6C2TracerouteAnswerNetwork...

Logical Set Tiled Background

2621XM Router0 2621XM Router2 2621XM Router1

PC-PT PC0 PC-PT PC1

Edit PC1

Physical Config Desktop

Command Prompt

```

Packet Tracer PC Command Line 1.0
PC>tracert 192.168.1.2

Tracing route to 192.168.1.2 over a maximum of 30 hops:
 0  4 ms  2 ms  2 ms  192.168.3.1
 1  4 ms  2 ms

```

PDU Information at Device: Router1

OSI Model Inbound PDU Details Outbound PDU Details

PDU Formats

Ethernet II

0	4	8	14	19	Byte
PREAMBLE:		DEST MAC:		SRC MAC:	
1010 1010		00E0.F933.5E48		000D.BD99.1B1B	
TYPE:		DATA (VARIABLE LENGTH)		FCS:	
0x800				0x0	

IP

0	4	8	16	19	31	Bits
ID:		FRAG OFFSET:				
0x0		0x0				
TTL:		PRO:		CHKSUM		
2		0x1				
SRC IP:		DST IP:				
192.168.3.2		192.168.1.2				

Reset Network PLAY CONTROLS: Back Auto Capture / Play Cap

Routers

2620XM 2621XM Generic

Router-PT



Integrated into CCNA Curricula

The screenshot shows the CCNA Exploration interface. At the top, it displays '7 Data Link Layer' and '7.4 Putting it All Together'. The main activity is titled '7.4.1 Follow Data Through an Internetwork'. Below the title, there is a brief description: 'In this activity, you can examine in further detail the step-by-step animation on the previous page.' The central part of the interface features a 'Packet Tracer Exploration: Packet Tracing Across an Internetwork' window. This window contains a collage of images including a keyboard, a woman's face, a globe, and a magnifying glass over a document. At the bottom, there is a navigation bar with icons for home, search, and other functions, along with a progress indicator showing '7.4.1.3'.

The screenshot shows the Packet Tracer 5.0 software interface. The main window displays a network diagram with two routers, '1841 Router_A' and '1841 Router_B', connected to a 'Server' and a 'C-PT Client'. A 'PT Activity: 00:03:48' window is open, titled '7.4.1: Packet Tracing Across An Internetwork'. The window contains an 'Introduction' section: 'This brief activity is meant to build upon the example in 7.4.1.2 in the curriculum. In that example, ARP, DNS, and TCP processes were assumed to have already occurred, and the example focuses on following HTTP-initiated packets across a small internetwork formed by 2 routers.' Below the introduction, there are controls for 'Time Elapsed: 00:03:48' and 'Completion: 100%', along with buttons for 'Top', 'Check Results', and 'Reset Activity'. The bottom of the interface shows a 'Realtime' panel with a 'Power Cycle Devices' section and a 'Scenario 0' dropdown menu.

Students Launch Packet Tracer Directly From CCNA Discovery and CCNA Exploration to Access Activities That Reinforce the Curriculum



CCNA Discovery Details





CCNA Discovery Course Sequence

- The curriculum consists of four courses
- Networking for Home and Small Businesses has no prerequisites
- The courses are taken sequentially





CCNA Discovery Course Outline

Chapter	Networking for Home and Small Businesses	Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise	Designing and Supporting Computer Networks
1	Personal Computer Hardware	The Internet and Its Uses	Networking in the Enterprise	Introducing Network Design Concepts
2	Operating Systems	Help Desk	Exploring the Enterprise Network Infrastructure	Gathering Network Requirements
3	Connecting to the Network	Planning a Network Upgrade	Switching in an Enterprise Network	Characterizing the Existing Network
4	Connecting to the Internet Through an ISP	Planning the Addressing Structure	Addressing in a Enterprise Network	Identifying Application Impacts on Network Design
5	Network Addressing	Configuring Network Devices	Routing with a Distance Vector Protocol	Creating the Network Design
6	Network Services	Routing	Routing with a Link-State Protocol	Using IP Addressing in the Network Design
7	Wireless Technologies	ISP Services	Implementing Enterprise WAN Links	Prototyping the Campus Network
8	Basic Security	ISP Responsibility	Filtering Traffic Using Access Control Lists	Prototyping the WAN
9	Troubleshooting Your Network	Preparing for Certification	Troubleshooting an Enterprise Network	Preparing the Proposal
10	Course Summary: Putting It All Together	Course Summary: Putting It All Together	Course Summary: Putting It All Together	Course Summary: Putting It All Together



CCNA Discovery:

Networking for Home and Small Businesses

Overview

- This course teaches students the skills needed to obtain entry-level home network installer jobs. It also helps students develop some of the skills needed to become network technicians, computer technicians, cable installers, and help desk technicians
- It provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in home and small business environments
- Instructors are encouraged to facilitate field trips and outside-the-classroom learning experiences
- Labs include PC installation, Internet connectivity, wireless connectivity, file and print sharing, and the installation of game consoles, scanners, and cameras
- **Prerequisites:** None





CCNA Discovery:

Networking for Home and Small Businesses

Chapter	Objectives
1. Personal Computer Hardware	Describe the Use of Computers, Components, Peripherals, and Network and Local Applications
2. Operating Systems	Describe the Purpose, Use and Maintenance of Operating Systems
3. Connecting to the Network	Describe Network Operations and Implement a Local Area Network
4. Connecting to the Internet Through an ISP	Describe the Purpose and Function of an Internet Service Provider
5. Network Addressing	Describe IP Addressing and IP Address Management
6. Network Services	Describe the Client/Server Relationship, Associated Applications and Protocols, and Explain the OSI Model
7. Wireless Technologies	Describe and Implement a Wireless Network
8. Basic Security	Describe Migration Techniques for Security Risks
9. Troubleshooting Your Network	Describe the Troubleshooting Process and Troubleshoot Common Network Issues



CCNA Discovery:

Working at a Small-to-Medium Business or ISP

Overview

- This course prepares students for jobs as network technicians and helps them develop additional skills required for computer technicians and help desk technicians. It provides a basic overview of routing and remote access, addressing, and security
- It also familiarizes students with servers that provide email services, web space, and authenticated access
- Students learn about the soft skills required for help desk and customer service positions, and the final chapter helps them prepare for the CCENT certification exam
- Network monitoring and basic troubleshooting skills are taught in context
- **Prerequisites:** Networking for Home and Small Businesses





CCNA Discovery:

Working at a Small-to-Medium Business or ISP

Chapter	Objectives
1. The Internet and Its Uses	Describe the Hierarchy of Connection Providers to the Internet
2. Help Desk	Describe Procedures to Resolve or Escalate Problems at the ISP
3. Planning a Network Upgrade	Prepare For The Installation Of A Network Upgrade
4. Planning the Addressing Structure	Describe How the IP Address Is Used in Communication and Develop an IP Addressing Scheme
5. Configuring Network Devices	Configure Network Devices for a Local Area Network
6. Network Services	Describe the Purpose and Function of Dynamic Routing and the Protocols Used to Implement It
7. Routing	Describe Common ISP Services and Their Protocols
8. ISP Services	Describe the Role and Responsibility of the ISP in Maintenance, Security, and Recovery
9. Troubleshooting	Troubleshoot a Network Using the OSI Model and Prepare for the Certification Exam



CCNA Discovery:

Introducing Routing and Switching in the Enterprise

Overview

- This course familiarizes students with the equipment applications and protocols installed in enterprise networks, with a focus on switched networks, IP telephony requirements, and security
- It also introduces advanced routing protocols such as Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF) Protocol
- Hands-on exercises, including configuration, installation, and troubleshooting, reinforce student learning
- **Prerequisites:** Working at a Small-to-Medium Business or ISP





CCNA Discovery:

Introducing Routing and Switching in the Enterprise

Chapter	Objectives
1. Networking in the Enterprise	Describe an Enterprise Network and the Types of Data Flow That May Be Encountered in an Enterprise Network
2. Exploring the Enterprise Network Infrastructure	Describe the Structure of the Enterprise Network and How Services Are Provided to the Edge
3. Switching in an Enterprise Network	Describe and Configure Switches for the Enterprise Network
4. Addressing in an Enterprise Network	Describe and Develop and IP Addressing Scheme for the Enterprise Network, Including Use of Variable Length Subnet Masks, Classless Interdomain Routing, Route Aggregation, and Summarization
5. Routing with a Distance Vector Protocol	Describe and Implement Distance Vector Routing Protocols, As Well As Static and Default Routes
6. Routing with a Link-State Protocol	Describe and Implement Link State Routing Protocols and Route Redistribution
7. Implementing Enterprise WAN Links	Describe and Configure Common WAN Encapsulation Protocols
8. Filtering Traffic Using Access Control Lists	Describe and Configure Standard, Extended, and Named Acls
9. Troubleshooting an Enterprise Network	Describe the Concept of a Failure Domain and Troubleshoot Enterprise Connectivity Issues



CCNA Discovery:

Designing and Supporting Computer Networks

Overview

- This course introduces students to network design processes using two examples; a large stadium enterprise network and a medium-sized film company network; students follow a standard design process to expand and upgrade each network, which includes requirements gathering, proof-of-concept, and project management
- Lifecycle services, including upgrades, competitive analyses, and system integration, are presented in the context of presale support
- In addition to the packet tracer and lab exercises found in the previous courses, there are many pen-and-paper and role-playing exercises that students complete while developing their network upgrade proposals
- **Prerequisites:** Introducing Routing and Switching in the Enterprise





CCNA Discovery:

Designing and Supporting Computer Networks

Chapter	Objectives
1. Introducing Network Design Concepts	Describe the Benefits of a Hierarchical Network Design and Explain Design Considerations for Specific Areas of the Network
2. Gathering Network Requirements	Describe the Six Phases of PPDIOO Model and Based on Business Goals Determine Technical Requirements for a Network Upgrade
3. Characterizing the Existing Network	Develop a Detailed Network Design Requirements Document Based on Existing Network Implementation and Technical Requirements
4. Identifying Application Impacts on Network Design	Describe the Characteristics of Various Network Applications and How Incorporating Those Applications Affects Network Design
5. Creating the Network Design	Design the Core, Distribution, and Access Layers for a Campus Network and Incorporate WAN and Remote Worker Connectivity
6. Using IP Addressing in the Network Design	Select a Hierarchical IP Addressing Scheme, Routing Protocol, and Naming Structure for a Campus Network
7. Prototyping the Campus Network	Develop a Test Plan and Based on Results, Identify Risks and Weaknesses in the Network Design
8. Prototyping the WAN	Describe and Configure WAN Connectivity for Remote Sites and Remote Workers
9. Preparing the Proposal	Develop and Present a Network Upgrade Proposal to Include an Implementation Schedule and Cost Summary



CCNA Discovery

Instructional Methodology

Skill	Networking for Home or Small Businesses	Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise	Designing and Supporting Computer Networks
Routing	Routing Table Operation	Introduce Protocols; Configure Routes and Routers	Configure VLAN, RIPv2, EIGRP, OSPF	Design, Configure, and Test EIGRP and OSPF
Switching	Introduce and Practice Broadcast Domain, Switch Operation, MAC Address Table Concepts	Configure Switch Management Interface and Port Security, Configure and Connect Switches	Configure VLAN Membership, Spanning Tree, 802.1q Trunking Operation	Design and Prototype Access Layer Switched Network, Configure, and Verify Switch Operations
Addressing	Implement IP Addressing, DHCP Configuration, and NAT Operation	Introduce and Practice Subnets, Classless IP Addressing and Routing, VLSM, Subnetting Methods, IPv6	Reinforce VLSM, Introduce Route Summarization and Aggregation	Review and Expand IPv6; IP Addressing Design and Configuration
ACLs		Introduce ACLs	Verify, Implement, and Troubleshoot ACLs in the Enterprise	Review ACLs and Use to Incorporate Security in a Branch Office Network



CCNA Discovery Soft Skills

Networking for Home and Small Businesses

- Communications
- Active listening with customers
- Describing technical concepts to non-technical users
- Basic troubleshooting
- Documentation
- Purchasing

Working at a Small-to-Medium Business or ISP

- Communications
- Active listening with customers
- Describing technical concepts to non-technical users
- Advanced troubleshooting
- Documentation
- Time Management
- Professionalism
- Teamwork

Introducing Routing and Switching in the Enterprise

- Problem solving
- Advanced troubleshooting
- Critical thinking

Designing and Supporting Computer Networks

- Career planning
- Advanced troubleshooting
- Interviewing
- Critical thinking
- Requirements gathering
- Business case
 - Developing proposal
 - Estimating
 - Presentation
 - Project planning

Lab Activities

- The course includes lab activities that allow students to visualize and have hands-on experience with the network services introduced in the course

The screenshot shows a web browser window displaying a Cisco Networking Academy lab page. The page title is "Lab 6.2.3 Exploring FTP". The browser address bar shows the URL: <http://curriculum.netacad.net/virtuoso/servlet/org.cli.delivery.rendering.servlet.CCServlet/Ses...>. The page content includes:

- Objective**
 - Demonstrate how to use FTP from the command prompt and GUI.
- Background / Preparation**

File Transfer Protocol (FTP) is a protocol for transferring files from one network device to another network device. Windows includes an FTP application that you can execute from the command prompt. There are also many free GUI versions of FTP that you can download. The GUI versions are easier to use than typing from a command prompt.

When using FTP, one computer is normally the server and the other computer is the client. When accessing the server from the client, you need to provide a username and password. Some FTP servers have a userID named anonymous. You can access these types of sites by simply typing "anonymous" for the userID, without a password. Usually, the site administrator has files that can be copied but does not allow files to be posted with the anonymous userID.

If your class does not have an FTP server available, you can download and install a freeware version, such as Home FTP Server or Cerberus FTP server. The FTP Server on a computer running the CCNA Discovery Live CD may also be used. Another computer will act as the FTP client by using FTP from the command line, a web browser, or download a freeware version of an FTP client, such as SmartFTP Client or Core FTP LE client. Work in teams of two to complete the lab.

The following resources are required:

 - Windows-based computer with an FTP client
 - FTP server (Existing FTP server, downloaded freeware, or use Live CD)
- Step 1: Examine FTP from the command prompt**

The "Background / Preparation" section is circled in red in the image.



Example of Network Services

6 Network Services

6.1 Clients/Servers and Their Interaction

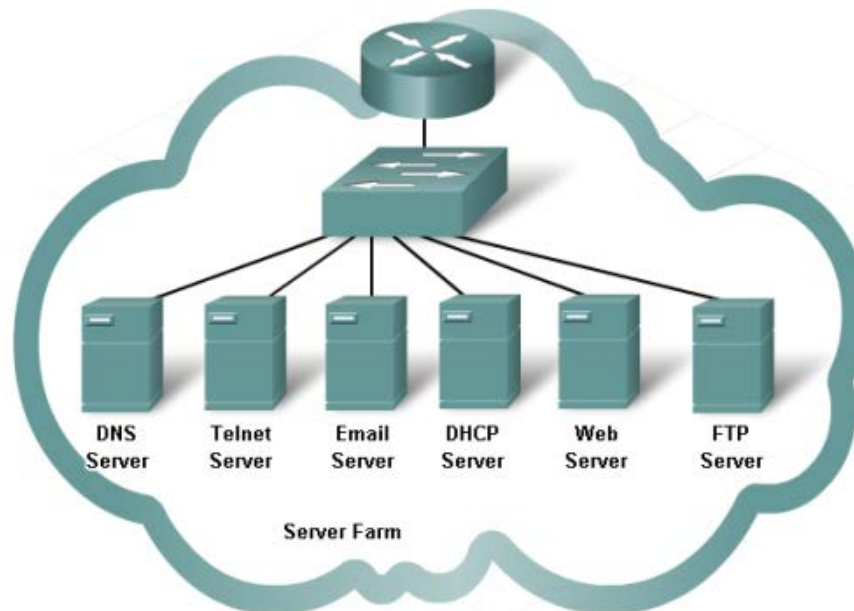
6.1.1 Client Server Relationship

1 2 3 4

CCNA Discovery
Networking for Home and Small Businesses



The key characteristic of client/server systems is that the client sends a request to a server, and the server responds by carrying out a function, such as sending information back to the client. The combination of a web browser and a web server is perhaps the most commonly used instance of a client/server system.



Roll over each server for a brief description of network services provided.

Next

6.1.1.3

Progress bar and navigation icons (back, forward, search, etc.)

6.1.1.3

Progress bar and navigation icons (back, forward, search, etc.)



CCNA Discovery Server

- Software that provides network services in an isolated lab environment, disconnected from the Internet
 - No additional hardware or equipment required
- Required to complete many of the CCNA Discovery labs
- Offers great flexibility to enrich the learning experience
- Network services provided
 - DNS
 - Web server
 - FTP
 - Telnet
 - SSH
 - DHCP
- Detailed instructions, FAQs, and Discovery Server software can be downloaded from Academy Connection Tools page

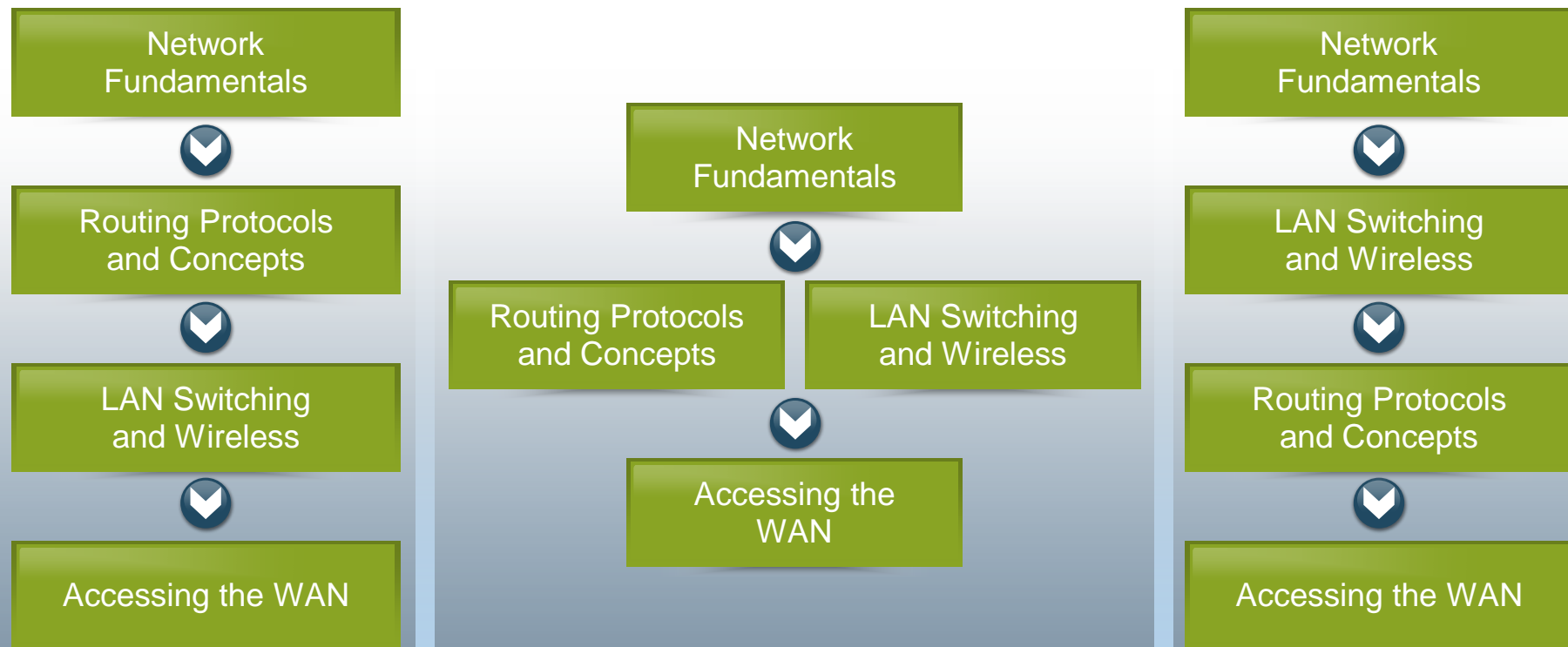
CCNA Exploration Details





CCNA Exploration Course Sequence

- The curriculum consists of four courses
- Network Fundamentals is the first course and has no prerequisites
- The curriculum then offers flexibility in delivery





CCNA Exploration Course Outline

Chapter	Network Fundamentals	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
1	Living in a Network Center World	Introduction to Routing and Packet Forwarding	LAN Design	Services in a Converged WAN
2	Communicating over the Network	Static Routing	Configure a Switch	PPP
3	Application layer functionality and Protocols	Introduction to Dynamic Routing Protocols	VLANs	Frame Relay
4	OSI Transport Layer	Distance Vector Routing Protocols	Implement VTP	Network Security
5	OSI Network Layer	RIP version 1	Implementing Spanning Tree Protocols	Access Control Lists (ACLs)
6	Addressing the Network-IPv4	VLSM and CIDR	Implementing Inter-VLAN Routing	Providing Teleworker Services
7	Data Link Layer	RIPv2	Configuring a Wireless Router	Implementing IP Addressing Services
8	OSI Physical Layer	The Routing Table: A Closer Look		Troubleshooting Networks
9	Ethernet	EIGRP		
10	Planning and Cabling Networks	Link-State Routing Protocols		
11	Configuring and Testing your Network	OSPF		



CCNA Exploration: Network Fundamentals

Overview

- This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks
- It uses the OSI and TCP layered models to examine the nature and roles of protocols and services at the application, network, data link, and physical layers
- Principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation
- Labs use a “model Internet” to allow students to analyze real data without affecting production networks. Packet Tracer activities help students analyze protocol and network operation and build small networks in a simulated environment
- Students build simple LAN topologies by applying basic principles of cabling, performing basic configurations of network devices such as routers and switches, and implementing IP addressing schemes
- **Prerequisites:** None





CCNA Exploration: Network Fundamentals

Chapter	Objectives
1. Living in a Network Center World	Understand How Data Networks Support Business and Personal Communications
2. Communicating over the Network	Describe the Structure of a Network and the Function of Protocols in Network Communications
3. Application Layer Functionality and Protocols	Describe the Function of Well-Known TCP/IP Applications and Their Related Services and Protocols
4. OSI Transport Layer	Explain the Role and Functionality of the Transport Layer Protocols
5. OSI Network Layer	Explain the Role and Features of the Internet Protocol (IP); Understand the Fundamentals of Routing and Packet Forwarding
6. Addressing the Network—IPv4	Understand the Need and Structure of IP Addressing; Generate and Assign Addresses to Networks and Network Devices
7. Data Link Layer	Explain the Role of Data Link Layer Protocols in Data Transmission; Describe the Layer 2 Frame and Key Frame Fields
8. OSI Physical Layer	Understand the Functions of the Physical Layer and Its Standards and Protocols
9. Ethernet	Describe the Ethernet Protocol and the Physical and Data Link Layer Features of Ethernet; Compare and Contrast Ethernet Hubs and Switches
10. Planning and Cabling Networks	Identify and Select the Cables, Standards, and Ports Used for LAN and WAN Connections; Design an Addressing Scheme for an Internetwork; Compare Network Designs
11. Configuring and Testing Your Network	Define the Role of the Internetwork Operating System (IOS); Identify the IOS Modes of Operation and Basic IOS Commands



CCNA Exploration: Routing Protocols and Concepts

Overview

- This course describes the architecture, components, and operation of routers, and explains the principles of routing and routing protocols
- Students analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF
- By the end of this course, students will be able to recognize and correct common routing issues and problems
- Students complete a basic procedural lab, followed by basic configuration, implementation, and troubleshooting labs in each chapter
- Packet Tracer activities reinforce new concepts, and allow students to model and analyze routing processes that may be difficult to visualize or understand
- **Prerequisites:** Network Fundamentals





CCNA Exploration: Routing Protocols and Concepts

Chapter	Objectives
1. Introduction to Routing and Packet Forwarding	Introduce the Router's Role, Its Main Hardware and Software Components, and the Packet Forwarding Process
2. Static Routing	Explain the Role and Configuration of Static Routes; Introduce the Routing Table; Verify Route Entries As They Are Added and Deleted Form the Routing Table
3. Introduction to Dynamic Routing Protocols	Overview Routing Protocol Concepts and Dynamic Routing Protocols
4. Distance Vector Routing Protocols	Examine Distance Vector Concepts and Operations Including Network Discovery and Routing Table Maintenance
5. RIPv1	Examine the Characteristics, Operations, and Limitations of RIPv1; Configure, Verify, and Troubleshoot RIPv1
6. VLSM and CIDR	Explore the Role and Benefits of VLSM and CIDR; Introduce Classless Routing Protocols
7. RIPv2	Discuss the Limitations of Classful Protocols and RIPv1; Introduce RIPv2 and Benefits of Classless Protocols; Configure, Verify, and Troubleshoot RIPv2
8. The Routing Table: A Closer Look	Examine the Routing Table Process and How It Determines the Best Route for a Packet; Understand the Difference Between Classful and Classless Routing
9. EIGRP	Examine the Advantages and Operation of EIGRP; Configure, Verify, and Troubleshoot EIGRP
10. Link-State Routing Protocols	Examine Link-State Routing Protocol Concepts, Algorithm and Routing Process; Discuss Benefits and Advantages Over Distance Vector Protocols
11. OSPF	Examine the Operation of OSPF (Open Shortest Path First); Configure, Verify, and Troubleshoot OSPF



CCNA Exploration: LAN Switching and Wireless

Overview

- This course provides a comprehensive, theoretical, and practical approach to learning the technologies and protocols needed to design and implement a converged switched network
- Students learn about the hierarchical network design model and how to select devices for each layer
- The course explains how to configure a switch for basic functionality and how to implement virtual LANs, VTP, and inter-VLAN routing in a converged network
- The different implementations of Spanning Tree Protocol in a converged network are presented, and students develop the knowledge and skills necessary to implement a WLAN in a small-to-medium network
- **Prerequisites:** Network Fundamentals





CCNA Exploration: LAN Switching and Wireless

Chapter	Objectives
1. LAN Design	Explain the Functions of Hierarchical Network Design So That You Can Select Appropriate Devices for a LAN Environment
2. Configure a Switch	Configure a Switch for Basic Functionality in a Converged Network
3. VLANs	Implement Virtual LANs in a Converged Network
4. Implement VTP	Implement the VLAN Trunking Protocol in a Converged Network to Assist in the Administration of Vlans
5. Implementing Spanning Tree Protocols	Implement Rapid Spanning Tree in a Converged Network in Order to Prevent Loops Between Redundant Switches
6. Implementing Inter-VLAN Routing	Implement Inter-VLAN Routing Between VLANS
7. Configuring a Wireless Router	Explain the Appropriate Administrative Tasks Required for WLAN and Install a Small Wireless Network



CCNA Exploration: Accessing the WAN

Overview

- This course discusses the WAN technologies and network services required by converged applications in enterprise networks
- The course uses the Cisco Network Architecture to introduce integrated network services and explains how to select the appropriate devices and technologies to meet network requirements
- Students learn how to implement and configure common data link protocols and how to apply WAN security concepts, principles of traffic, access control, and addressing services
- Finally, students learn how to detect, troubleshoot, and correct common enterprise network implementation issues
- **Prerequisites:** Network Fundamentals, Routing Protocols and Concepts, and LAN Switching and Wireless





CCNA Exploration

Accessing the WAN

Chapter	Objectives
1. Services in a Converged WAN	Select the Appropriate WAN Technology to Provide Integrated Services Over a Network
2. PPP	Implement PPP Serial Communication to Provide WAN Services Over a Network
3. Frame Relay	Implement Frame Relay Technology to Provide WAN Services Over a Network
4. Network Security	Describe the Common Security Threats to Networks and the General Methods to Mitigate Those Threats
5. Access Control Lists (ACLs)	Implement, Verify, and Troubleshoot ACLs in a Medium-Sized Branch Office Network
6. Providing Teleworker Services	Describe How to Use VPN Technology to Provide Secure Teleworker Services to a Network
7. Implementing IP Addressing Services	Implement IP Addressing Services for a Network
8. Troubleshooting Networks	Troubleshoot Common Network Implementation Issues



CCNA Exploration

Instructional Methodology

Skill	Network Fundamentals	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
Routing	Introduces IP Protocol, IP Addressing and Concept of Routing; Basic Cisco IOS® Commands to Configure Router and Router Interfaces; Explore Routing Tables	Focuses on Routing and Routers; Teaches Details on How to Configure, Verify, and Troubleshoot Multiple Routing Protocols, Including RIPv1 and v2, EIGRP, OSPF, and BGP		
Switching	Concepts of Ethernet, Switching, and Switches; Services Offered by the Data Link Layer; Basic Cisco IOS Commands Used in Switches		Technologies and Protocols to Design and Implement a Converged Switched Network; Configure a Switch for Basic Functionality; Configure, Certify, and Troubleshoot Virtual LANs, VTP, and Inter-VLAN Routing; Implement Spanning Tree (IEEE 802.1D, PVST+, RSTP, PVRST+)	WAN Technologies and Devices Required for Network and Internet Communications; Implement Data Link Protocols Including PPP, ATM, Ethernet, Frame Relay, HDLC
Addressing	Network Addressing; Assign IP Addresses to Network and Devices; Classfull and Classless Addresses; Use of the Network Mask and the Prefix Length; Concept of VLSM	Detail Review of the Concepts of Classless Interdomain Routing (CIDR) and Variable Subnet Masking (VLSM)		Implement IP Addressing Services for an Enterprise Network, Including NAT and DHCP; IPv6 Addressing Concepts; Use of Cisco SDM to Implement IP Addressing Services and ACLs
Other	Application and Transport Protocols; Interaction of Protocols Services and Applications; Design, Cable, Connect, and Configure a Small Network Using Basic Cisco IOS Commands for Routers and Switches		Components of Operation of Wireless LANs (WLANs); Configure, Verify, and Troubleshoot Basic WLAN Access and Security	Implement VPN; Analyze Network Vulnerabilities and Implement Security Technologies... Implement ACLs for Traffic Control Detect, Troubleshoot, and Correct Common Enterprise Network Implementation Issues



CCNA Exploration Soft Skills

Network Fundamentals

- Basic planning and design
- Troubleshooting

Routing Protocols and Concepts

- Basic planning and design
- Troubleshooting

LAN Switching and Wireless

Accessing the WAN

- Basic planning and design
- Requirements gathering
- Documentation
- Troubleshooting
- Critical thinking
- Customer communications



Top Down Approach

- Following a top down approach to teaching Networking, CCNA Exploration introduces applications and application services very early in the course
- The course explains the role and nature of the main application protocols and their relation to protocols and services provided to them by the lower layers of the network

3.1.4 Application Layer Protocol Functions

Application layer protocols are used by both the source and destination devices during a communication session. In order for the communications to be successful, the application layer protocols implemented on the source and destination host must match.

Protocols establish consistent rules for exchanging data between applications and services loaded on the participating devices. Protocols specify how data inside the messages is structured and the types of messages that are sent between source and destination. These messages can be requests for services, acknowledgments, data messages, status messages, or error messages. Protocols also define message dialogues, ensuring that a message being sent is met by the expected response and the correct services are invoked when data transfer occurs.

Many different types of applications communicate across data networks. Therefore, Application layer services must implement multiple protocols to provide the desired range of communication experiences. Each protocol has a specific purpose and contains the characteristics required to meet that purpose. The right protocol details in each layer must be followed so that the functions at one layer interface properly with the services in the lower

PROTOCOLS

7 Application
6 Presentation
5 Session
4 Transport
3 Network
2 Data Link
1 Physical

Application layer protocols provide the rules for communication between applications.

Protocols:

- Define processes on either end of the communication
- Define the types of messages
- Define the syntax of messages
- Define the meaning of any informational fields
- Define how messages are sent and the expected response
- Define interaction with the next lower layer



Labs and Packet Tracer Activities

- The course includes an important number of labs and Packet Tracer Activities that allow students to visualize and have hands-on experience with the application protocols and services introduced in the course

PT Activity: 00:01:53

Connect the Eagle Server to the Fa0/0 port on the R1-ISP router. Turn on web services on the server by enabling HTTP. Enable DNS services and add a DNS entry that associates "eagle-server.example.com" (without quotes) with the IP address of the server. Verify your work using feedback from the **Check Results** button and the **Assessment Items** tab. Test connectivity, in real time, by using **ADD SIMPLE PDU** to test connectivity between PC 1B and the Eagle Server.

Note that when you add a simple PDU, it appears in the PDU List Window as part of "Scenario 0". The first time you issue this one-shot ping message, it will show as **Failed**—this is because of the ARP process which, will be explained later. Double clicking the "Fire" button in the PDU List Window, send this single test ping a second time. This time it will be successful. In Packet Tracer, the term "scenario" means a specific configuration of one or more test packets. You can create different test packet scenarios by using the **New** button—for example Scenario 0 might have one test packet from PC 1B to Eagle Server, Scenario 1 might test packets between PC 1A and the routers... You can remove all test packets in a particular scenario by using the **Delete** button. For example, if you use the **Delete** button for Scenario 0 the test packet you just created between PC 1B and Eagle Server will be removed—please do this prior to the next task.

Task 2: Explore How DNS and HTTP Work Together

Switch from Realtime to Simulation mode. Open a web browser from the desktop of PC 1B. Type in eagle-server.example.com, press Enter, and then use the **Capture / Forward** button in the **Event List** to capture the interaction of DNS and HTTP. Play this animation and examine the Packet contents (PDU Information Window, **Inbound PDU Details**, **Outbound PDU Details**) for each event in the event list, especially when the packets are at PC 1B or at the Eagle Server. If you receive a "Buffer Full" message, click the **View Previous Events** button. While the processing of the packets by the switch and the routers may not make sense to you yet, you should be able to see how DNS and HTTP work together.

Reflection:
Time Elapsed: 00:01:53 Completion: 0%

Scenario 0 Fire Last Status Source Destination Type

New Delete

Toggle PDU List Window

Cisco Networking Academy
Mind What Open

Lab 3.4.2: Managing a Web Server

Topology Diagram

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1-ISP	S0/0/0	10.10.10.6	255.255.255.252	N/A
	Fa0/0	192.168.254.253	255.255.255.0	N/A
R2-Central	S0/0/0	10.10.10.5	255.255.255.252	10.10.10.6
	Fa0/0	172.16.255.254	255.255.0.0	N/A
Eagle Server	NA	192.168.254.254	255.255.255.0	192.168.254.253
	NA	172.16.254.1	255.255.0.0	N/A
hostPod1A	NA	172.16. Pod# 1	255.255.0.0	172.16.255.254
hostPod1B	NA	172.16. Pod# 2	255.255.0.0	172.16.255.254
S1-Central	NA	172.16.254.1	255.255.0.0	172.16.255.254

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CCNA Eagle Server

- Software that provides network services and applications in an isolated lab environment, disconnected from the Internet
 - No additional hardware or equipment required
- Required to complete most of the CCNA Exploration labs
- Offers great flexibility to enrich the learning experience
- Network services provided
 - DNS
 - Web Server
 - FTP
 - TFTP
 - SSH
 - Instant messaging
 - Wiki server
 - Email
- Detailed instructions, FAQs and CCNA Eagle Server software can be downloaded from Academy Connection Tools page

Instructor Training





Instructor Training

- In person training, approximately 40 classroom hours per course

OR

- Fast Track option

CCNA or higher certification, formal evidence of industry experience, or formal evidence of CCNA teaching experience required

Fast Track completion requirements include:

- Final online exam

- Skills-based assessment

- Case study

Completion must be done in a proctored environment

Instructors enroll in Fast Track through the Help Desk



In-Person Training for CCNA Curricula

- Register for training on Academy Connection
- Attend scheduled training at Training Center
 - Focuses on main ideas, strategies for teaching difficult concepts, and connection with real world scenarios
 - Uses the actual curriculum and Interactive Course Guide (ICG)
 - Interactive sessions for skills-based training
- Complete course exam and skills exam





Instructor Training Resources Available

My Profile | Contacts & Feedback | Help | Logout

Kiwii
Beta

Advanced Search | Login | Sign Out | English | Español

ACADEMY CONNECTION
 ▶ ADMINISTRATOR HOME
 INSTRUCTOR HOME
 ALUMNI HOME

Packet Tracer
 Download

Interactive Course Guides
 Cisco Learning Institute

AcademyNetSpace.com
 Go Now

Featured

An Introduction to Kiwii
 A quick start to using Kiwii

InterVLAN Routing using Router-on-a-stick
 This video discusses Router-on-a-stick, which is a method of configuring a router to provide interVLAN ...

Wild Card Masks
 A wildcard mask is similar to a subnet mask in that they both control access. A Wild Card Mask is used ...

Networking | Mathematics | Cisco Resources | Methodology

Please select the Academy course you are teaching. Expand the course to view the teaching resources.

Discovery: Networking for Home and Small Businesses 68 Items	Discovery: Working at a Small-to-Medium Business or ISP 64 Items
Discovery: Introducing Routing and Switching in the Enterprise 63 Items	Discovery: Designing and Supporting Computer Networks 68 Items
Exploration: Network Fundamentals 13 Items	Exploration: Routing Protocols and Concepts 13 Items

Networking
 Mathematics
 Cisco Resources
 Methodology

Math and Networking Together
 On the surface these two don't look like they belong. What does networking classes for adult learners really have in common with math? The answer is nothing and everything. After all, what is IP Addressing not binary math? And what is algebra if not a connection of steps? The world has



Instructor Pacing Guide

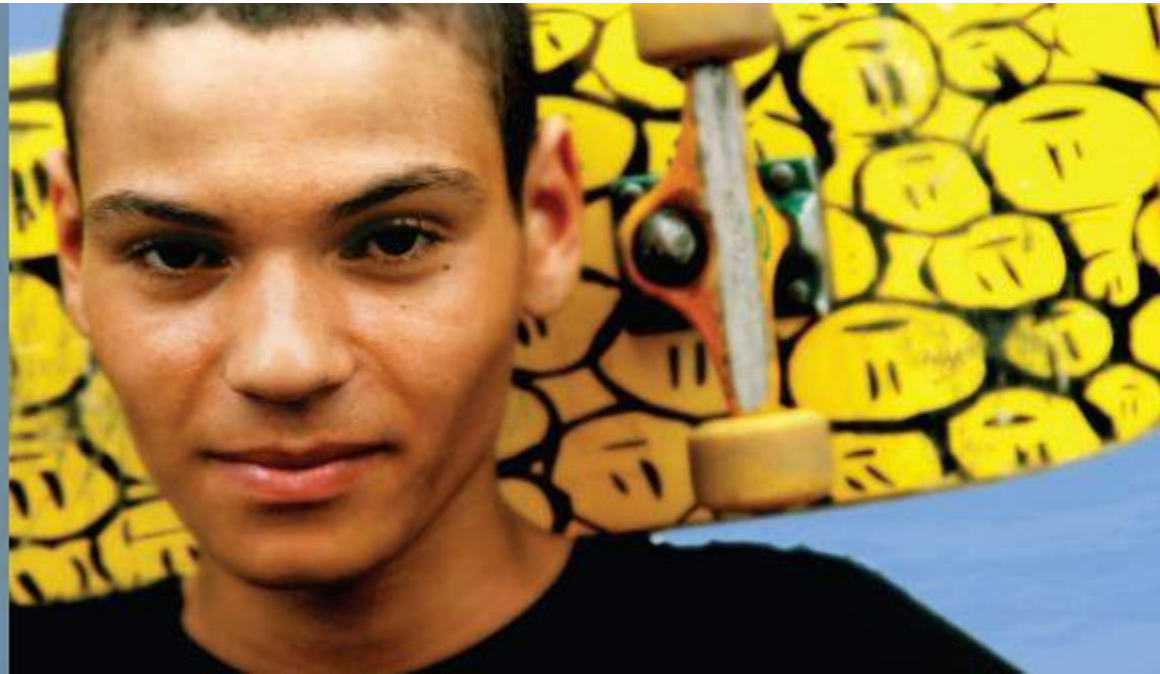
- Available per course for CCNA Discovery and CCNA Exploration
 - Currently in English only
- Provide guidance on time management and content difficulty ratings for each chapter
 - Helps instructors identify course content that may be difficult to teach and may also be difficult for students to grasp.
- Suggests the percentage of time to be spent on each chapter, based on 2-month and 4-month teaching cycles
- Recommends a minimum percentage of time that should be spent on lab activities within each chapter
 - This assumes that instructors will use the remaining time outside of lab activities on teaching, reading, discussion, and assessment
- Available on the Kiwii instructor resources site
 - Click the CLI Interactive Course Guides link on the Academy Connection Instructor Home page or from the Tools section on Academy Connection



Interactive Course Guide

- Available per course for CCNA Discovery and CCNA Exploration (currently in English only)
- Key ideas
- Teaching goals
- Critical concepts
- How to teach concepts
- Discussion ideas
- Reflection
- Case studies, labs, videos, tools

Academy Connection: Curriculum Prerequisites





CCNA Discovery

Academy Connection System Prerequisites for Enrollment

	Networking for Home and Small Businesses	Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise	Designing and Supporting Computer Networks
Students (Prereqs for enrollment)	None , but recommend that student have basic PC usage skills	CCNA 1 v3.1 OR Networking for Home and Small Business OR Networking Fundamentals	CCNA 2 v3.1 OR Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise OR Accessing the WAN



CCNA Discovery

Academy Connection System Prerequisites for Teaching

	Networking for Home and Small Businesses	Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise	Designing and Supporting Computer Networks
Instructors (Prereqs to teach student class)	CCNA 2 v3.1 AND Orientation OR Networking for Home and Small Businesses AND Orientation OR Networking Fundamentals AND Orientation OR Accessing the WAN AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR CCNA 4 v 3.1 AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation	CCNA 2 v3.1 AND Orientation OR Working at a Small-to-Medium Business or ISP AND Orientation OR Routing Protocols and Concepts AND LAN Switching and Wireless AND Orientation OR Accessing the WAN AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR CCNA 4 v3.1 AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation	CCNA 3 v3.1 AND Orientation OR Introducing Routing and Switching in the Enterprise AND Orientation OR Routing Protocols and Concepts AND LAN Switching and Wireless AND Orientation OR Accessing the WAN AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR CCNA 4 v3.1 AND Orientation OR (CCNA Discovery OR Exploration Fast Track) AND Orientation	CCNA 4 v3.1 AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR Accessing the WAN AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation



CCNA Exploration

Academy Connection System Prerequisites for Enrollment

	Networking Fundamentals	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
Students (Prereqs for enrollment)	None , but recommend that student have advanced analytical and problem solving skills	CCNA 1 v3.1 OR Networking Fundamentals OR Networking for Home and Small Businesses AND Working at a Small-to-Medium Business or ISP	CCNA 1 v3.1 OR Networking Fundamentals OR Networking for Home and Small Businesses AND Working at a Small-to-Medium Business or ISP	CCNA 3 v3.1 OR CCNA 1 v.3.1 AND CCNA 2 v3.1 AND LAN Switching and Wireless OR Routing Protocols and Concepts AND LAN Switching and Wireless



CCNA Exploration

Academy Connection System Prerequisites for Teaching

	Networking Fundamentals	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
Instructors (Prereqs to teach student classes)	CCNA 2 v3.1 AND Orientation OR Working at a Small-to-Medium Business or ISP AND Orientation OR Networking Fundamentals AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR Accessing the WAN AND Orientation OR CCNA 4 v 3.1 AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation	CCNA 2 v3.1 AND Orientation OR Introducing Routing and Switching in the Enterprise AND Orientation OR Routing Protocols and Concepts AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR Accessing the WAN AND Orientation OR CCNA 4 v3.1 AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation	CCNA 3 v3.1 AND Orientation OR Introducing Routing and Switching in the Enterprise AND Orientation OR LAN Switching and Wireless AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR Accessing the WAN AND Orientation OR CCNA 4 v3.1 AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation	CCNA 4 v3.1 AND Orientation OR Designing and Supporting Computer Networks AND Orientation OR Accessing the WAN AND Orientation OR CCNA 4 v3.1 AND Orientation OR (CCNA Discovery OR CCNA Exploration Fast Track) AND Orientation

Translated and Accessible Versions





Improving Student Outcomes

- We are committed to making our courses and documentation accessible and usable by all students to help them achieve their goals
- Translation of the CCNA curricula improves student outcomes by facilitating learning success on a global scale
- Accessible versions of all courses provide access to CCNA Discovery and CCNA Exploration for students with accessible needs—including those with visual, auditory, and dexterity limitations



Cisco Networking Academy Translation Framework

Category	<p style="text-align: center;">Globally Strategic</p> <p style="text-align: center;">Led by Cisco Corporate</p>	<p style="text-align: center;">Regionally Strategic</p> <p style="text-align: center;">Led by Cisco Field or Partner</p>	<p style="text-align: center;">Locally Strategic</p> <p style="text-align: center;">Led by Cisco Field or Partner</p>
Criteria	<ul style="list-style-type: none"> ▪ High Networking Academy market potential ▪ High demand for skilled people (IDC) ▪ Alignment with cert priorities ▪ Networking Academy global alignment 	<ul style="list-style-type: none"> ▪ Moderate market potential ▪ Moderate demand for skilled people ▪ Alignment with certification priorities and partner goals ▪ Networking Academy theater alignment 	<ul style="list-style-type: none"> ▪ Networking Academy country alignment ▪ Alignment with partner goals
Languages	<p style="text-align: center;">Six UN Languages</p> <ul style="list-style-type: none"> ▪ Arabic ▪ English ▪ French ▪ Russian ▪ Simplified Chinese ▪ Spanish 	<p style="text-align: center;">Prioritized Installed Base + Theater Priorities</p> <p style="text-align: center;">Examples</p> <ul style="list-style-type: none"> ▪ Br. Portuguese ▪ German ▪ Japanese ▪ Polish 	<p style="text-align: center;">Examples</p> <ul style="list-style-type: none"> ▪ Hungarian ▪ Slovak



Collaborative Global Community

Currently Available Languages



UN Languages

- CCNA Discovery: All four courses
French, Russian, Simplified Chinese, Spanish
- CCNA Exploration: All three courses
French, Simplified Chinese, Spanish



Non-UN Languages

- CCNA Discovery
German, Hungarian, Japanese, Portuguese, Polish, Romanian, Turkish
- CCNA Exploration
Brazilian Portuguese, Korean, Polish, Traditional Chinese



Translated Teaching Resources

- Translated instructor materials available on the Tools page of Academy Connection for all translated CCNA courses
 - Scope and Sequence
 - Instructor and Student Lab Manual
 - Student Packet Tracer Lab Manual
 - Lab source files
 - Discovery Server and Exploration Server documents (Classroom Set Up Tab)
- In addition, Cisco Learning Institute (CLI) translated the following instructor training materials to Spanish
 - Interactive Course Guides (ICGs)
 - Instructor Reference Guide (IRGs)
 - PowerPoint teaching aid presentations



Current Status on Translations

- You can find the latest information about our translation roadmap and target availability dates on Academy Connection
Select Library > Curricula Globalization > [Planned Releases](#)



Equipment Requirements and Recommendations





CCNA Curricula Equipment Requirements

- The minimum required equipment bundle is the same for CCNA Discovery and CCNA Exploration
 - Three Cisco 1841 routers with Base IP IOS, 128 MB DRAM, 32 MB Flash
 - Three 2960 switches
 - Two Linksys wireless (Linksys WRT150N is preferred, but other acceptable models include WRT54G, WRT300N, and WRT350N) or SOHO equivalent
 - One Lab PC with Microsoft Windows 2000 Server
 - Three Lab PCs or laptops (Microsoft Windows 2000 or Windows XP)
 - Assorted Ethernet and serial cables and hubs

- Curriculum requirements
 - One student PC per student
 - One local curriculum server



PC Hardware Recommendations

- **Processor:** Intel Processor Pentium 4, equivalent or higher
- **Memory:** 1.0 GB or higher of installed RAM
[minimum 512 MB RAM]
- **Hard Drive:** 80 GB or higher of available hard drive space
- **Display Resolution:** 1024 x 768 or higher [minimum 800 x 600]
- **Peripherals**
 - Video card
 - Sound card
 - Network card
 - 10/100/1000 Ethernet card and/or
 - 10/100 wireless adapter
 - CD/DVD drive



PC Software Recommendations

- Operating System: Microsoft Windows XP/Vista or higher or Linux kernel version 2.6 or higher
- Supported web browsers
 - [Internet Explorer 7.0](#) or higher [Internet Explorer 6.0 minimum]
 - [Mozilla Firefox 3.0 \(Windows and Linux\)](#) or higher [Firefox 2.0 minimum]
- PDF reader
 - [Adobe Reader \(Windows and Linux\)](#)
 - [Evince](#) (Linux, provided in the Distribution)
- [Adobe Flash Player \(Windows and Linux\)](#)
- [Java Version 6](#)
- [Apple Quick Time 7](#)
- [Packet Tracer 5.x \(Windows and Linux\)](#)



PC Software Recommendations (Cont.)

- Terminal Emulation Application

 - [PuTTY \(Windows and Linux\)](#)

 - [Tera Term \(Windows\)](#)

- .doc Reader

 - Microsoft Office (Windows)

 - [OpenOffice.org \(Windows, Linux\)](#)

- Drawing and diagrams

 - [Visio 2007 Viewer \(Windows, viewing only\)](#)

 - [Dia \(Windows and Linux, viewing and creating drawings and diagrams\)](#)

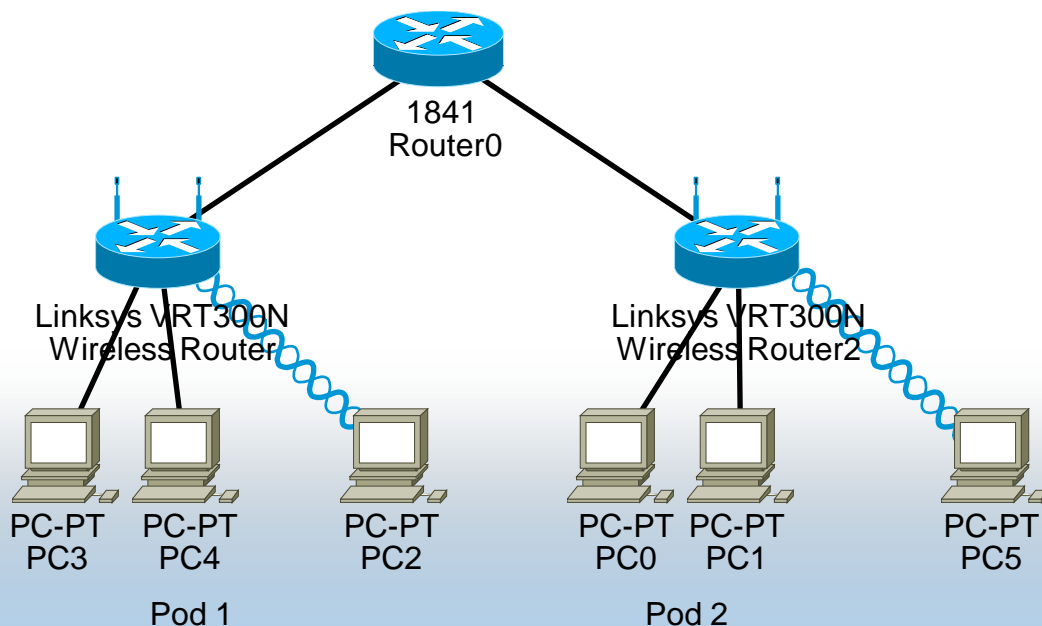
- [Wireshark \(Windows and Linux\)](#)



CCNA Discovery: Networking for Home and Small Business

- The 1841 Router simulates only the ISP connectivity, no student configuration of the 1841; topology represents an ISP, with a small office and a home office customer; multiple pods will be connected serially using the serial ports on the 1841
- Recommended six students per pod

- One 1841 ISR router (with integrated switch)
- Two Linksys wireless routers (300N or W54G)
- Minimum one USB wireless adapter
- Supports three students per Linksys device, six students total

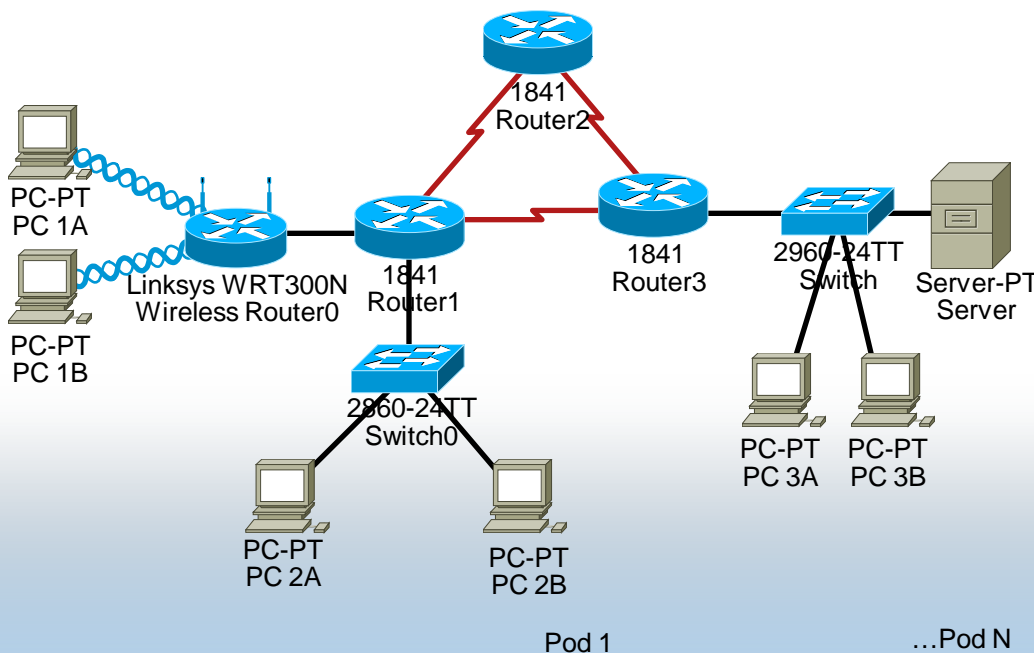




CCNA Discovery:

Networking at a Small-to-Medium Business or ISP:

- Students will configure RIPv2 routing in a three-router topology; there is no specific configuration of the 2960 switches, other than basic setup; topology will be reconfigured during the course
- Recommended six to eight students per pod
- Three 1841 ISR routers
- Two 2960 switches
- Minimum one Linksys wireless router
- Minimum one wireless USB adapter (two preferred)



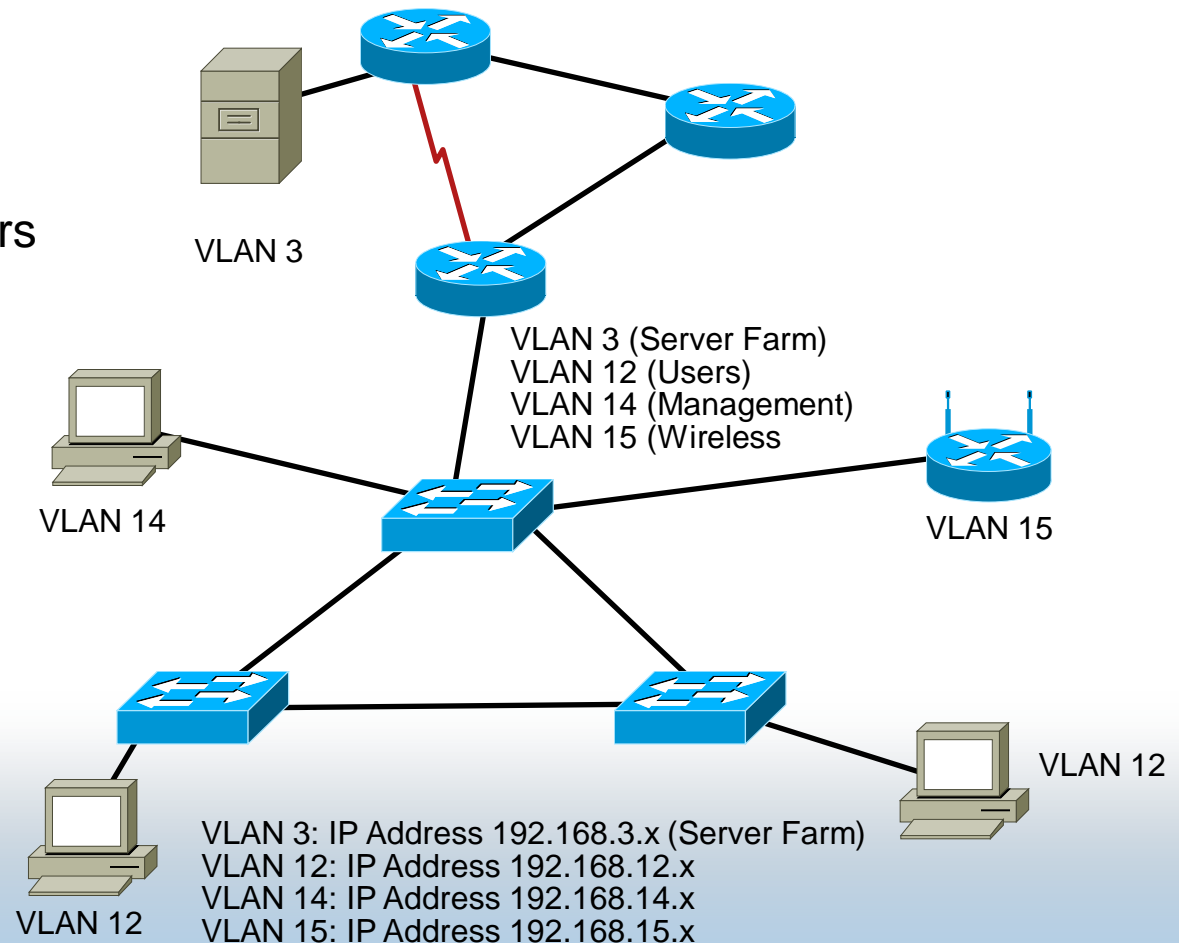


CCNA Discovery:

Introducing Routing and Switching in the Enterprise and Designing and Supporting Computer Networks

- 1841 ISR routers
- 2960 switches
- Linksys wireless routers
- Recommend eight students per pod

This Topology Could Be Used for: Routing Protocols RIP, EIGRP, and OSPF—With or Without Switches

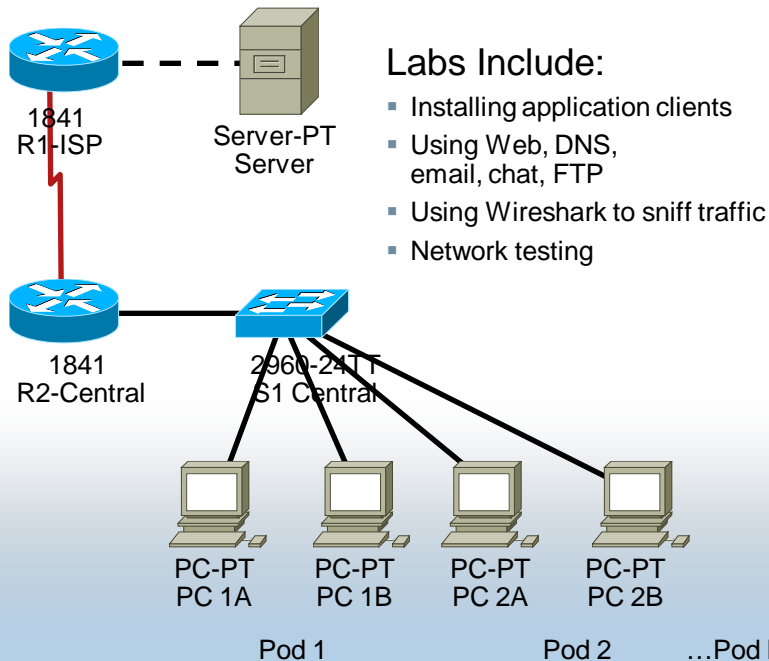




CCNA Exploration: Network Fundamentals

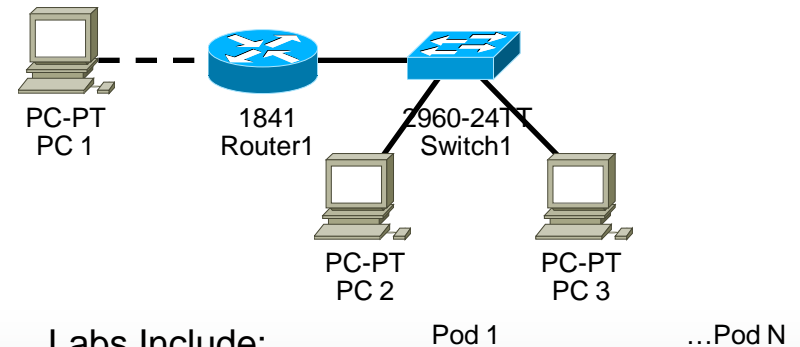
Primary Hands-On Lab Pod

- Shared “model” Internet connection and LAN
- Isolated from any production networks
- ≤ four students per pod PCs



Secondary Lab Pod

- Used in chapters 10 and 11
- Students use this topology to plan, build, configure, and test
- ≤ four students per pod of one router, one switch, three PCs



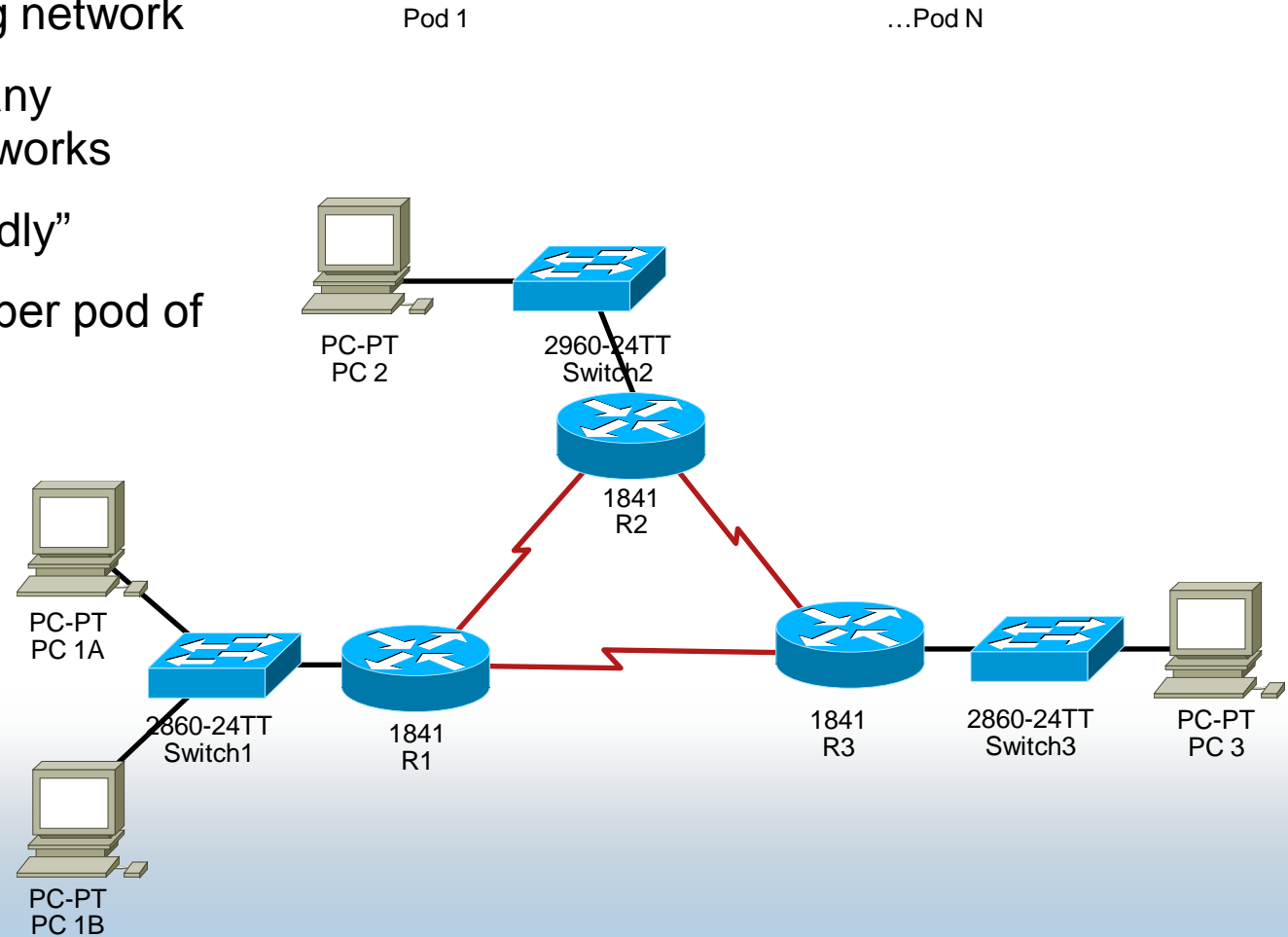
- Labs Include:**
- Planning
 - Building
 - Configuring
 - Testing
 - Basic IOS

Lab Topology



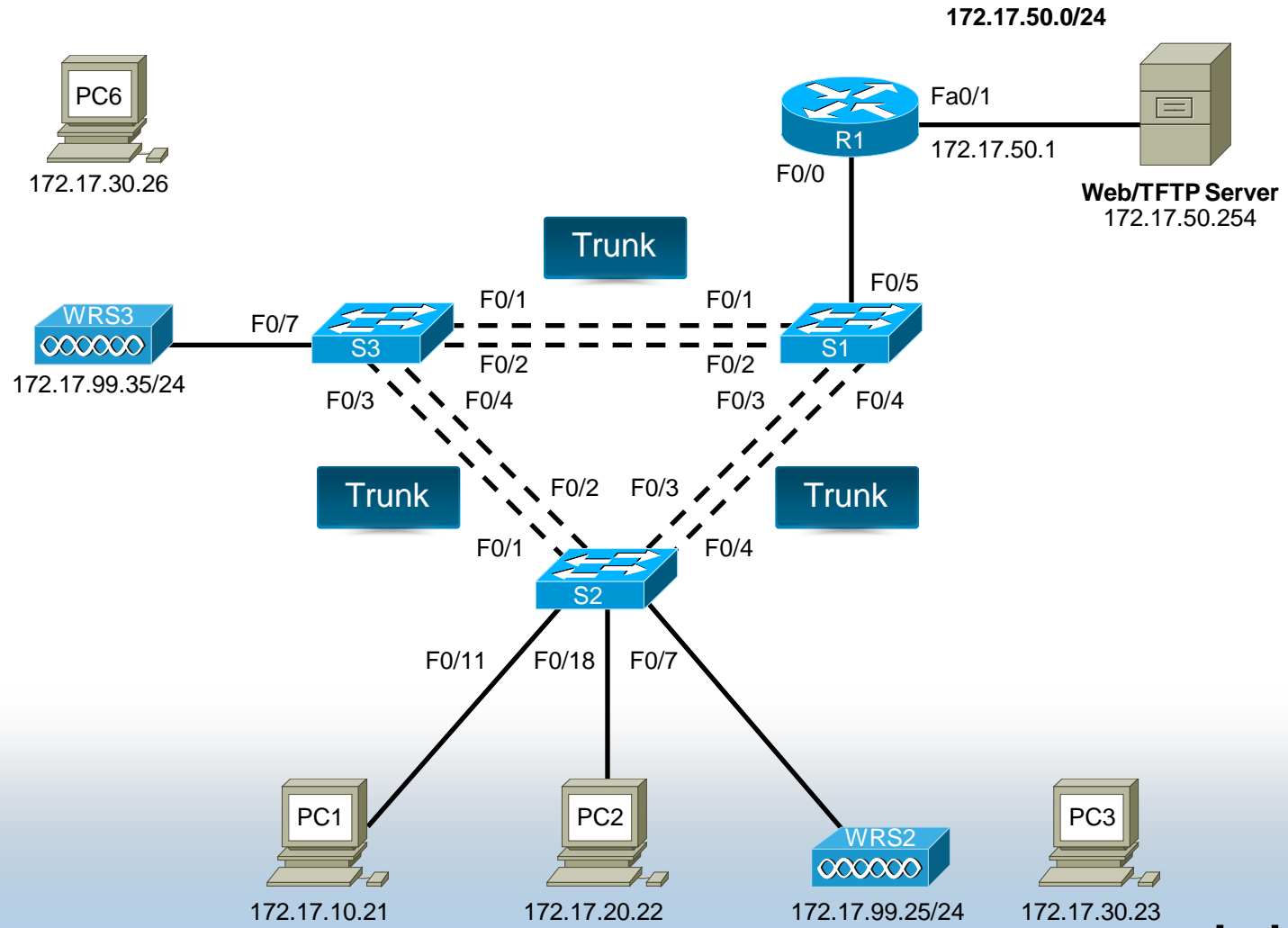
CCNA Exploration: Routing Protocols and Concepts

- “Model” routing network
- Isolated from any production networks
- NETLAB “friendly”
- ≤ six students per pod of three routers





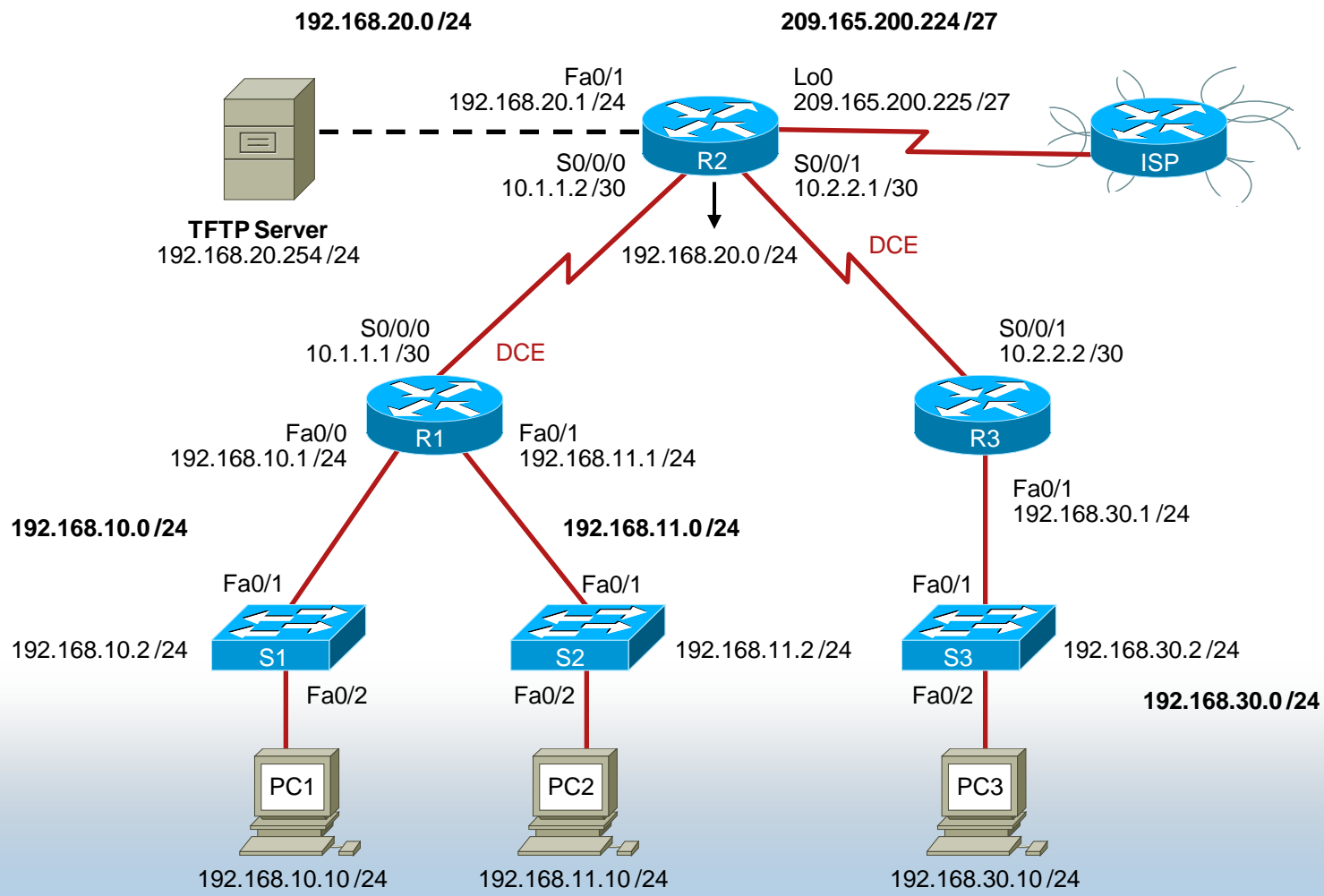
CCNA Exploration: LAN Switching and Wireless



Lab Topology



CCNA Exploration: Accessing the WAN

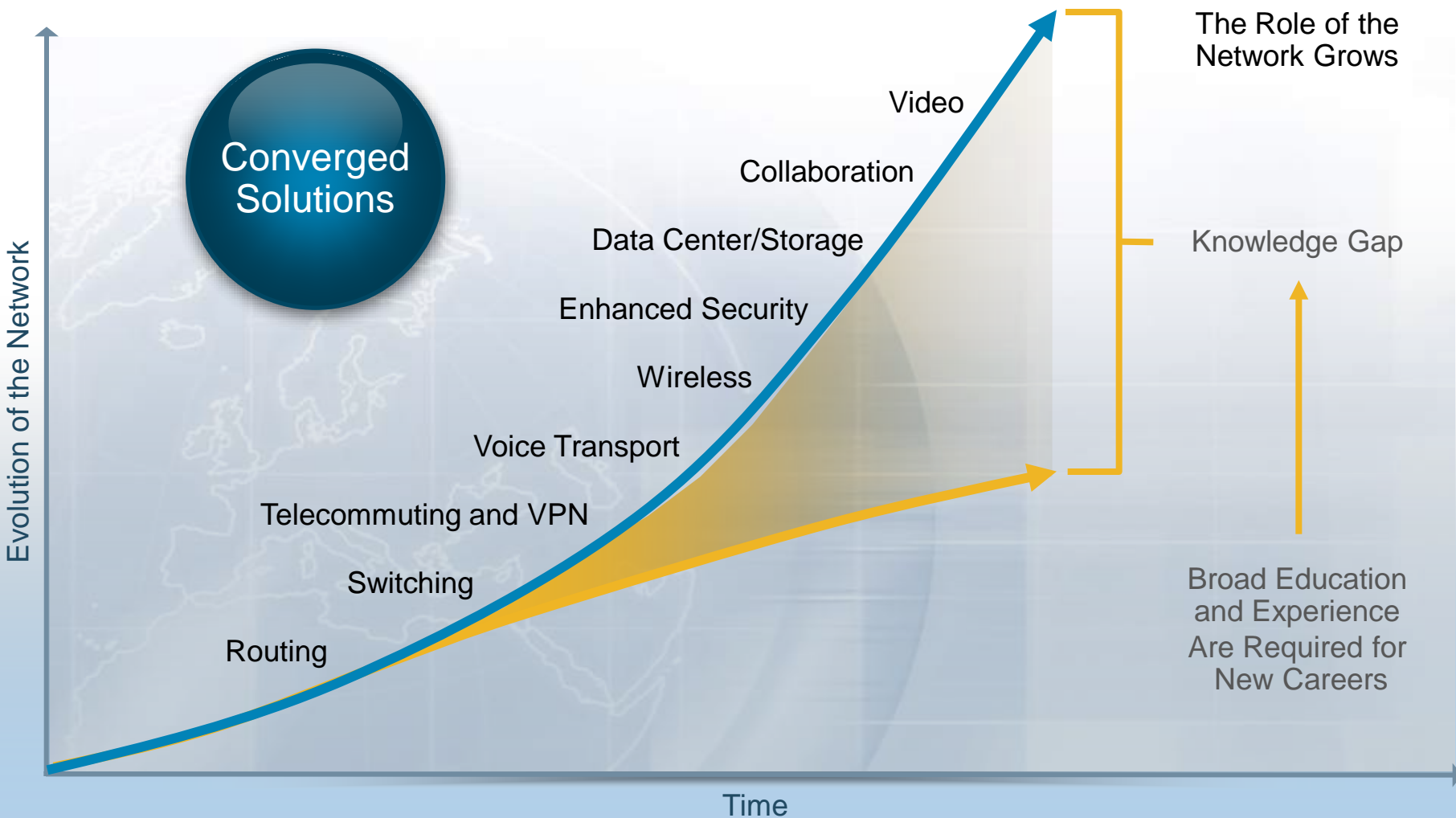


Cisco Certifications



Emergence of a Skills Gap

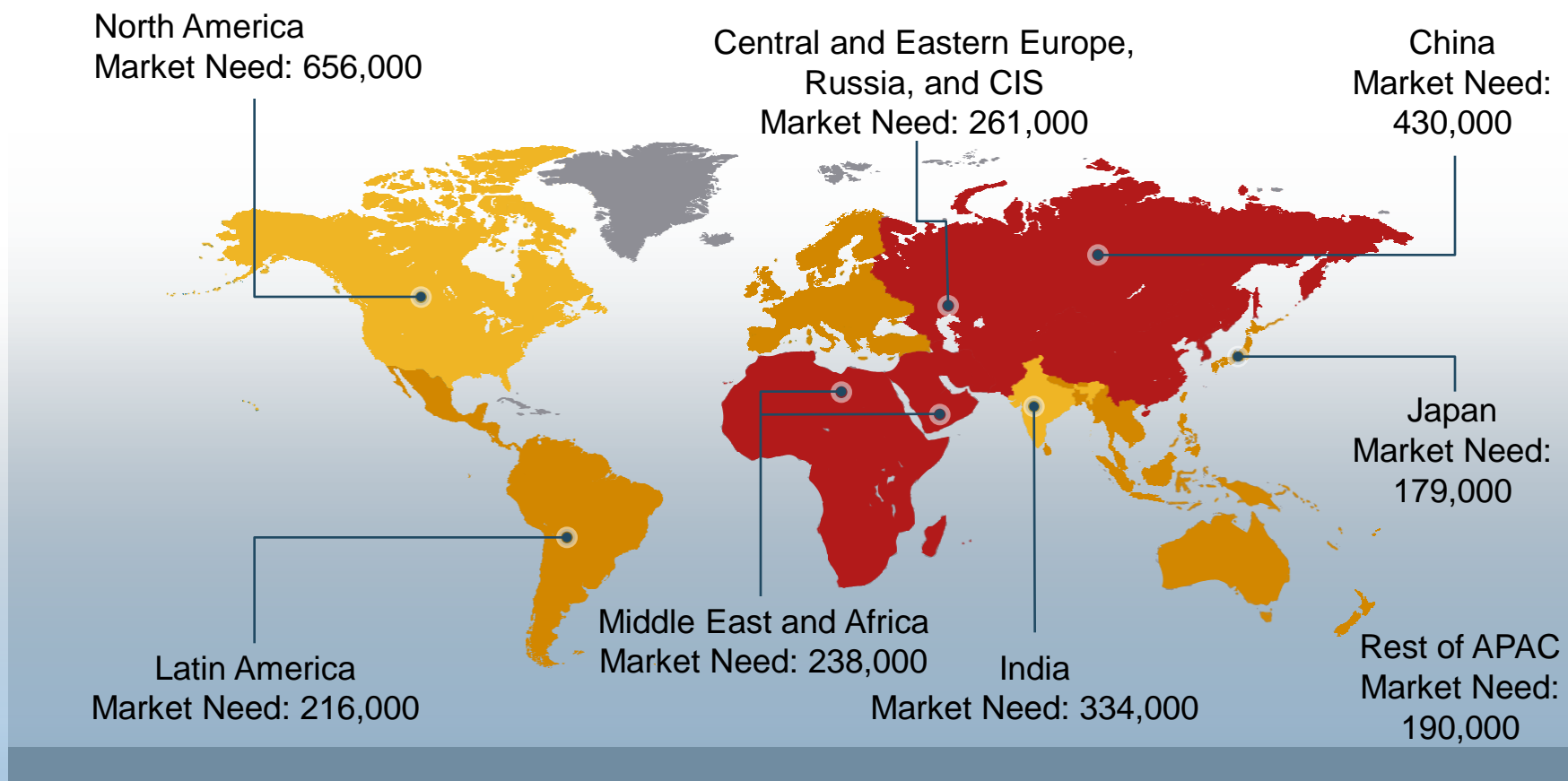
Future Converged Applications





Broad and Deep Talent Gap

The Gap of Skilled Networking Professionals Is Estimated to be About 3 Million in 2012



Source: IDC Skill Gaps Research and Bain 2007 Global Job Market Analysis



Cisco Career Certifications

A Lifecycle of Learning

CCENT

An Accessible Entry Point

- Cisco CCENT Entry-Level Network Technician certifies skills for entry-level network support
- An intermediate step towards CCNA for those with little or no work experience



CCNA

A Foundation in Networking

- Greater breadth reflects today's enterprise networks
- Focus on performance-based skills and hands-on practice
- Localization addresses worldwide skills gap





Cisco Certification and Training

Value to Employers

Acquire

- Prequalifies applicants

Develop

- Proficient in the latest advanced technologies

Retain

- Supports employee career development

Productivity

- Credibility with prospective customers

“Our company’s technical footprint is greatly enhanced by our expert staff of Cisco certification holders.”

Carleton Jones, CEO of Multimax





Cisco Certifications

- **CCENT: Cisco Certified Entry Network Technician**

Optional certification after the first two courses of CCNA Discovery curriculum

Certifies skills required to configure, operate and troubleshoot a small enterprise branch network, under supervision

Aligned to entry level positions in network support, such as help desk representative or technical support assistant

- **CCNA: Cisco Certified Networking Associate**

Certifies knowledge and skills to install, operate and troubleshoot a small to medium size enterprise branch network

Includes connecting to multiple WANs, basic security measures, and wireless extension of the network



CCNA Curricula and Cisco Certifications

Certification	Recommended Curriculum	Certification Exam(s)
CCENT	<p>CCNA Discovery</p> <ul style="list-style-type: none"> ▪ Networking for Home and Small Businesses ▪ Working at a Small-to-Medium Business or ISP 	ICND1 (640-822)
CCNA	<p>CCNA Discovery</p> <ul style="list-style-type: none"> ▪ Networking for Home and Small Businesses ▪ Working at a Small-to-Medium Business or ISP ▪ Introducing Routing and Switching ▪ Working at a Small-to-Medium Business or ISP <p>OR</p> <p>CCNA Exploration</p> <ul style="list-style-type: none"> ▪ Networking Fundamentals ▪ Routing Protocols and Concepts ▪ LAN Switching and Wireless ▪ Accessing the WAN <p>OR</p> <p>CCNA Discovery</p> <ul style="list-style-type: none"> ▪ Networking for Home and Small Businesses ▪ Working at a Small-to-Medium Business or ISP <p>CCNA Exploration</p> <ul style="list-style-type: none"> ▪ Routing Protocols and Concepts ▪ LAN Switching and Wireless ▪ Accessing the WAN 	<p>CCNA (640-802)</p> <p>OR</p> <p>ICND1 (640-822) and ICND2 (640-816)</p>



Aligning Certifications to Jobs

Certification	Skills Certified	Job Roles	Job Titles
CCENT	<ul style="list-style-type: none"> Install, operate, and troubleshoot small-routed and switched networks Basic optimization of network Connect to other networks (LANs and WANs) Install a small wireless network Identify security threats and basic mitigation methods 	<ul style="list-style-type: none"> Set up, install, and maintain PCs, servers, racks, and cabling Train users Support senior technicians Staff a help desk, retrieve calls, and isolate problems Use monitoring tools to verify network operations 	<ul style="list-style-type: none"> Entry-Level Help Desk Technician Entry-Level Technical Support IT Systems Coordinator Entry-Level Operating Center Technician Entry-Level IT Technician/Specialist
CCNA	<ul style="list-style-type: none"> Install, operate, and troubleshoot medium-sized routed and switched networks Implement and troubleshoot various protocols to manage addressing, perform load balancing and authentication Establish and troubleshoot connection to service provider over WAN 	<ul style="list-style-type: none"> Assist in design, installation, configuration, and maintenance of medium-sized routed and switched networks Isolate network problems Support users via help desk for hardware, software, and network Use monitoring tools to ensure network operations 	<ul style="list-style-type: none"> Help Desk Support Specialist Network Technician Network Specialist Network Administrator Technical Support Specialist Network Engineering Technician



Certifications and Vouchers

- Discount vouchers are offered to eligible students for the CCENT and CCNA exams
- Cisco exams are offered through Pearson VUE authorized test centers (www.pearsonvue.com)
- More information on the following topics is available in the [Certifications and Vouchers](#) area on Academy Connection
 - Industry certifications
 - Vouchers and promotional codes
 - Exams and testing centers
 - Special programs





The Cisco Learning Network

- Includes sample exam questions
- E-learning modules
- Tips from Cisco certified professionals
- Other certification resources that will help candidates prepare for Cisco certification exams



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