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	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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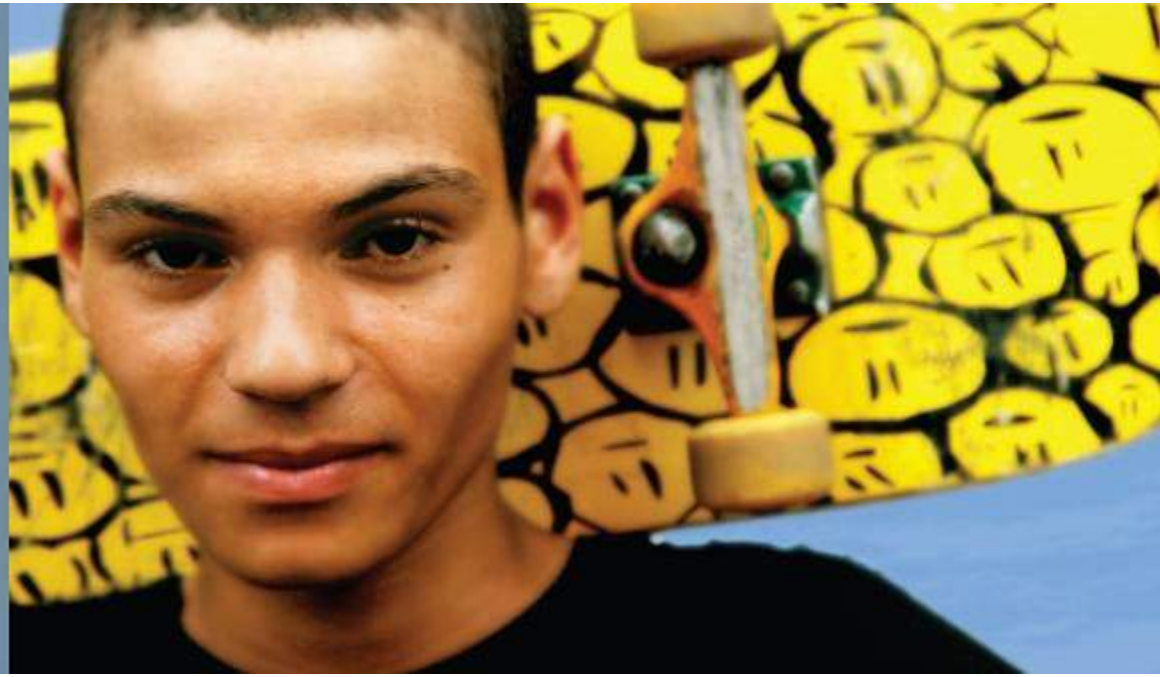
Networking Academy Curricula



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

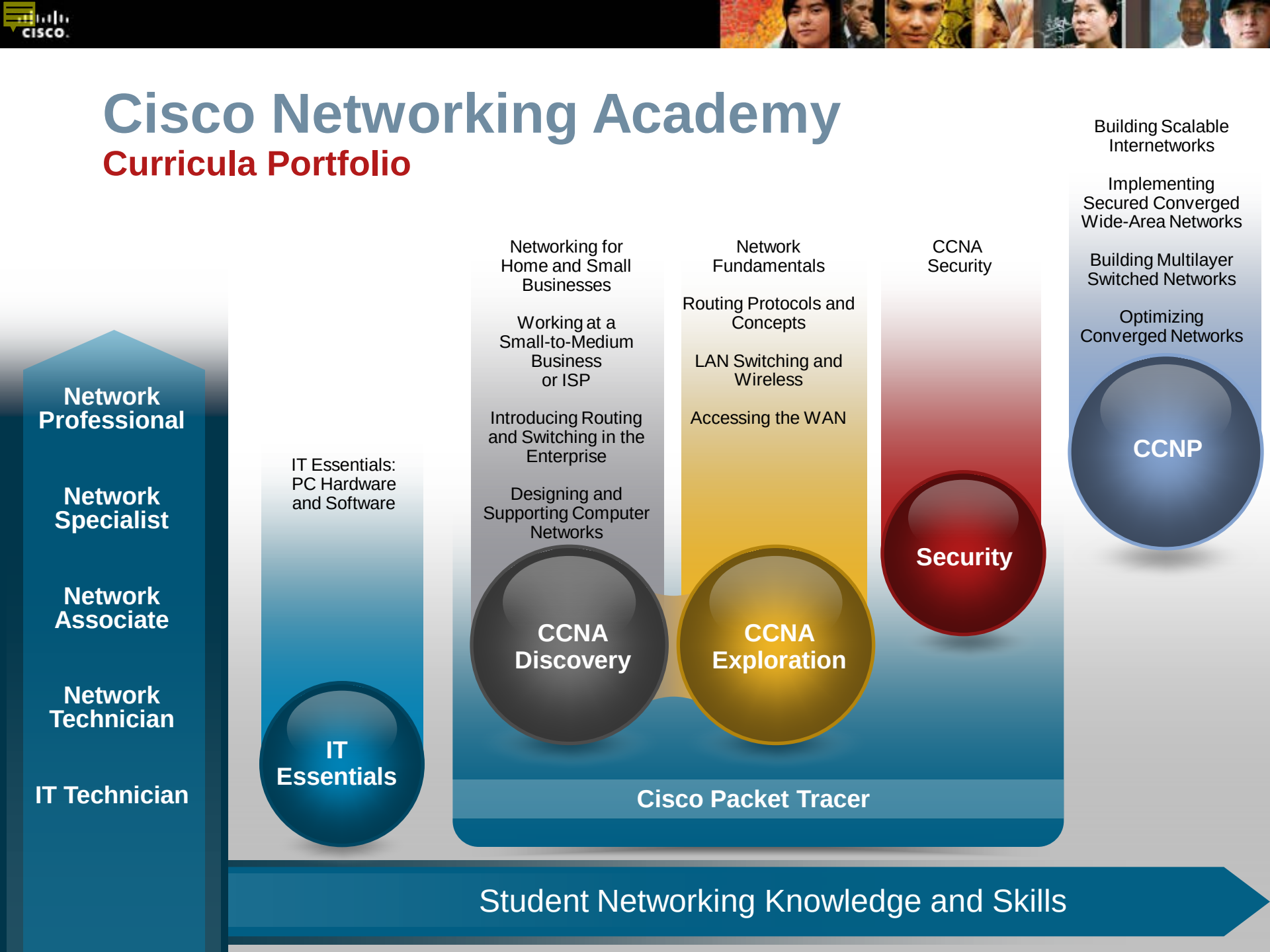
- CCNA-level skills and knowledge open a world of possibilities for students looking to gain a competitive edge and be successful in a wide range of networking careers today and in the future

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

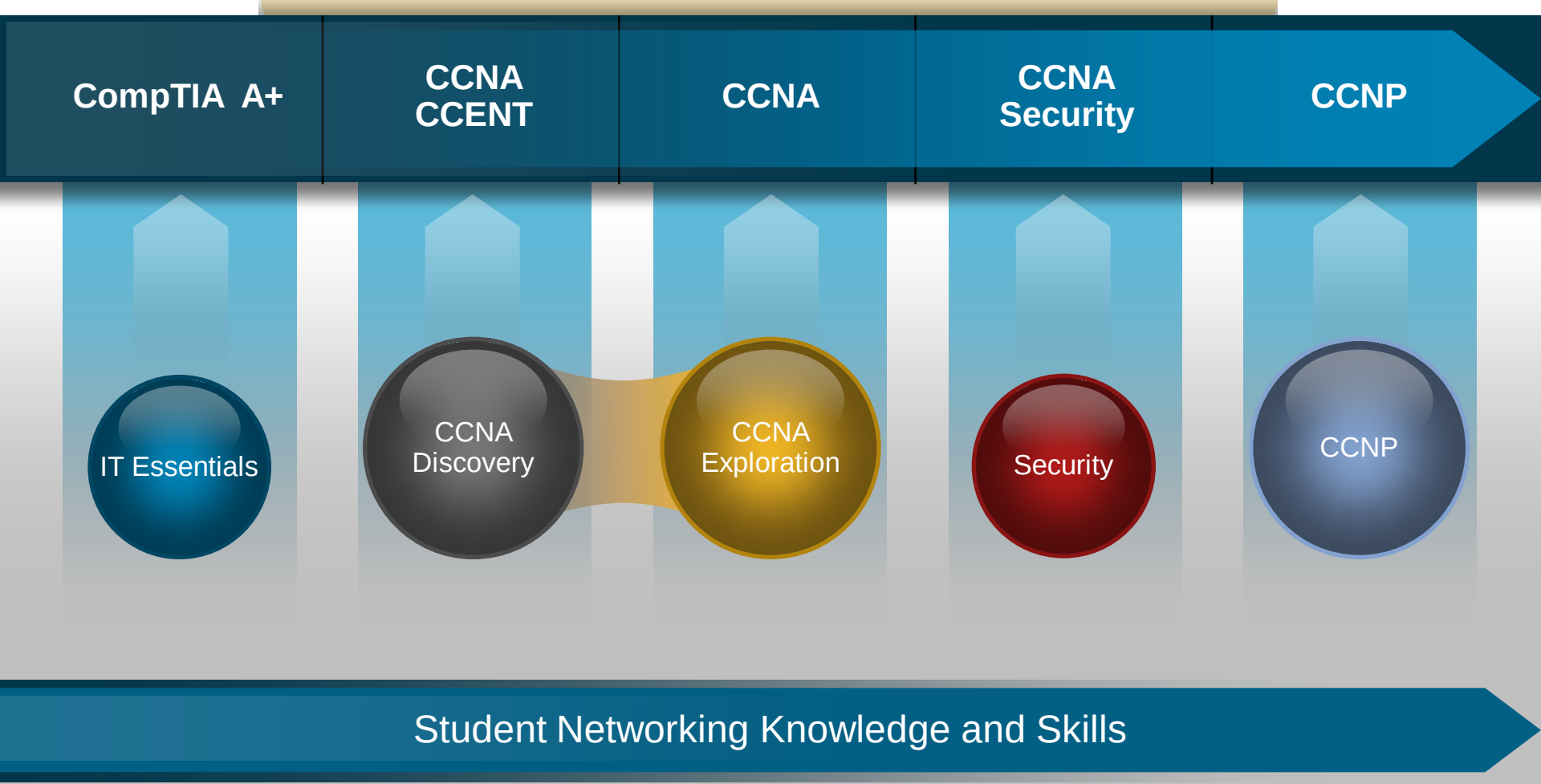
Curricula Portfolio



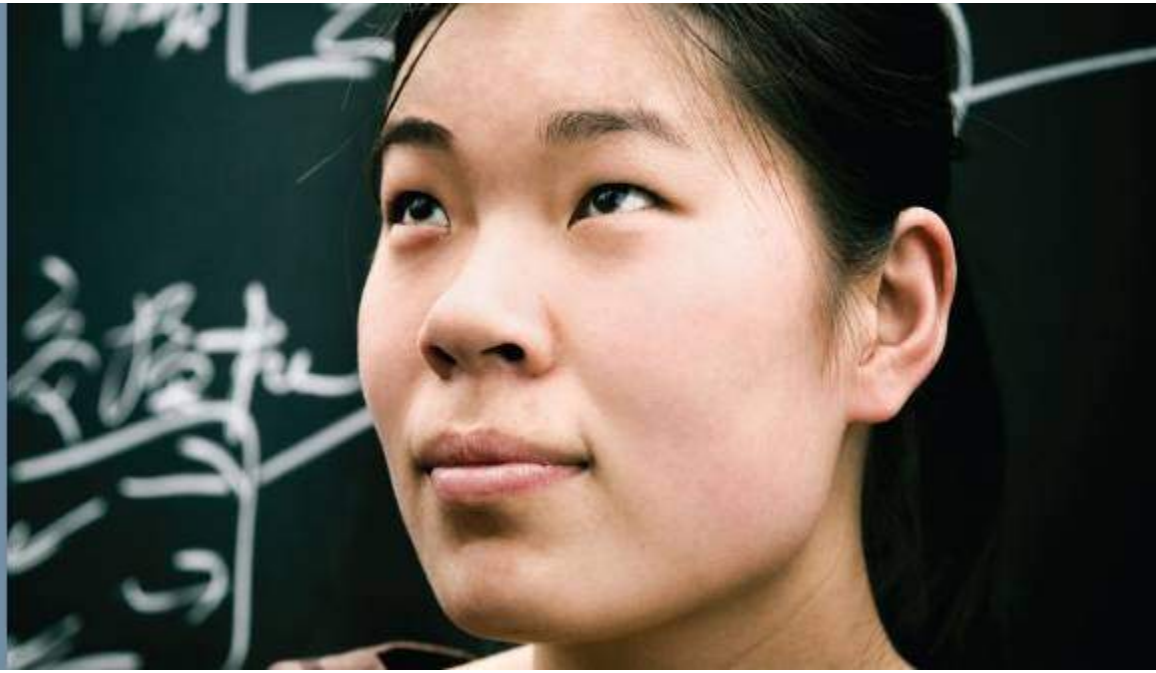
Cisco Networking Academy

Curricula Portfolio

Alignment to Certifications



CCNA Curricula Overview

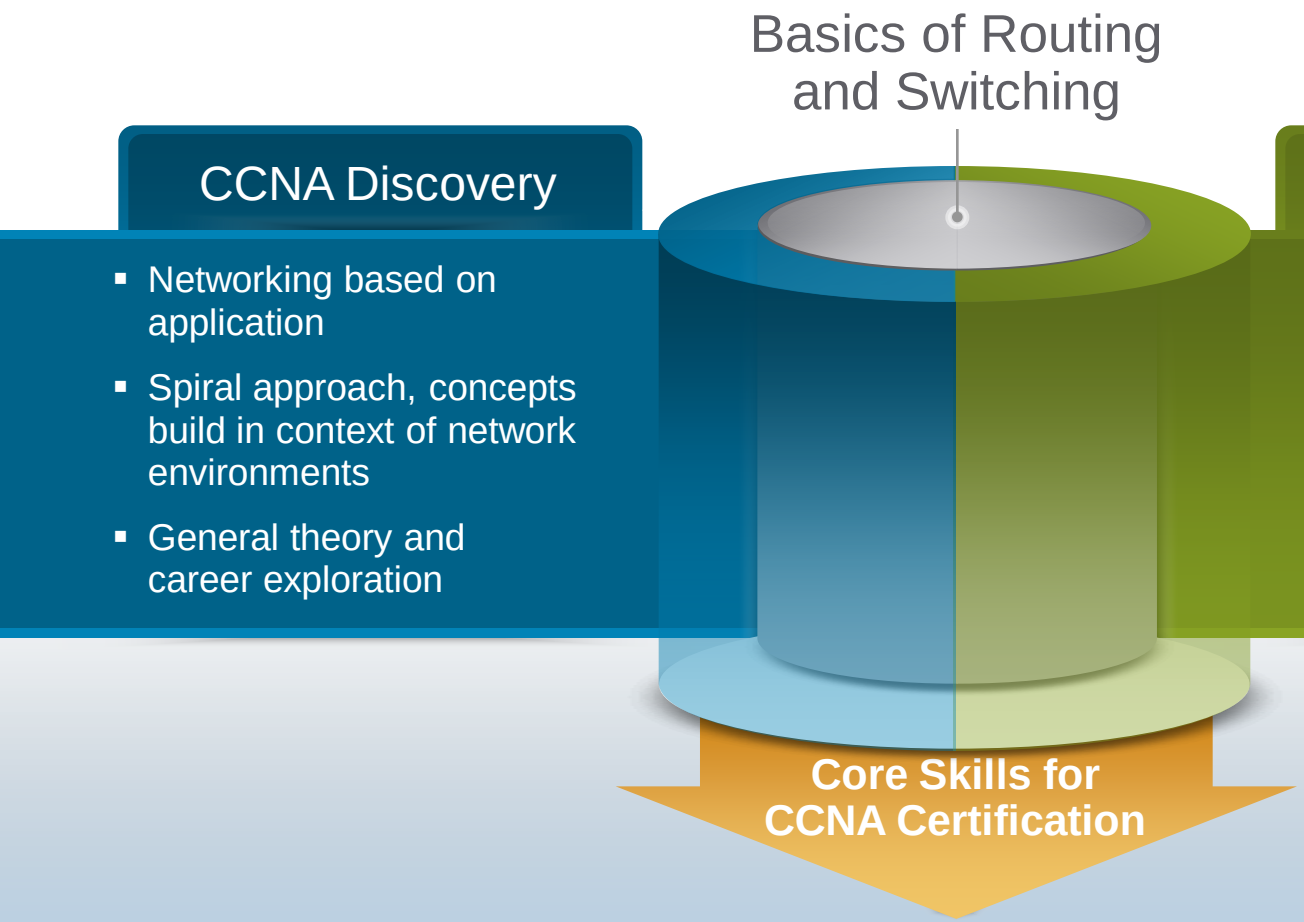


Why Two CCNA Curricula?

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



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:

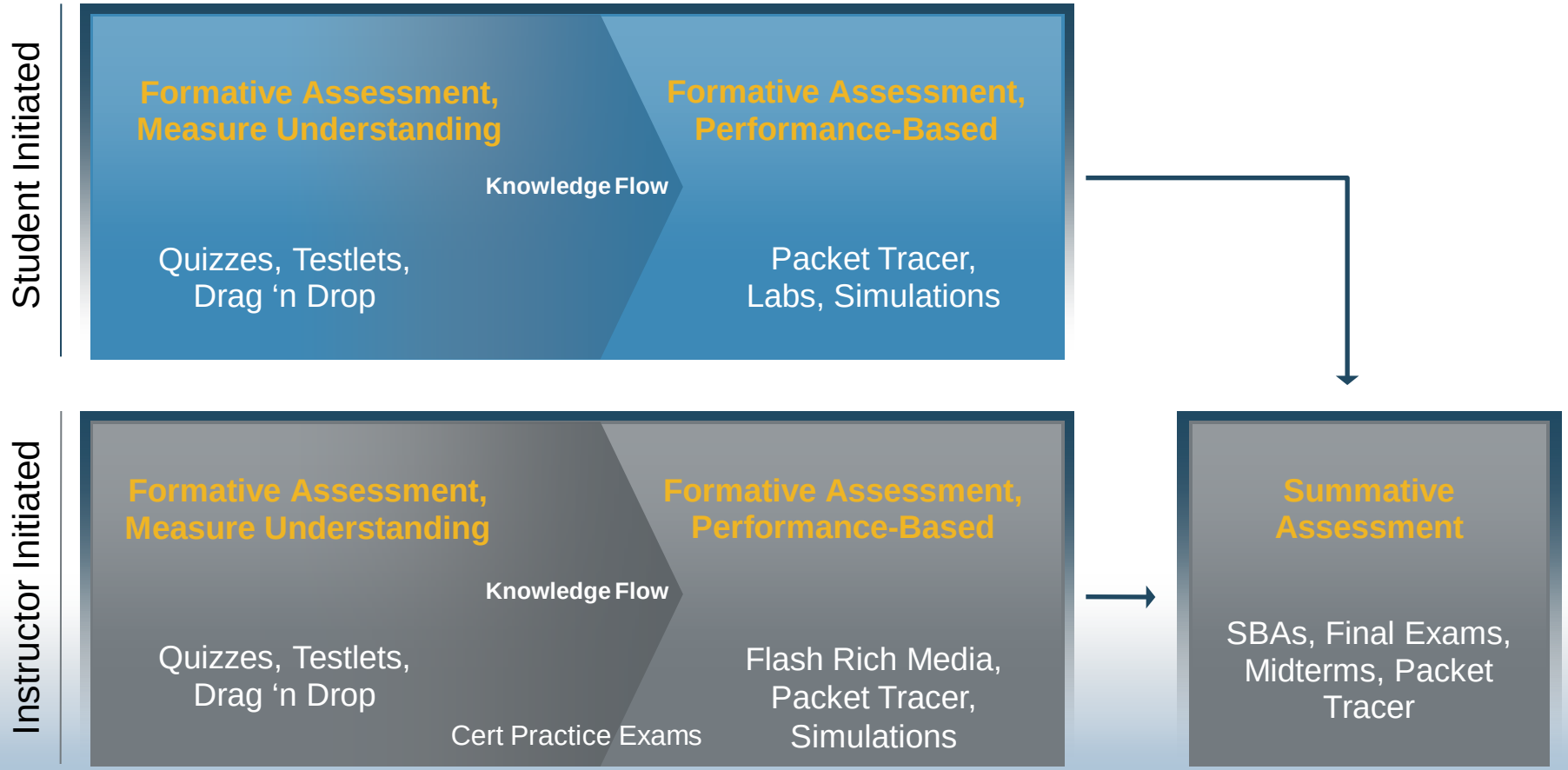
- Challenge labs encourage exploration and research
- Real-world case studies give students the opportunity to structure projects that expand their knowledge
- Labs require students to organize information, consider alternatives and use higher-order thinking skills

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



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 Discovery

- Networking for Home and Small Businesses
- Working at a Small-to-Medium Business or ISP
- **CCENT Certification** (optional)
- Introducing Routing and Switching in the Enterprise
- Designing and Supporting Computer Networks

CCNA Exploration

- Networking Fundamentals
- Routing Protocols and Concepts
- LAN Switching and Wireless
- Accessing the WAN

CCNA Discovery

- Networking for Home and Small Businesses
- Working at a Small-to-Medium Business or ISP
- **CCENT Certification** (optional)

CCNA Exploration

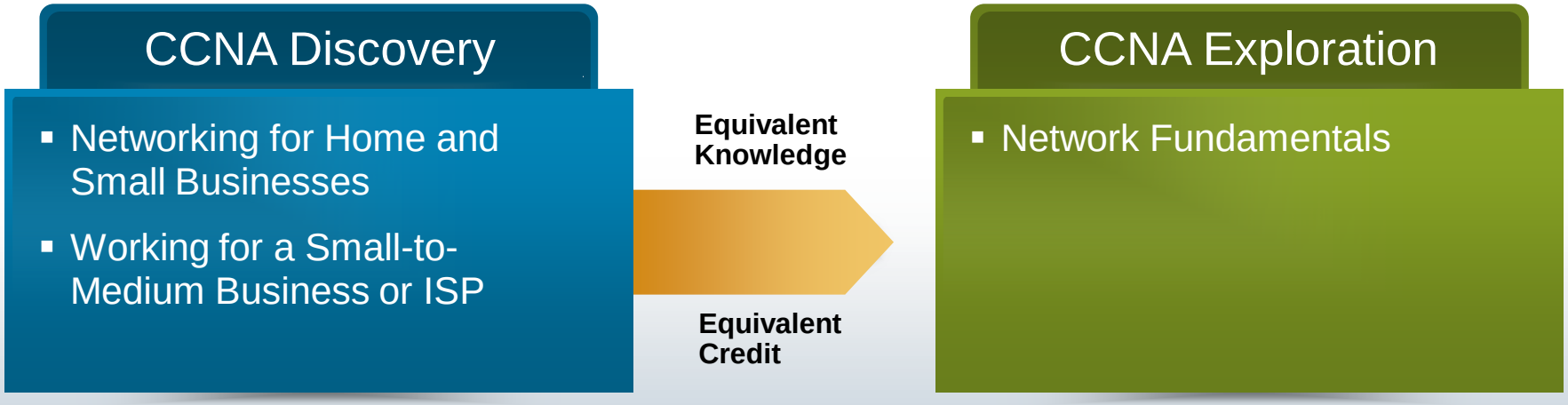
- Routing Protocols and Concepts
- LAN Switching and Wireless
- Accessing the WAN

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

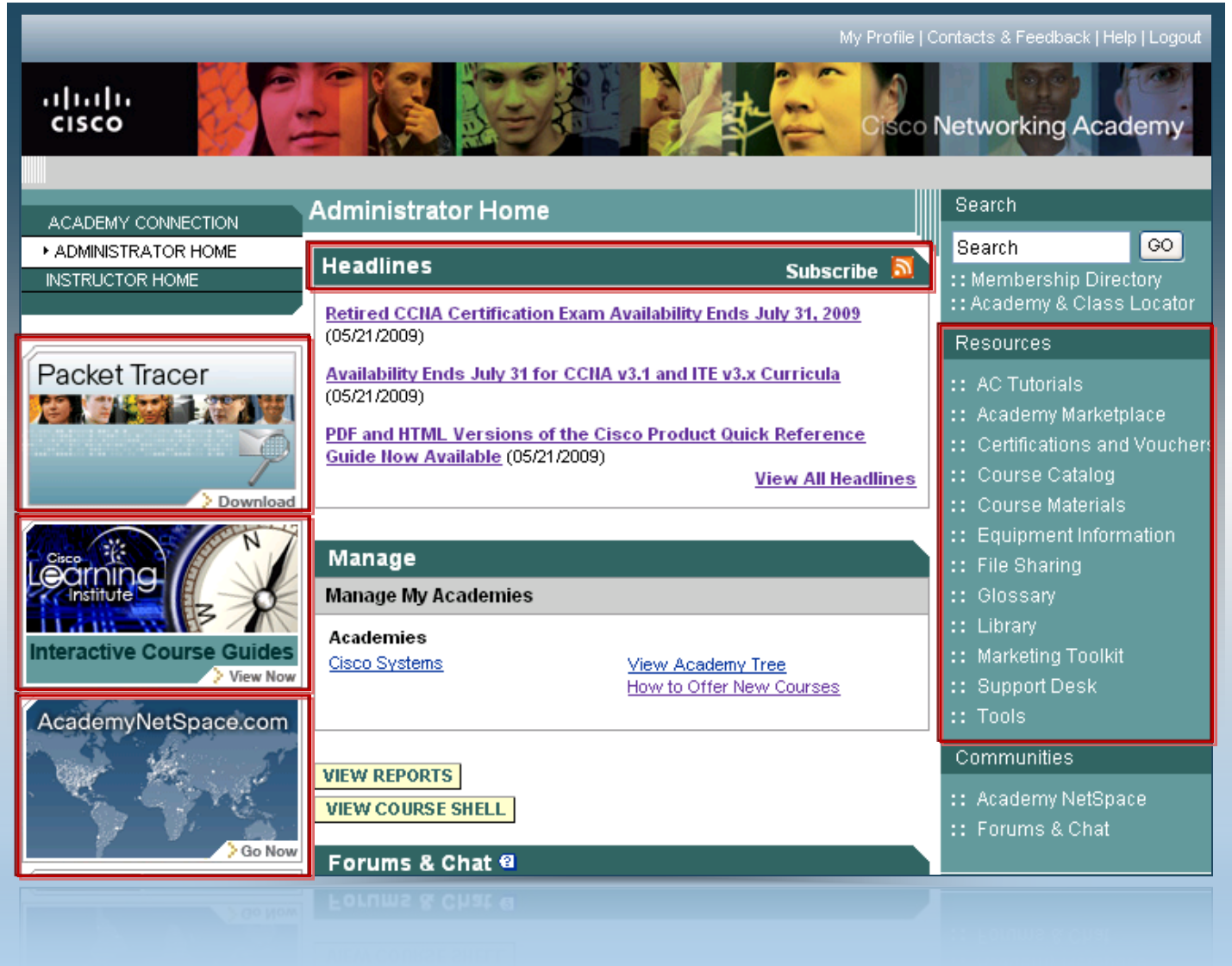
- An interactive guide to our CCNA Curricula
- See http://www.cisco.com/web/learning/netacad/course_catalog/newCCNA.html
- Presents similarities and differences between CCNA Discovery and CCNA Exploration
- Make selections to generate a curriculum recommendation best suited for your needs
- Features 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



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

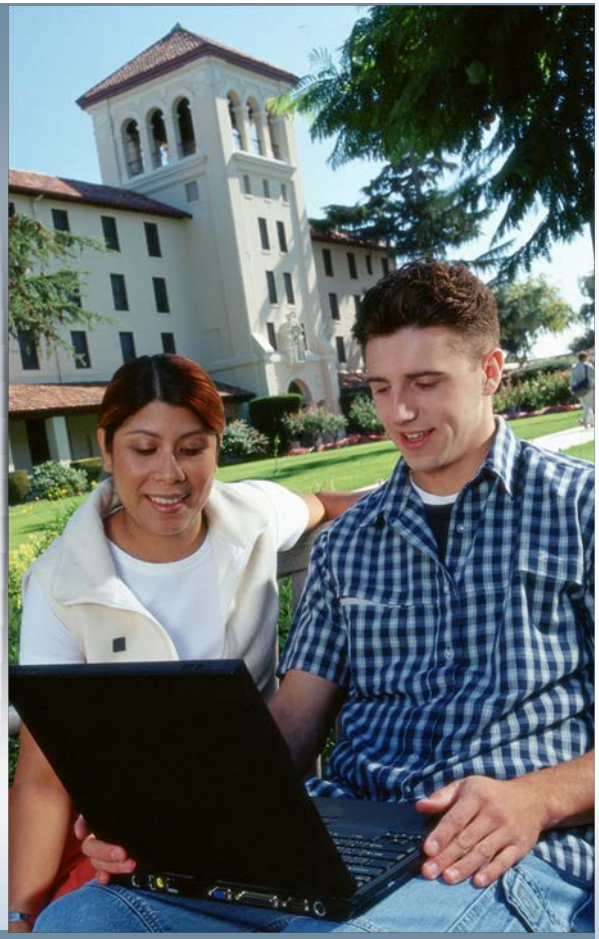
Design, Build, Configure, and Troubleshoot Networks Using Virtual Equipment

- 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

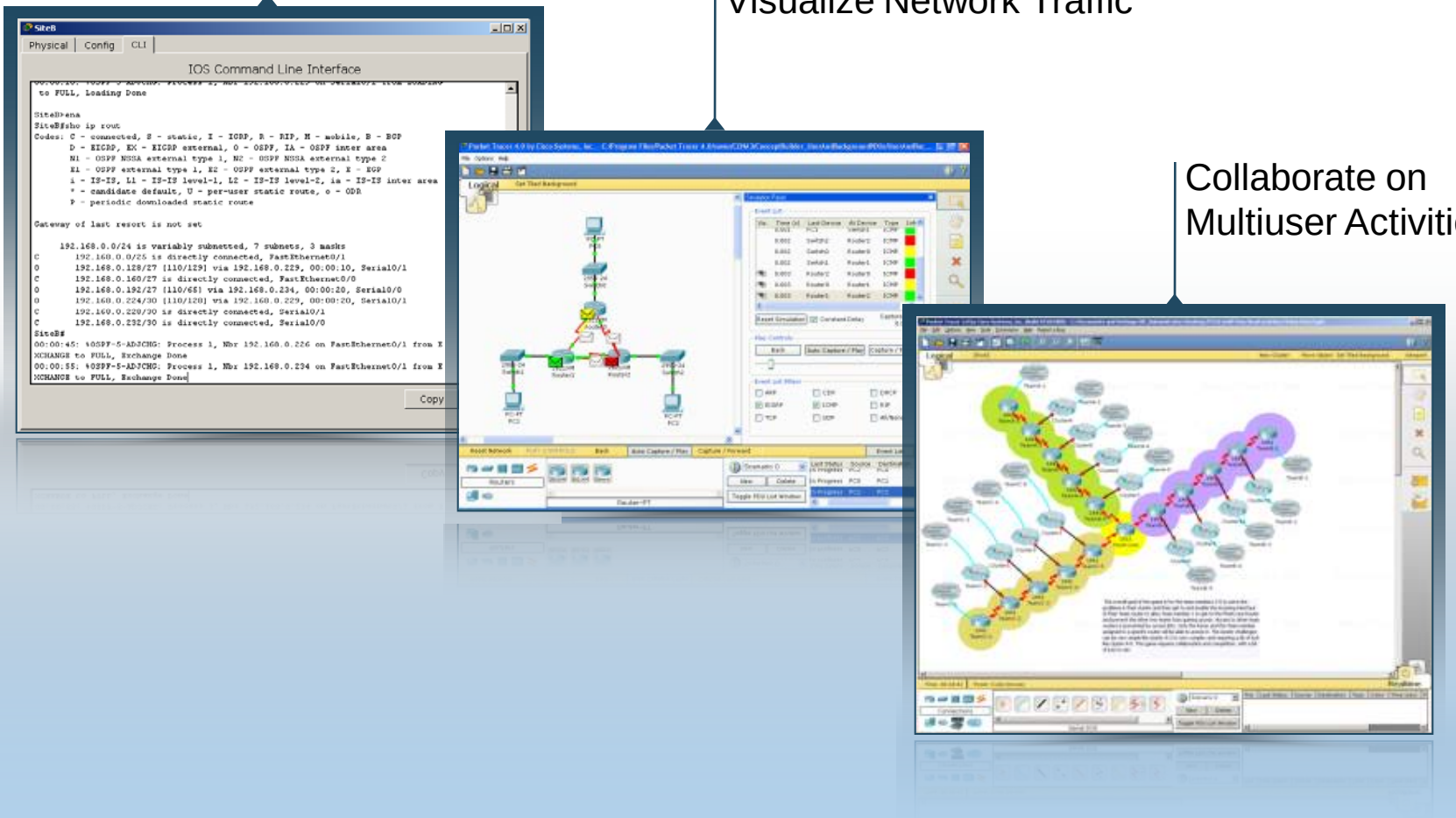


Simulation, Visualization, Collaboration

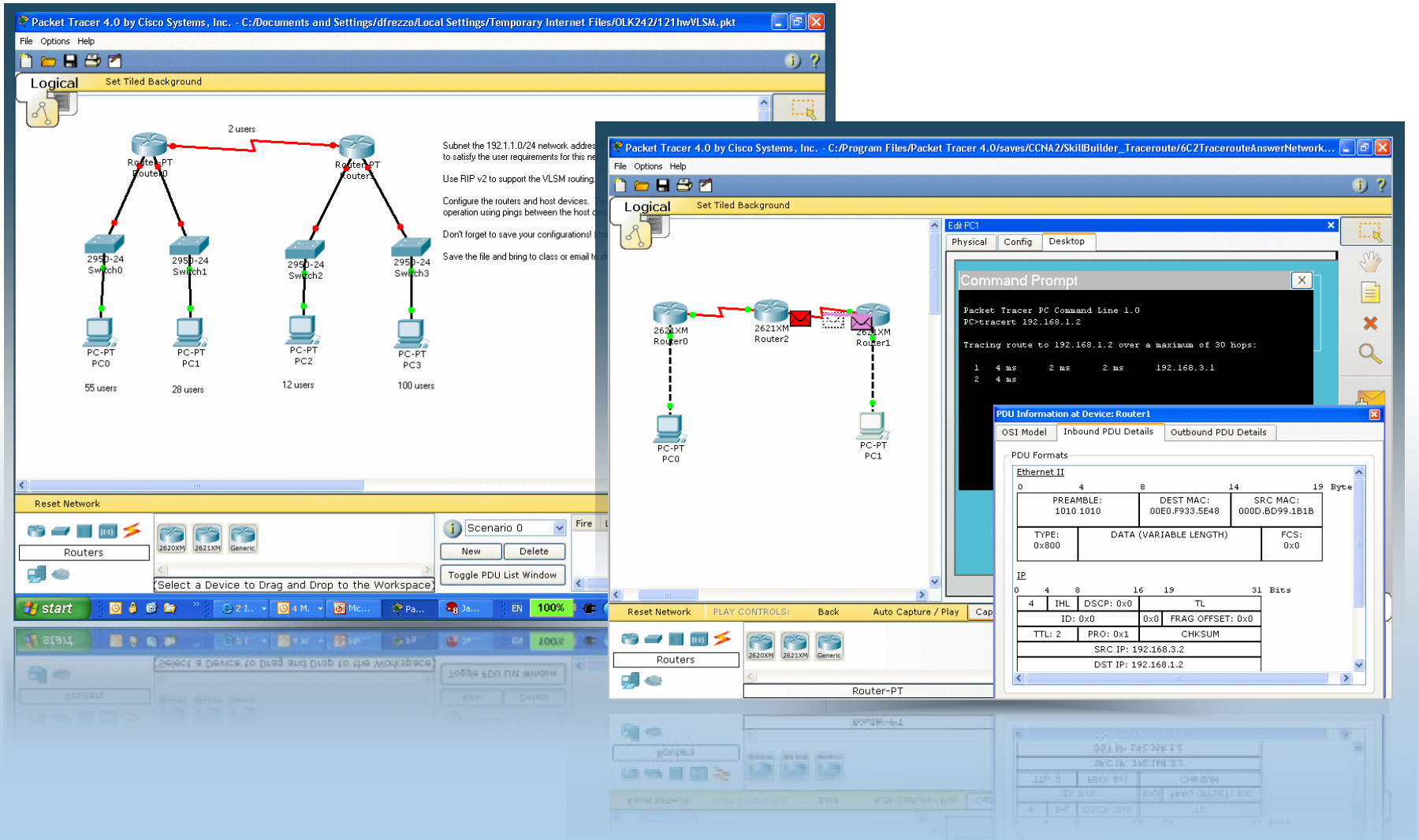
Simulate IOS Commands

Visualize Network Traffic

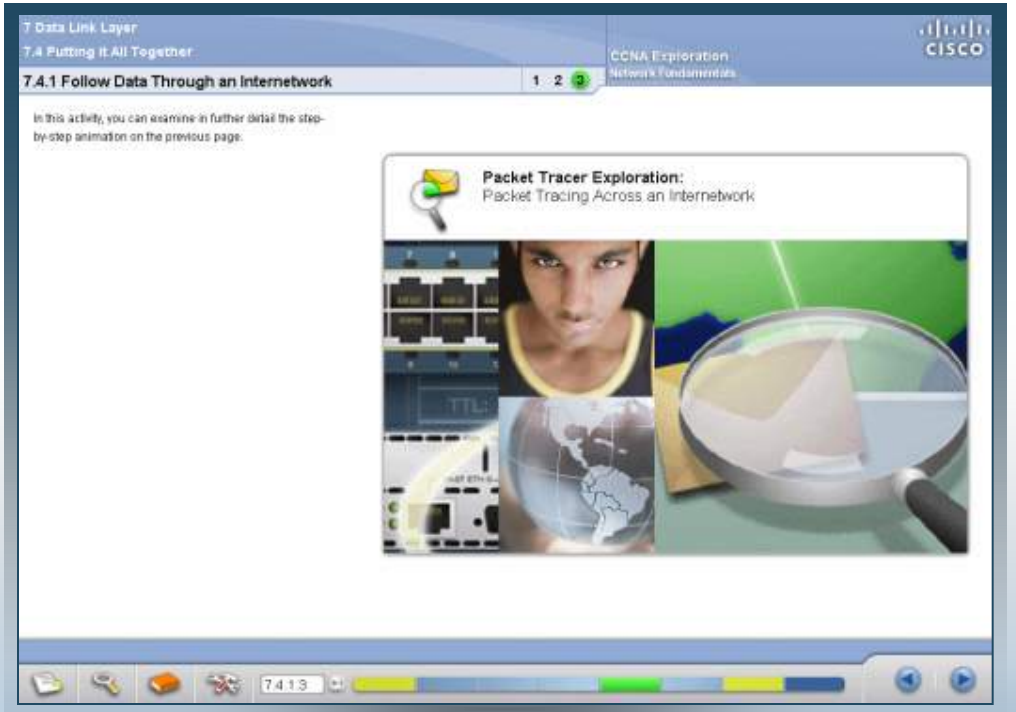
Collaborate on Multiuser Activities

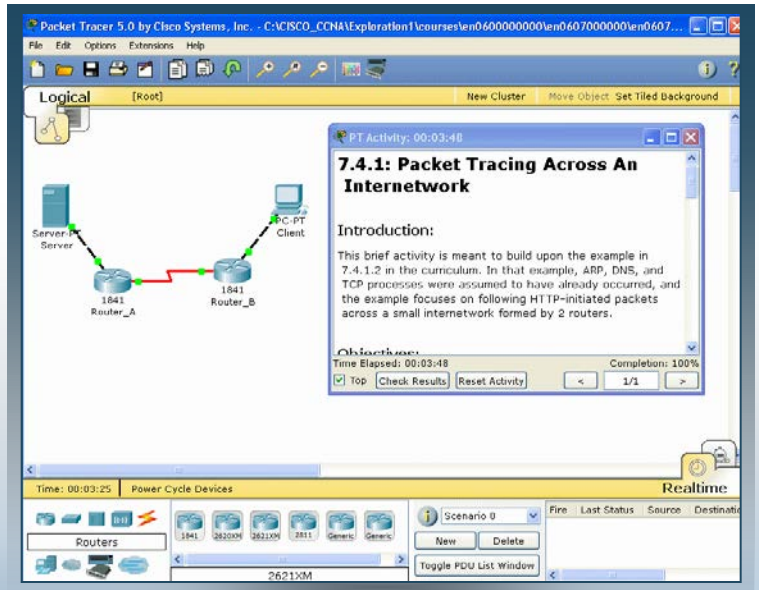


Supports Homework and Pre-Lab Prep



Integrated into CCNA Curricula





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

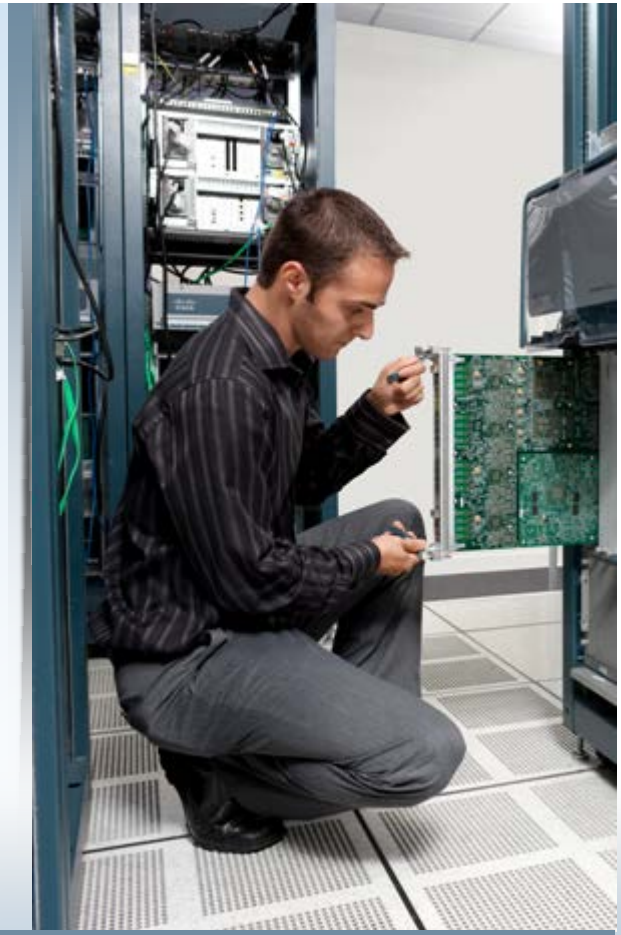
CCNA Discovery:
Introducing Routing and Switching in the Enterprise

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

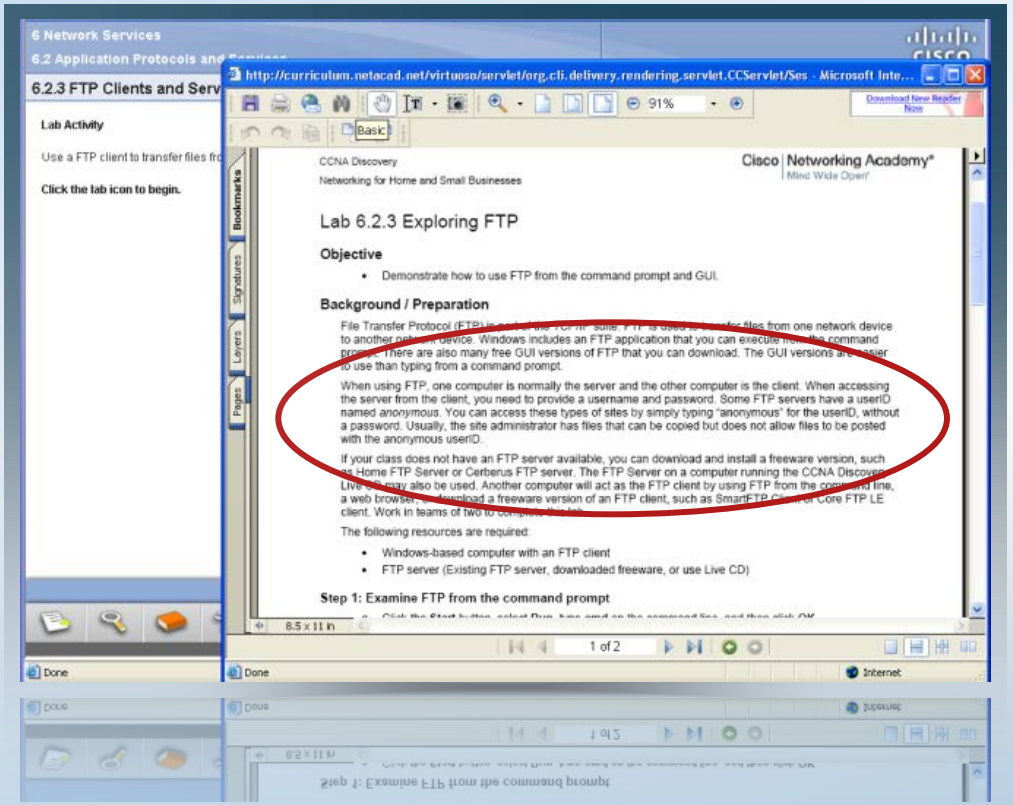
- Problem solving
- Advanced troubleshooting
- Critical thinking

Designing and Supporting Computer Networks

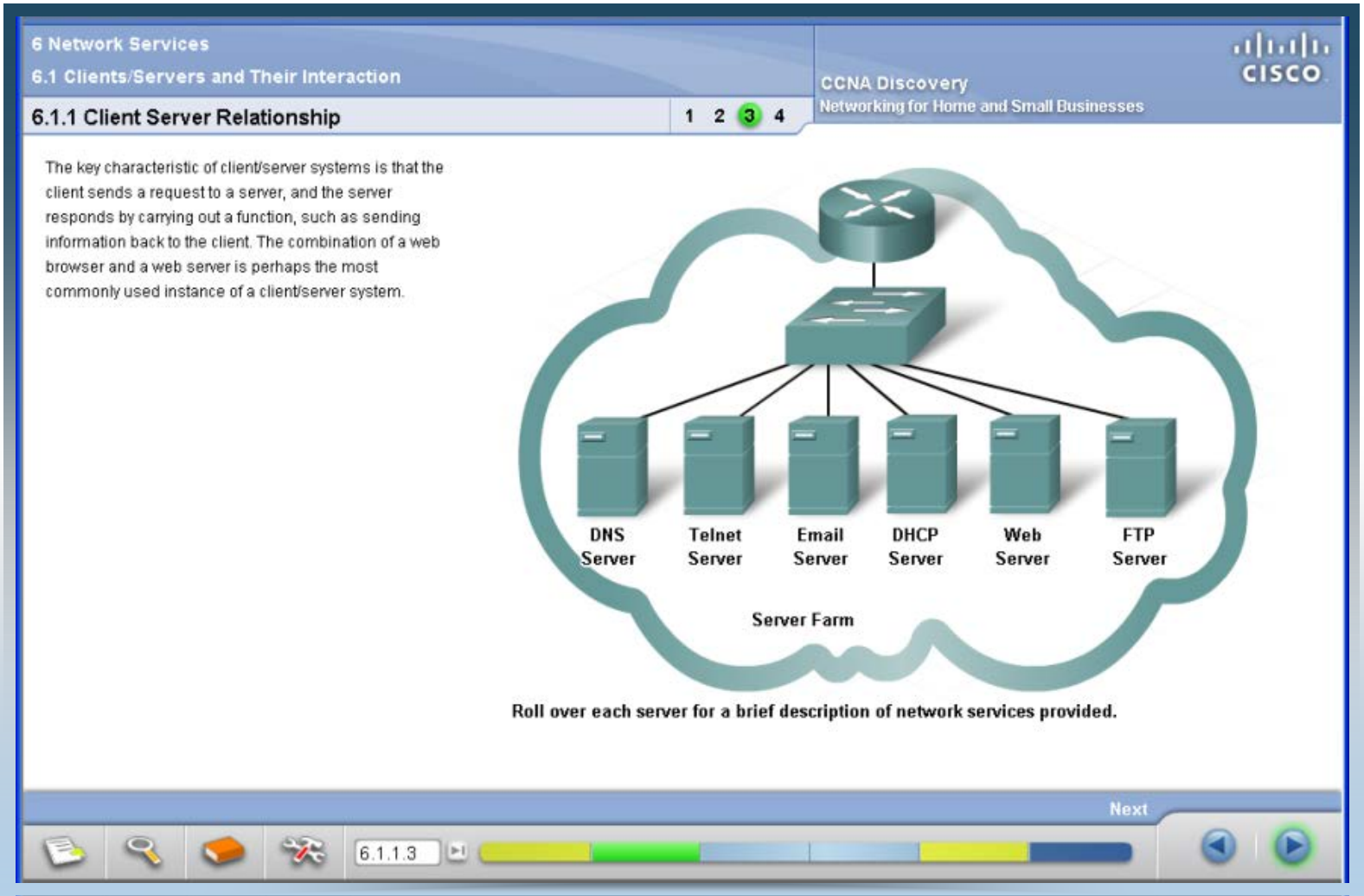
- Career planning
- Advanced troubleshooting
- Interviewing
- Critical thinking
- Requirements gathering
- Business case
  - Developing proposal
  - Estimating
  - Presentation
  - Project planning

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



Example of Network Services

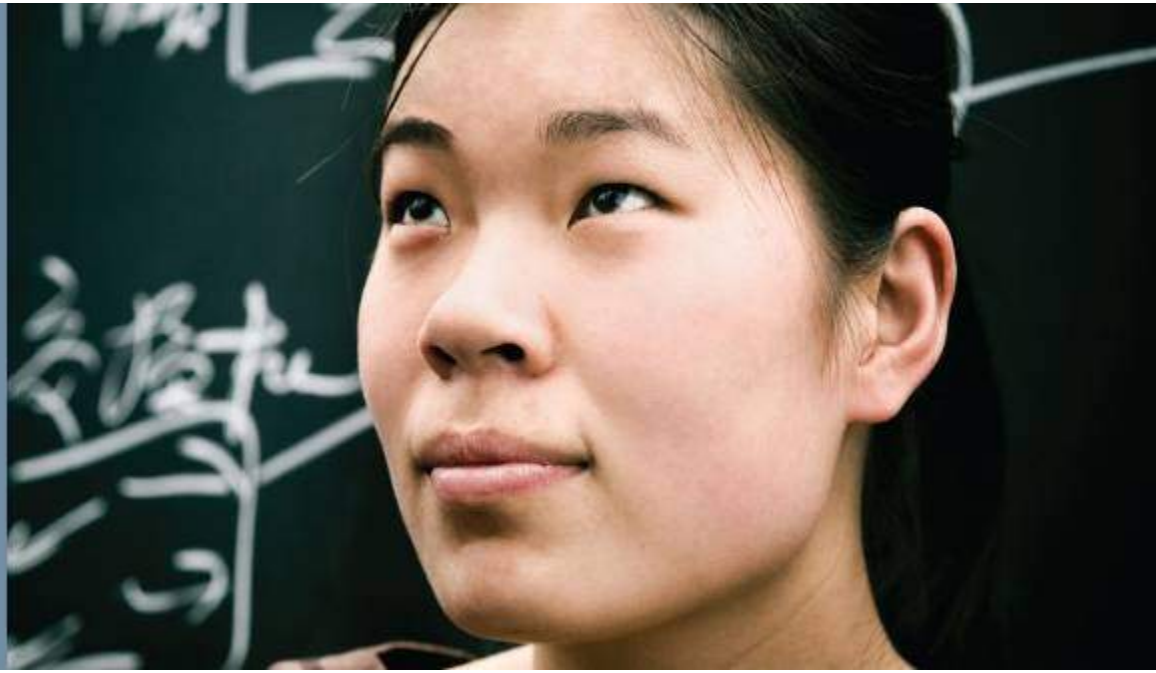


CCNA Discovery Server

- 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

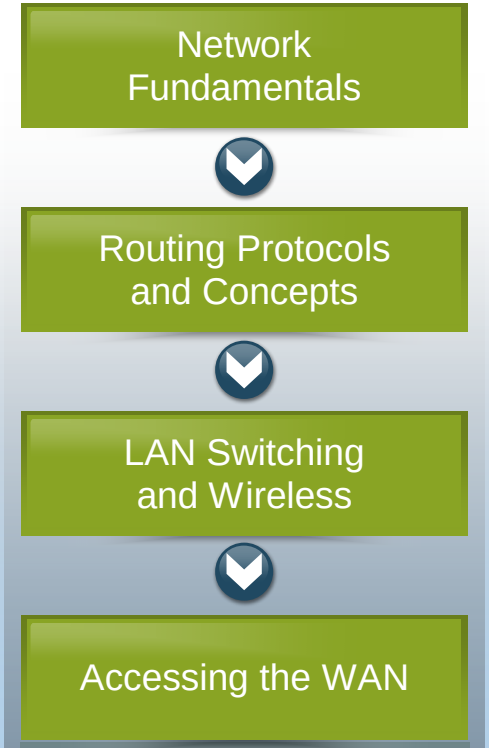
- Network services provided
  - DNS
  - Web server
  - FTP
  - Telnet
  - SSH
  - DHCP
- Detailed instructions, FAQs, and Discovery Server software can be downloaded from Academy Connection Tools page

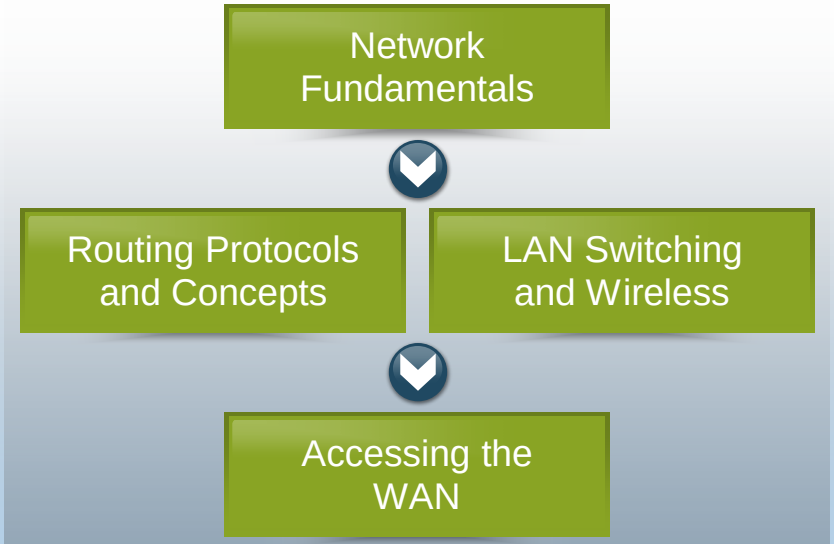
CCNA Exploration Details

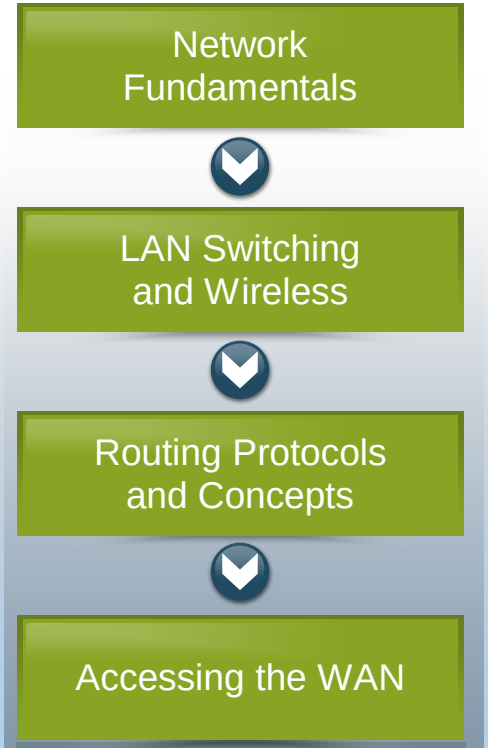


CCNA Exploration Course Sequence

- 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

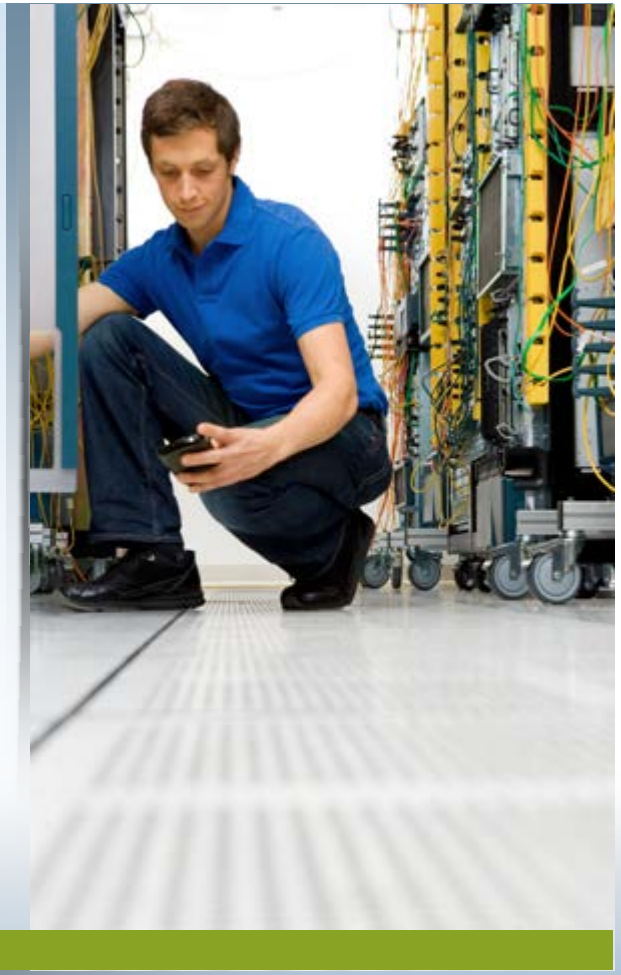
CCNA Exploration:
Network Fundamentals

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

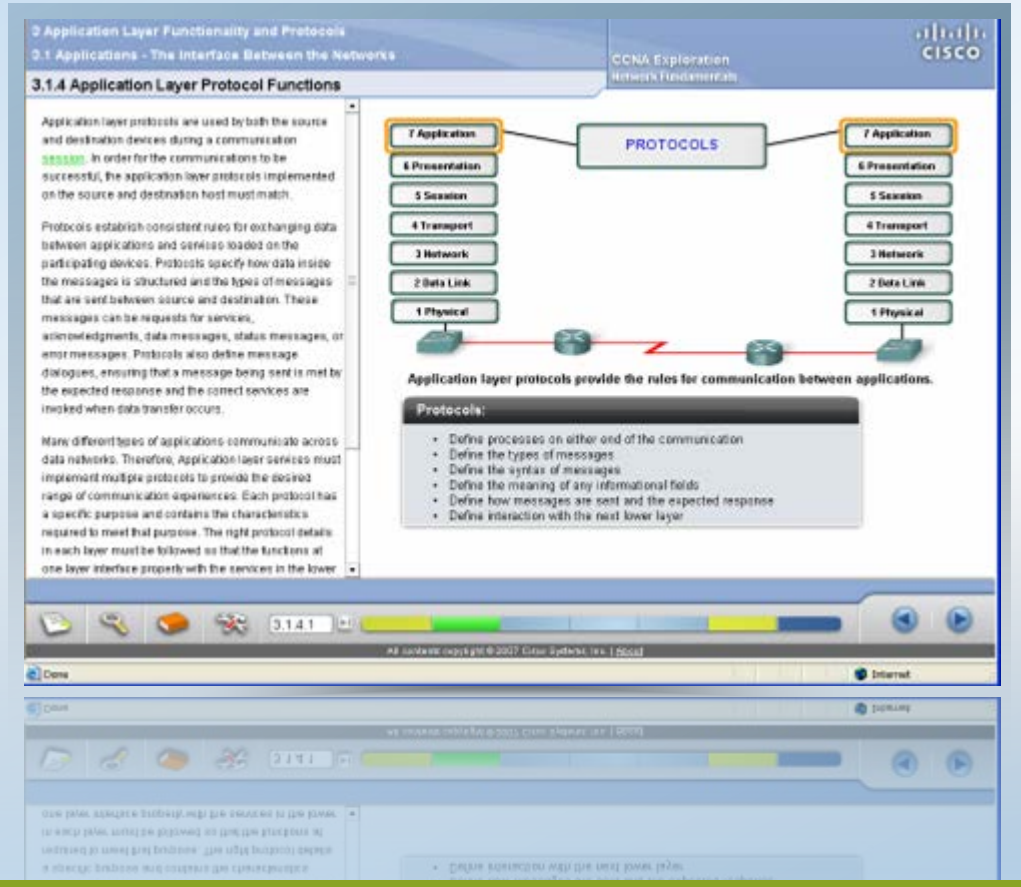
Skill	Network Fundamentals	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
Routing	Introduces IP Protocol, IP Addressing and Concept of Routing; Basic Cisco IOS® Commands to Configure Router and Router Interfaces; Explore Routing Tables	Focuses on Routing and Routers; Teaches 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	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
▪ Basic planning and design ▪ Troubleshooting	▪ Basic planning and design ▪ Troubleshooting		▪ Basic planning and design ▪ Requirements gathering ▪ Documentation ▪ Troubleshooting ▪ Critical thinking ▪ Customer communications

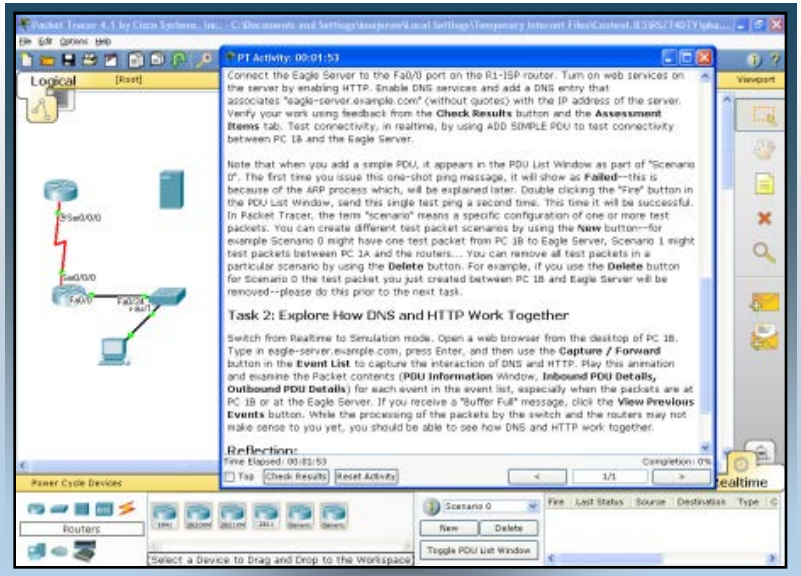
Top Down Approach

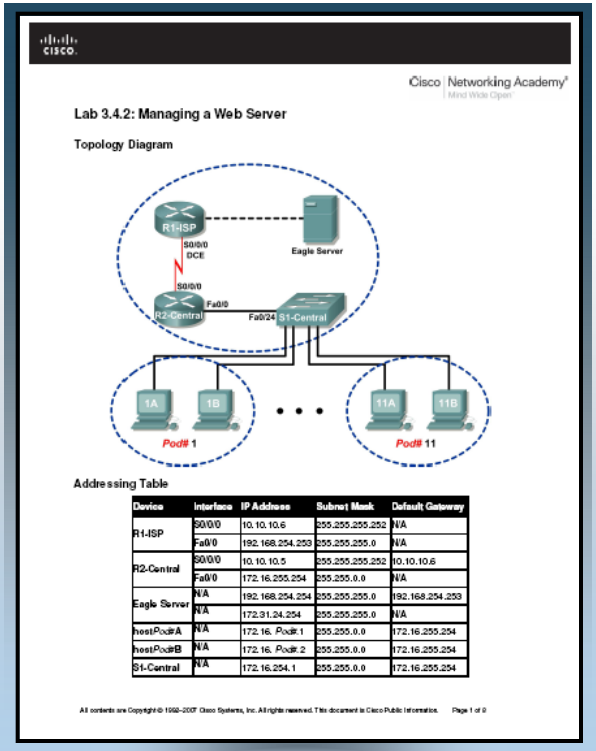
- Following a top down approach to teaching Networking, CCNA Exploration introduces applications and application services very early in the course
- The course explains the role and nature of the main application protocols and their relation to protocols and services provided to them by the lower layers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



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





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

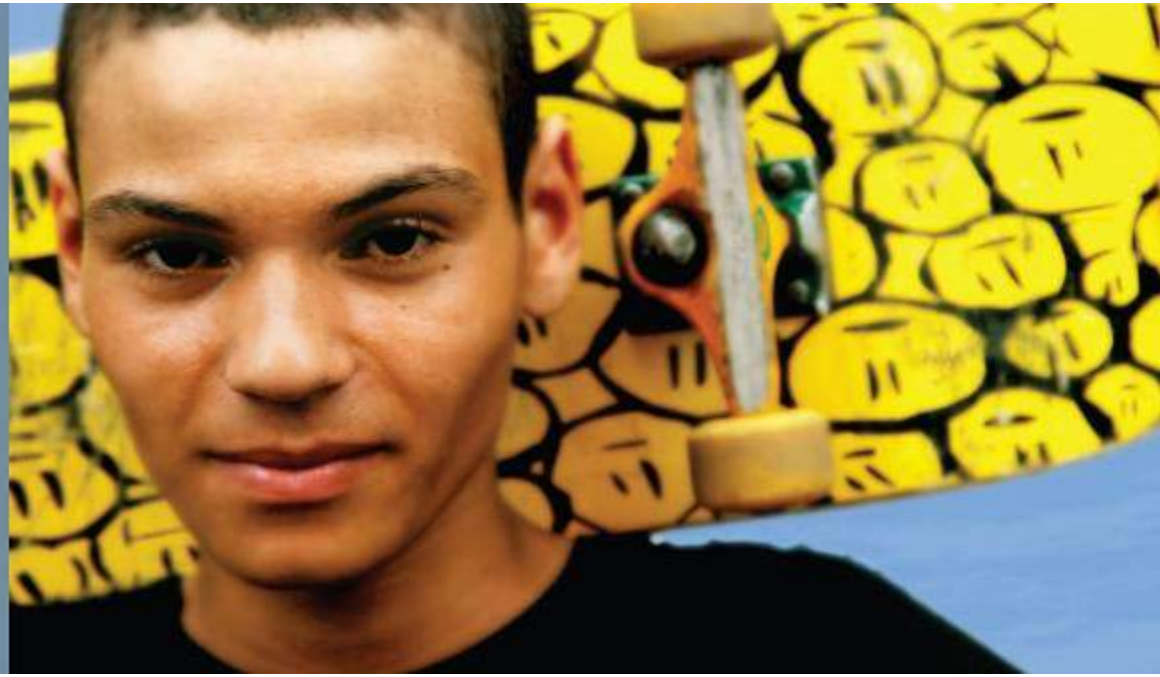
Instructor Pacing Guide

- 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	Globally Strategic	Regionally Strategic	Locally Strategic
	Led by Cisco Corporate	Led by Cisco Field or Partner	Led by Cisco Field or Partner
Criteria	▪ High Networking Academy market potential ▪ High demand for skilled people (IDC) ▪ Alignment with cert priorities ▪ Networking Academy global alignment	▪ Moderate market potential ▪ Moderate demand for skilled people ▪ Alignment with certification priorities and partner goals ▪ Networking Academy theater alignment	▪ Networking Academy country alignment ▪ Alignment with partner goals
Languages	Six UN Languages ▪ Arabic ▪ English ▪ French ▪ Russian ▪ Simplified Chinese ▪ Spanish	Prioritized Installed Base + Theater Priorities Examples ▪ Br. Portuguese ▪ German ▪ Japanese ▪ Polish	Examples ▪ 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

For More Information, See PC Requirements Document on Academy Connection → Tools → Classroom Setup Tab

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)

For More Information, See PC Requirements Document on Academy Connection → Tools → Classroom Setup Tab

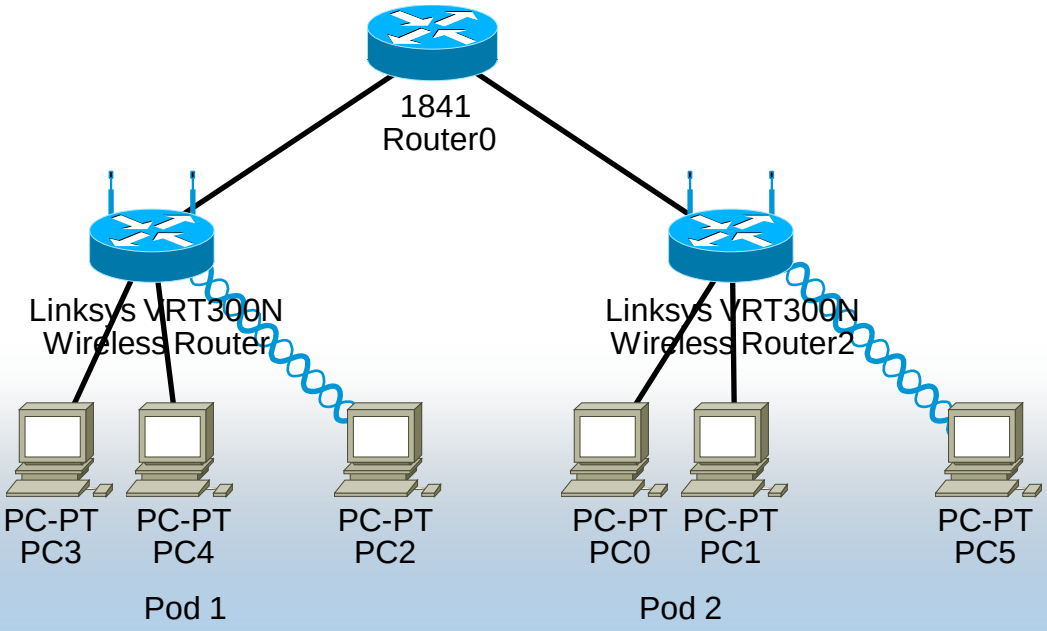
PC Software Recommendations (Cont.)

- 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)

For More Information, See PC Requirements Document on Academy Connection → Tools → Classroom Setup Tab

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

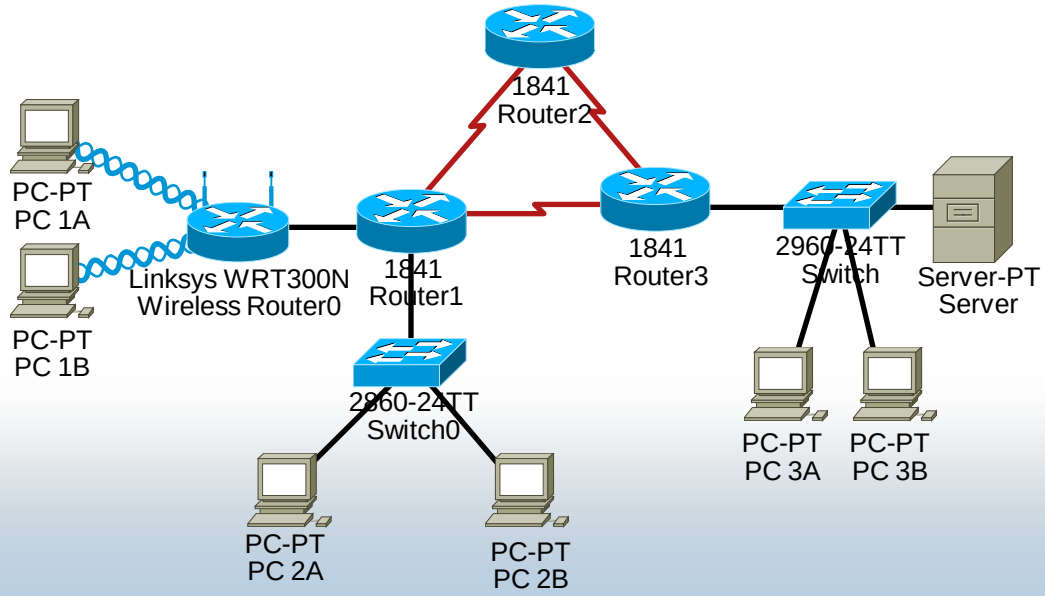


- One 1841 ISR router (with integrated switch)
- Two Linksys wireless routers (300N or W54G)
- Minimum one USB wireless adapter
- Supports three students per Linksys device, six students total

Lab Topology

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)

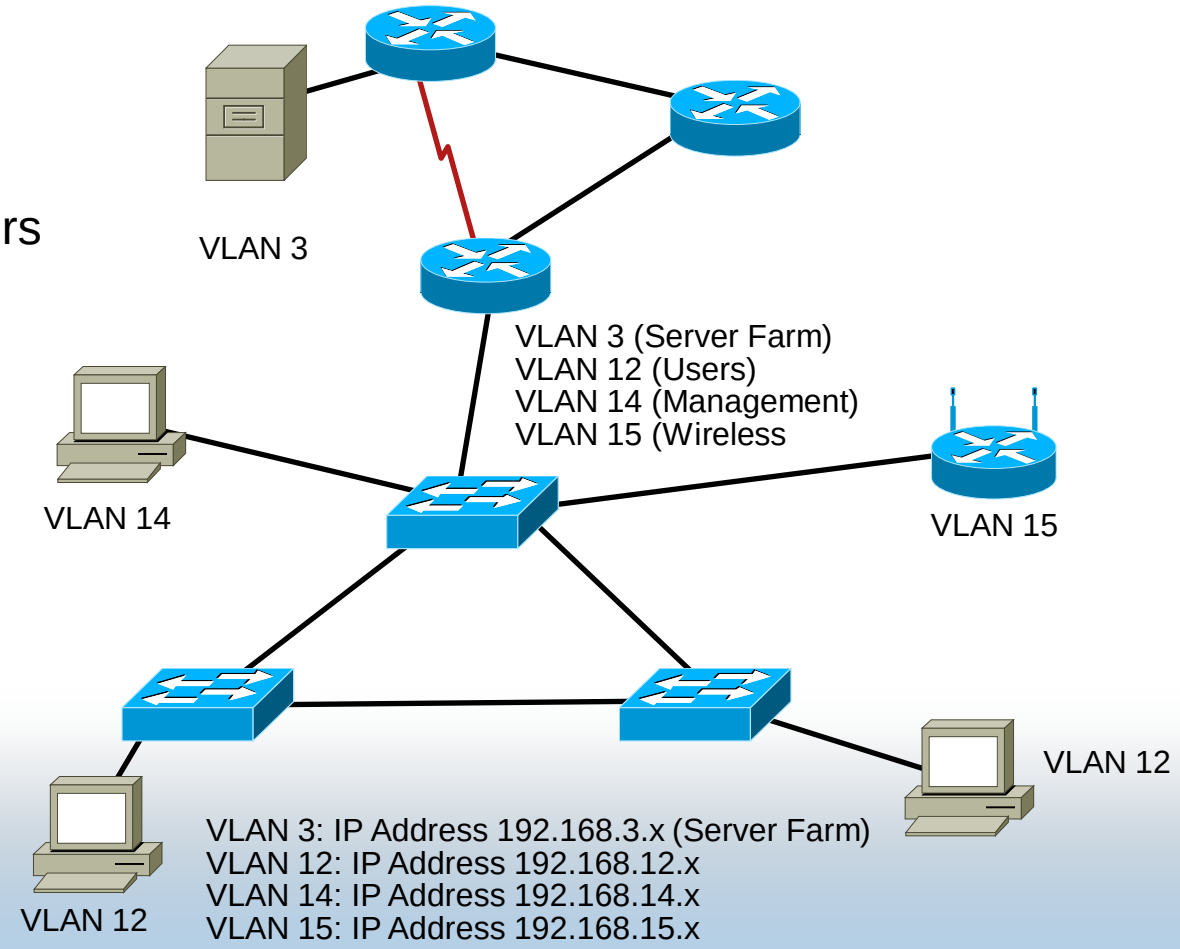
Lab Topology

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

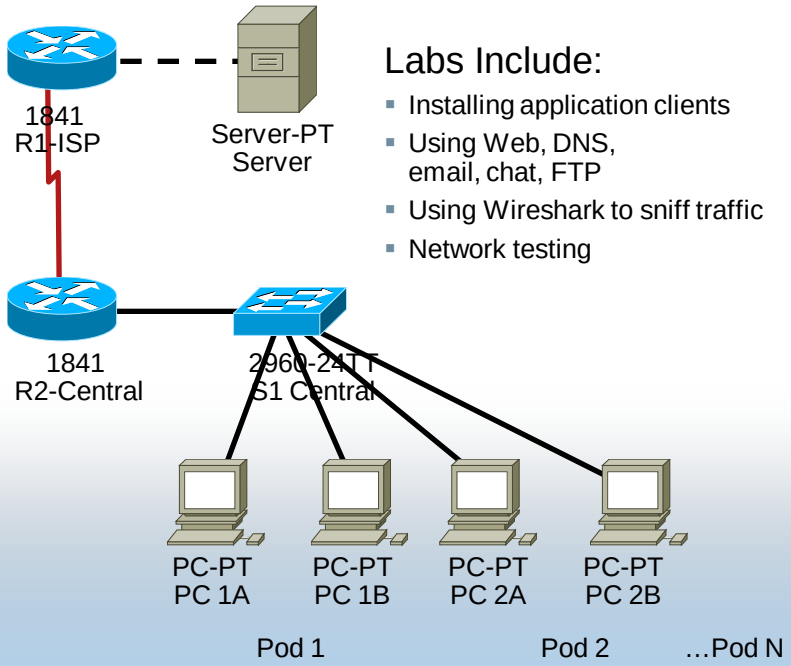


Lab Topology

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

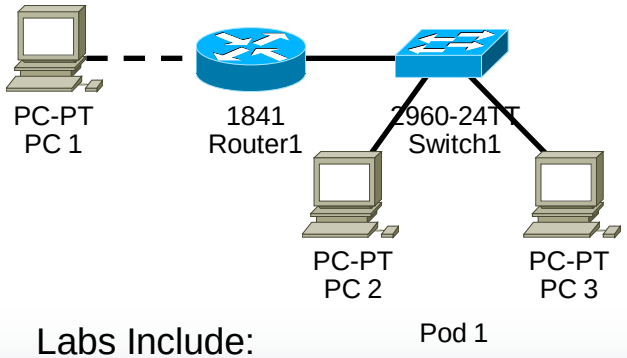


Labs Include:

- Installing application clients
- Using Web, DNS, email, chat, FTP
- Using Wireshark to sniff traffic
- Network testing

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



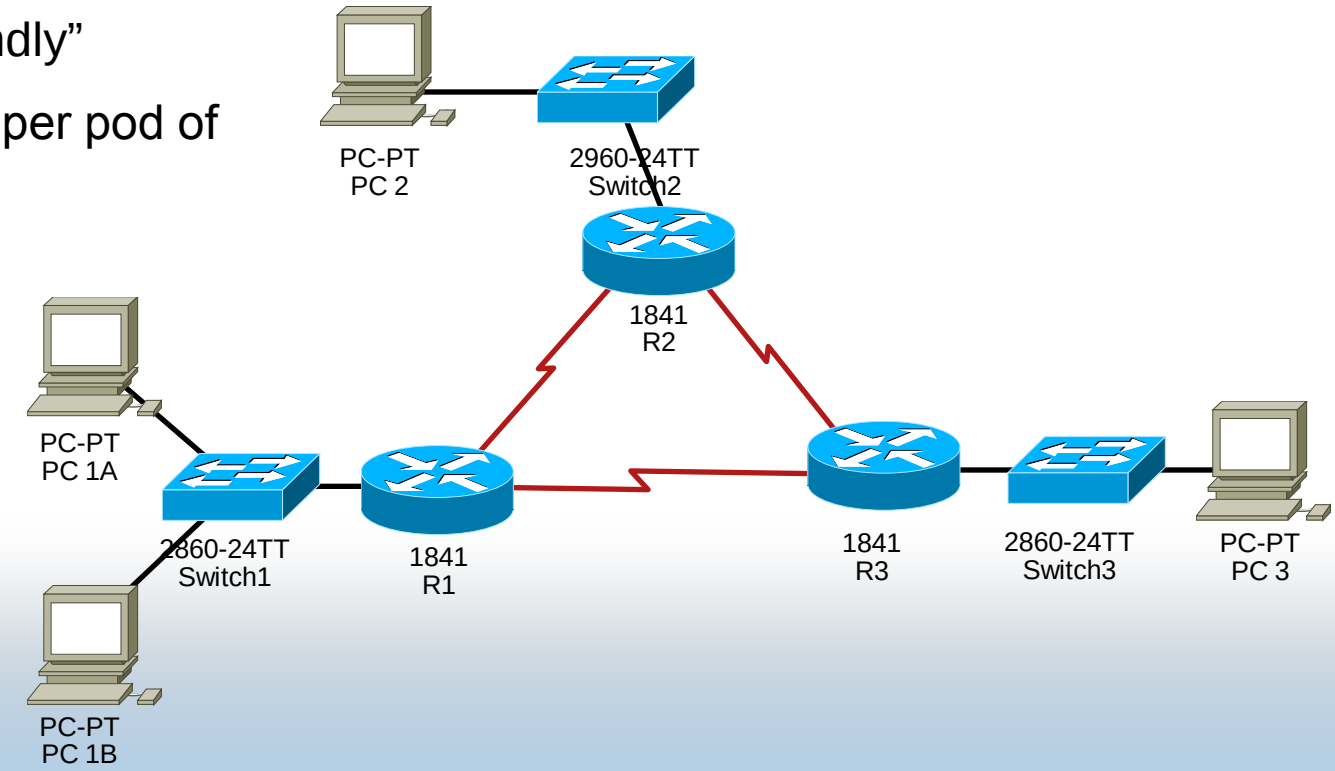
Labs Include:

- Planning
- Building
- Configuring
- Testing
- Basic IOS

Lab Topology

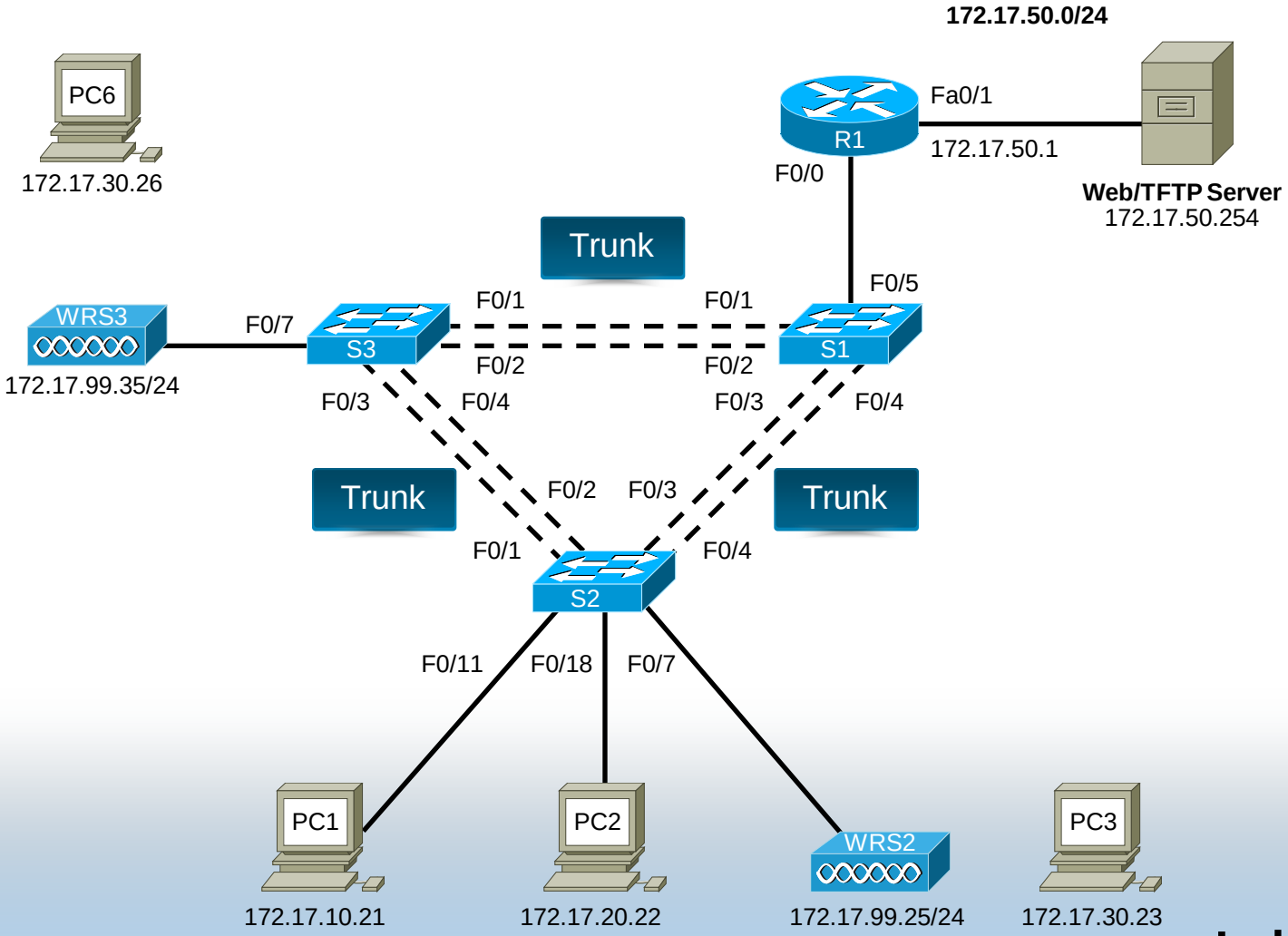
CCNA Exploration:
Routing Protocols and Concepts

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



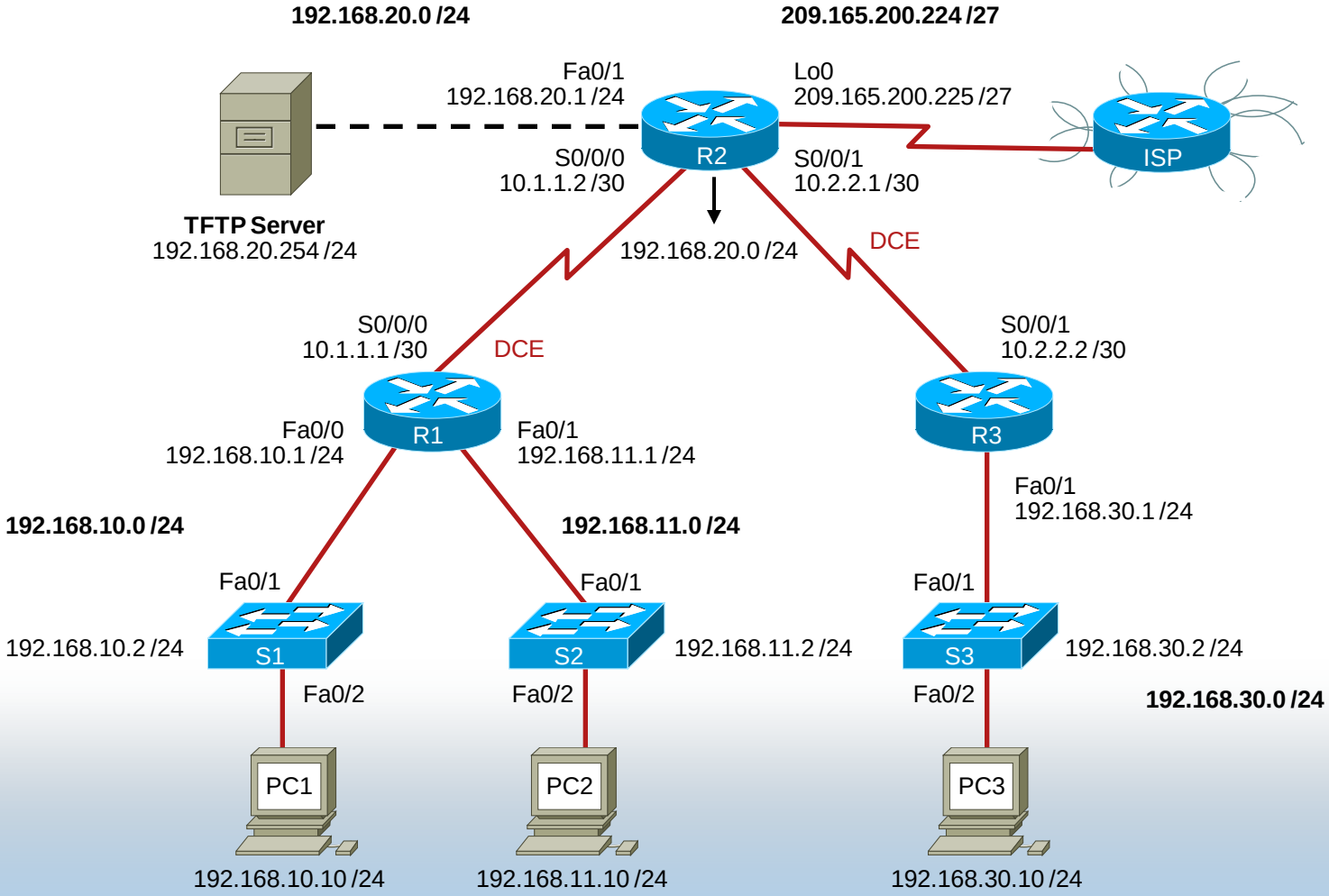
Lab Topology

CCNA Exploration:
LAN Switching and Wireless



Lab Topology

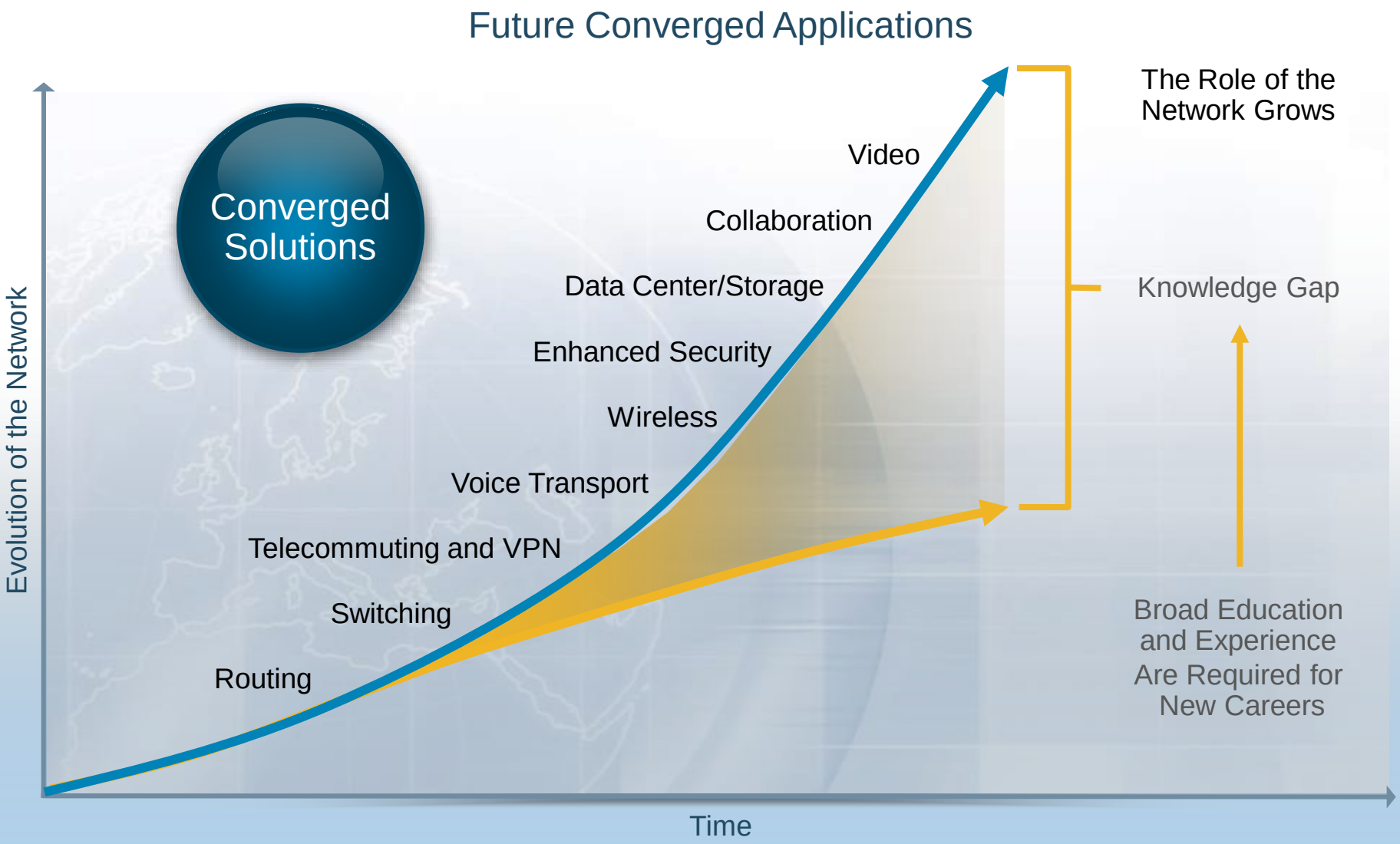
CCNA Exploration:
Accessing the WAN



Lab Topology

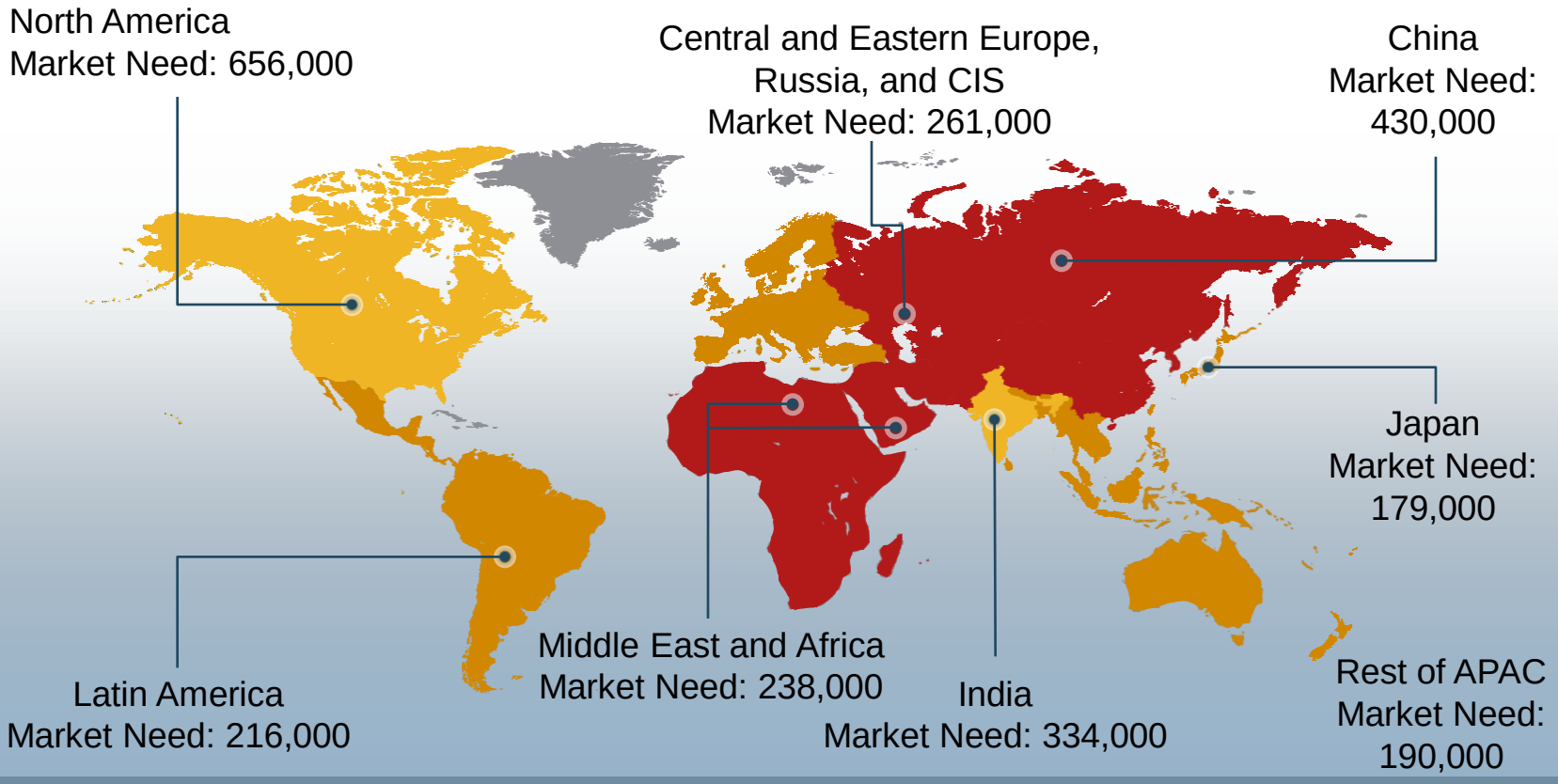
Cisco Certifications

Emergence of a Skills Gap



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	**CCNA Discovery** ▪ Networking for Home and Small Businesses ▪ Working at a Small-to-Medium Business or ISP	**ICND1 (640-822)**
CCNA	**CCNA Discovery** ▪ 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 **OR** **CCNA Exploration** ▪ Networking Fundamentals ▪ Routing Protocols and Concepts ▪ LAN Switching and Wireless ▪ Accessing the WAN **OR** **CCNA Discovery** ▪ Networking for Home and Small Businesses ▪ Working at a Small-to-Medium Business or ISP **CCNA Exploration** ▪ Routing Protocols and Concepts ▪ LAN Switching and Wireless ▪ Accessing the WAN	**CCNA (640-802)** **OR** **ICND1 (640-822)** and **ICND2 (640-816)**

Aligning Certifications to Jobs

Certification	Skills Certified	Job Roles	Job Titles
CCENT	▪ 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	▪ 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	▪ Entry-Level Help Desk Technician ▪ Entry-Level Technical Support ▪ IT Systems Coordinator ▪ Entry-Level Operating Center Technician ▪ Entry-Level IT Technician/Specialist
CCNA	▪ 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	▪ 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	▪ 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

Visit www.cisco.com/go/LearningNetwork