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Mind Wide Open™

Cisco Networking Academy New CCNA Curricula

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Cisco Networking Academy

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MCours.com

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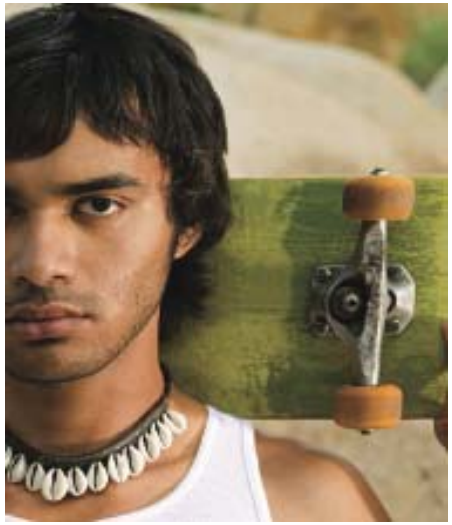
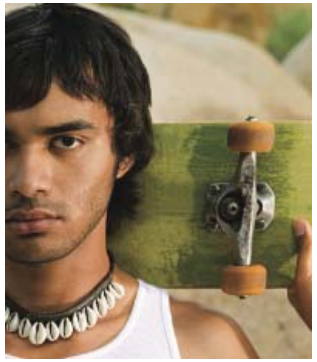



New Courses

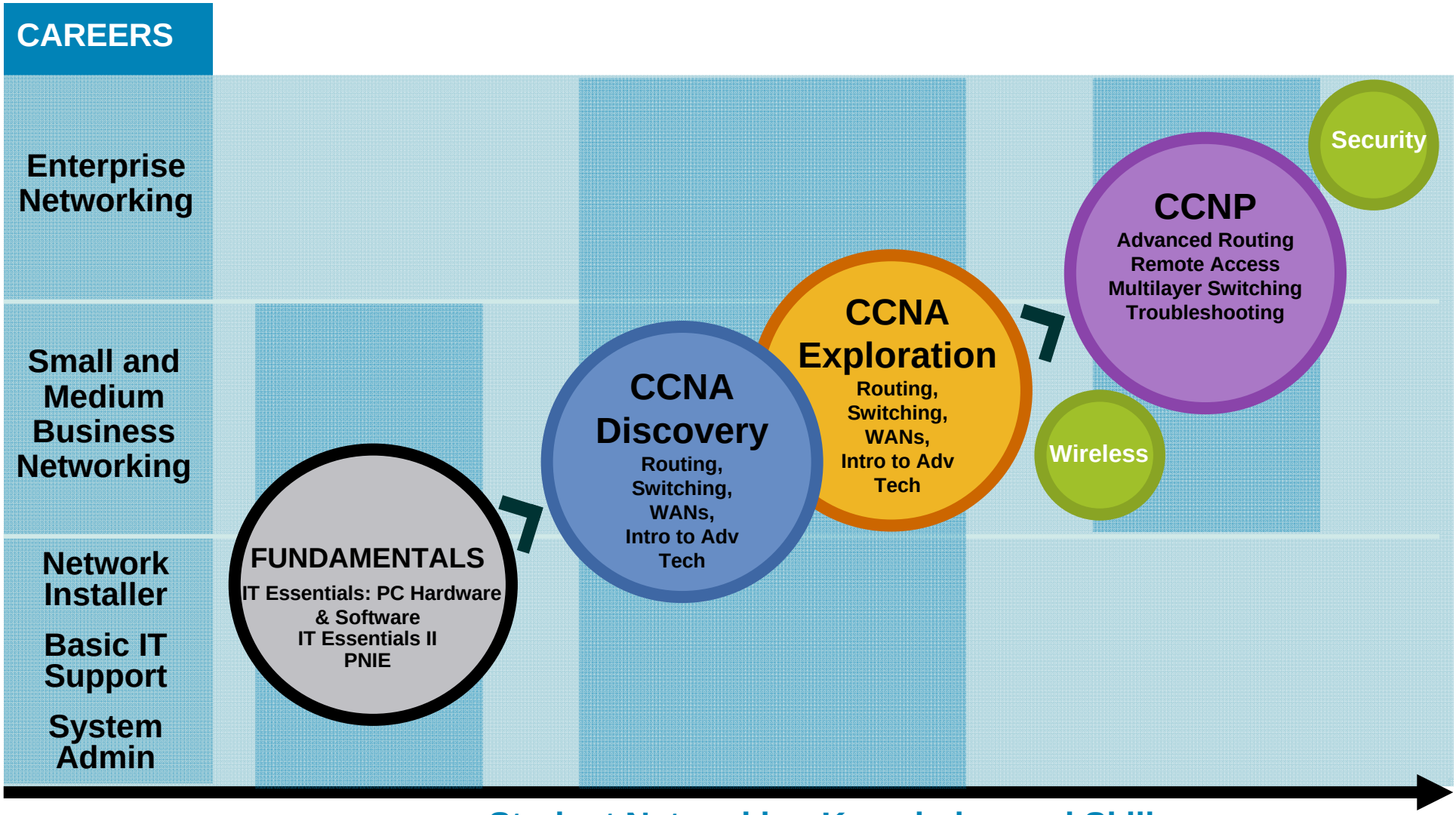
How Are We Evolving the Program?

- **Shift focus from program growth to student outcomes**
- **Develop courseware tailored to student goals**
- **Align skills with specific jobs in networking**





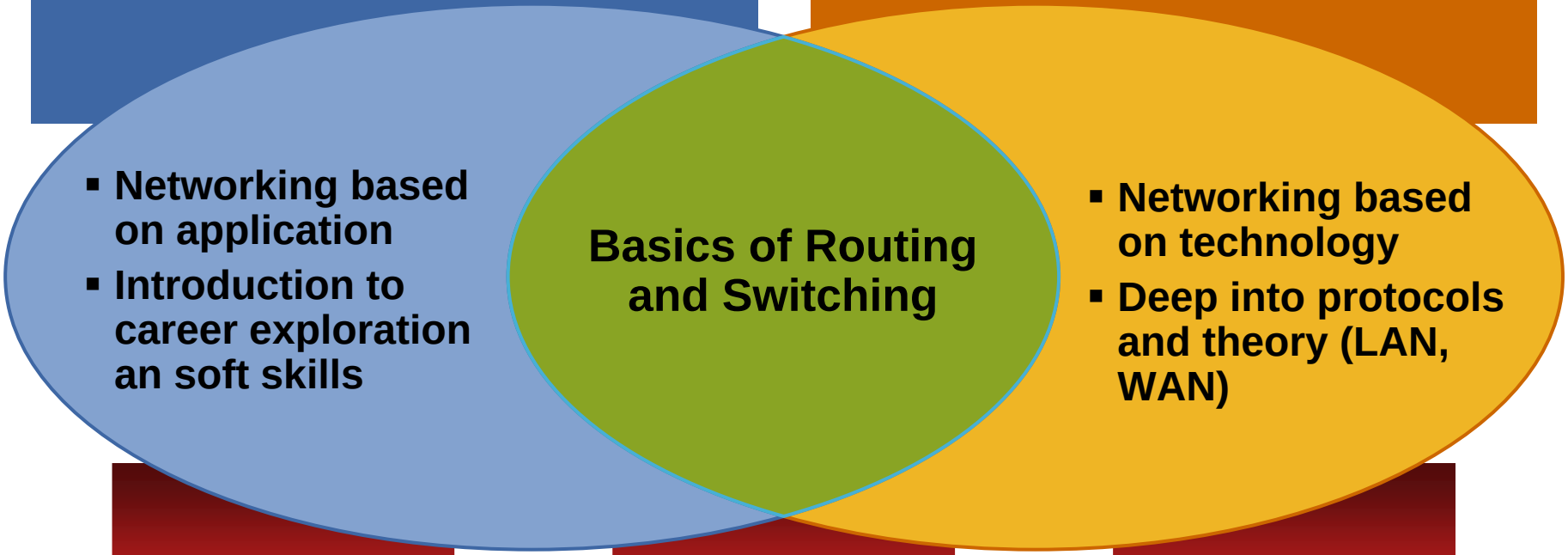

Networking Academy Program Portfolio – 18 Courses



New CCNA

CCNA Discovery

CCNA Exploration



- Skills for entry-level professions:
  - Network installer
  - Network technician
  - Help desk technician
  - Basic network design

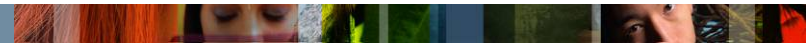
Core Skills for CCNA Certification

- Skills for wide range of networking professions:
  - Network technician
  - Network administrator
  - Network engineer

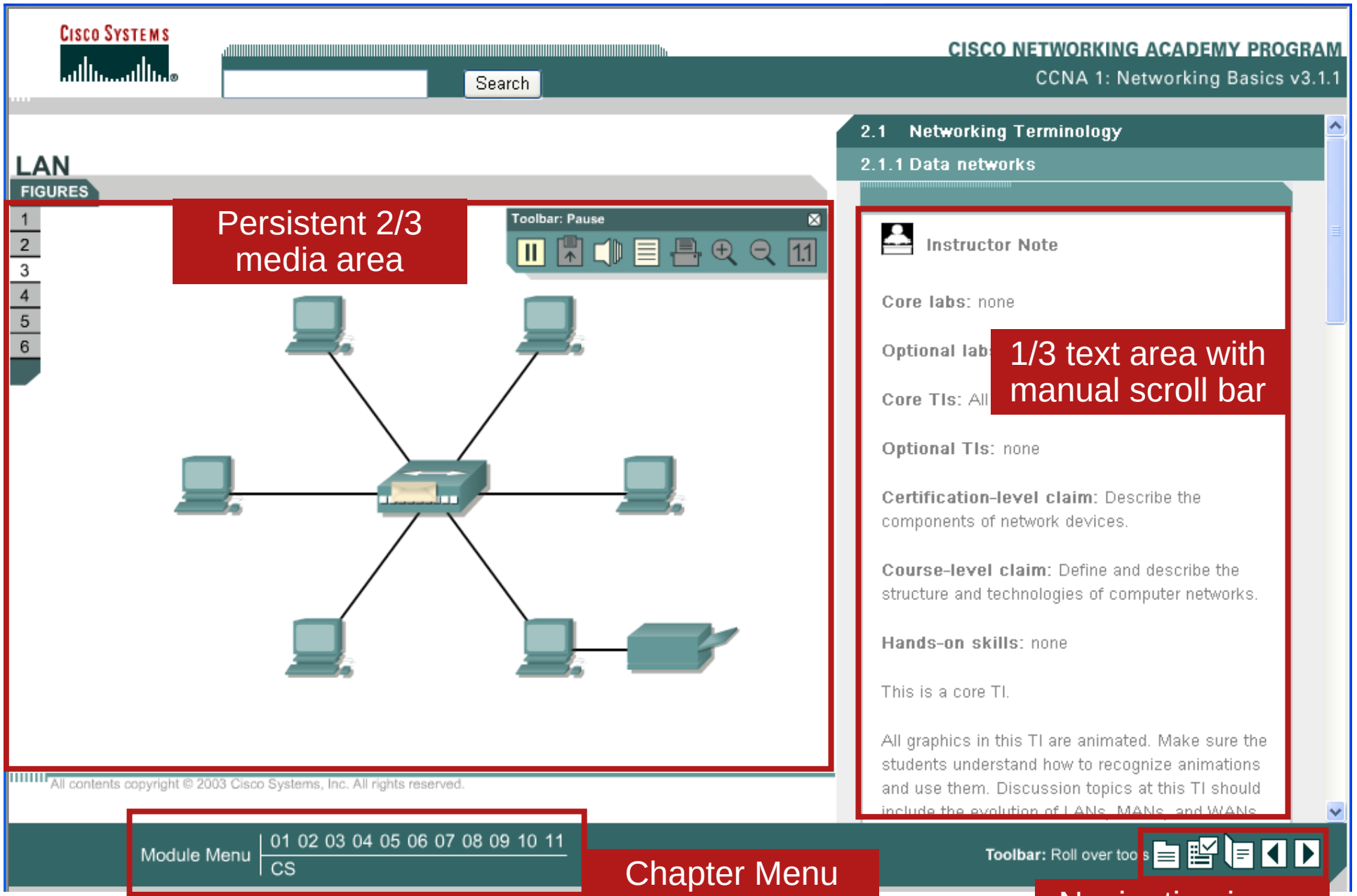
Key Factors in Obtaining Jobs: Education, Experience, and Certification

New CCNA Curricula
How Do I Choose?

- What are your students' academic capabilities?
- What are your students' goals?
- How will your institution integrate the new CCNA curriculum?
- Which curriculum best aligns with your teaching methodology and your students' interests?
- Is the existing CCNA v3.1 curriculum very difficult for your students in terms of theoretical topics?



A quick look at the GUI



3 Connecting to the Network

3.4 Building the Access Layer of an Ethernet Network

Cisco Networking Academy

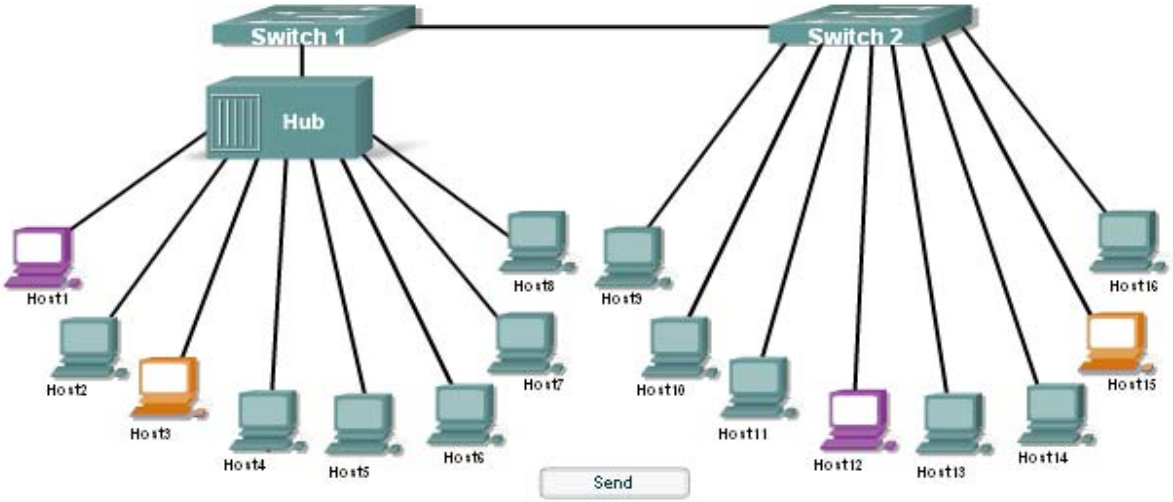
Networking for Home and Small Businesses v 0.1

3.4.3 Function of Switches

Page # 1 2 3 4

Sometimes, it is necessary to connect another networking device, like a hub, to a switch port. This is done to increase the number of hosts that can be connected to the network. When a hub is connected to a switch port, the switch associates the MAC addresses of all hosts connected to that hub with the single port on the switch. Occasionally, one host on the attached hub sends a message to another host attached to the same hub. In this case, the switch receives the frame and checks the table to see where the destination host is located. If both the source and ...e port, the ...t, collisions ...the garbled ...including the port attached to the switch. The switch receives the garbled message, but, unlike a hub, a switch does not forward the damaged messages caused by collisions. As a result, every switch port creates a separate collision domain. This is a good thing. The fewer hosts contained in a collision domain, the less likely it is that a collision will occur.

To see what happens when a collision occurs in a switched network, click SEND.



2/3 or full-screen media area

1/3 text area, automatically scrolls, disappears for full-screen media

Next / Back

Language Toggle

Espanol

3.4.3.3

Navigation tools

Go To / Location and Topic Navigation Bar

Comparing CCNA Discovery and Exploration with CCNA 3.1

Feature Comparison

	CCNA v3.1	CCNA Discovery	CCNA Exploration
Expected Student Capabilities	Basic PC usage skills	Basic PC usage skills	Advanced problem-solving and analytical skills typically associated with students in engineering, math, or science degree programs
Content	Four courses – structured by protocols and technology	Four courses – structured by practical network environments PLUS: • E-doing • Introduction to advanced technologies • Helps prepare students for entry-level IT careers by teaching applied skills early in the curriculum	Four courses – structured by protocols and technologies within various topologies PLUS: • E-doing • Introduction to advanced technologies • Extra theory and more challenging labs
Business Rules	Required minimum of six months to complete all four courses	Required minimum of four months to complete all four courses	▪ Required minimum of three* months to complete all four courses • Courses structured to increase flexibility and efficiency in course sequence
Time to Learn	~70 hours per course		

CCNA Discovery
Changes Compared to Current CCNA

	CCNA v3.1
CCNA 1	Networking Basics
CCNA 2	Routers and Routing Basics
CCNA 3	Switching Basics and Intermediate Routing
CCNA 4	WAN Technologies

Curriculum Framework	CCNA Discovery	Course Content
No 1-to-1 mapping	Networking for Home and Small Businesses	• Introduction to networking • Basic cabling for Small and Home Office • LAN addressing and network services • Basic wireless and security • Troubleshooting – plan/build home network
New courses	Working at a Small-to-Medium Business or ISP	• Intro to OSI model/TCP model • SMB routing and switching • WAN technology • IP addressing • Network devices and cabling • Security/disaster recovery
New order, flow, and format	Introducing Routing and Switching in the Enterprise	• Enterprise overview • LAN/WAN performance • IP addressing – VLSM and subnetting • Advanced switching and routing • EIGRP, OSPF, VLANs, VTP, Frame Relay • LAN, WAN, VLAN troubleshooting
Practical application, theory, soft skills and career exploration	Designing and Supporting Computer Networks	• Design concepts and equipment selection • IP addressing on a LAN/WAN • Network design • Cisco device configuration upgrade • Stronger theoretical notion of converged networks

CCNA Exploration
Changes Compared to Current CCNA

	CCNA v3.1	CCNA Exploration	Course Changes
CCNA 1	Networking Basics	Network Fundamentals	• Intro to Advanced Technologies and Converged Networks • Top-Down Approach to Networking
CCNA 2	Routers and Routing Basics	Routing Protocols and Concepts	• Can be taught before, with, or after LAN Switching and Wireless • Removed IGRP • Added VLSM, OSPF, EIGRP • More challenging labs
CCNA 3	Switching Basics and Intermediate Routing	LAN Switching and Wireless	• Can be taught before, with, or after Routing Protocols and Concepts • Added Rapid Spanning Tree protocol • Added wireless concepts • More challenging labs
CCNA 4	WAN Technologies	Accessing the WAN	• De-emphasize ISDN • Added new WAN concepts • Added ACLs, VPN concepts

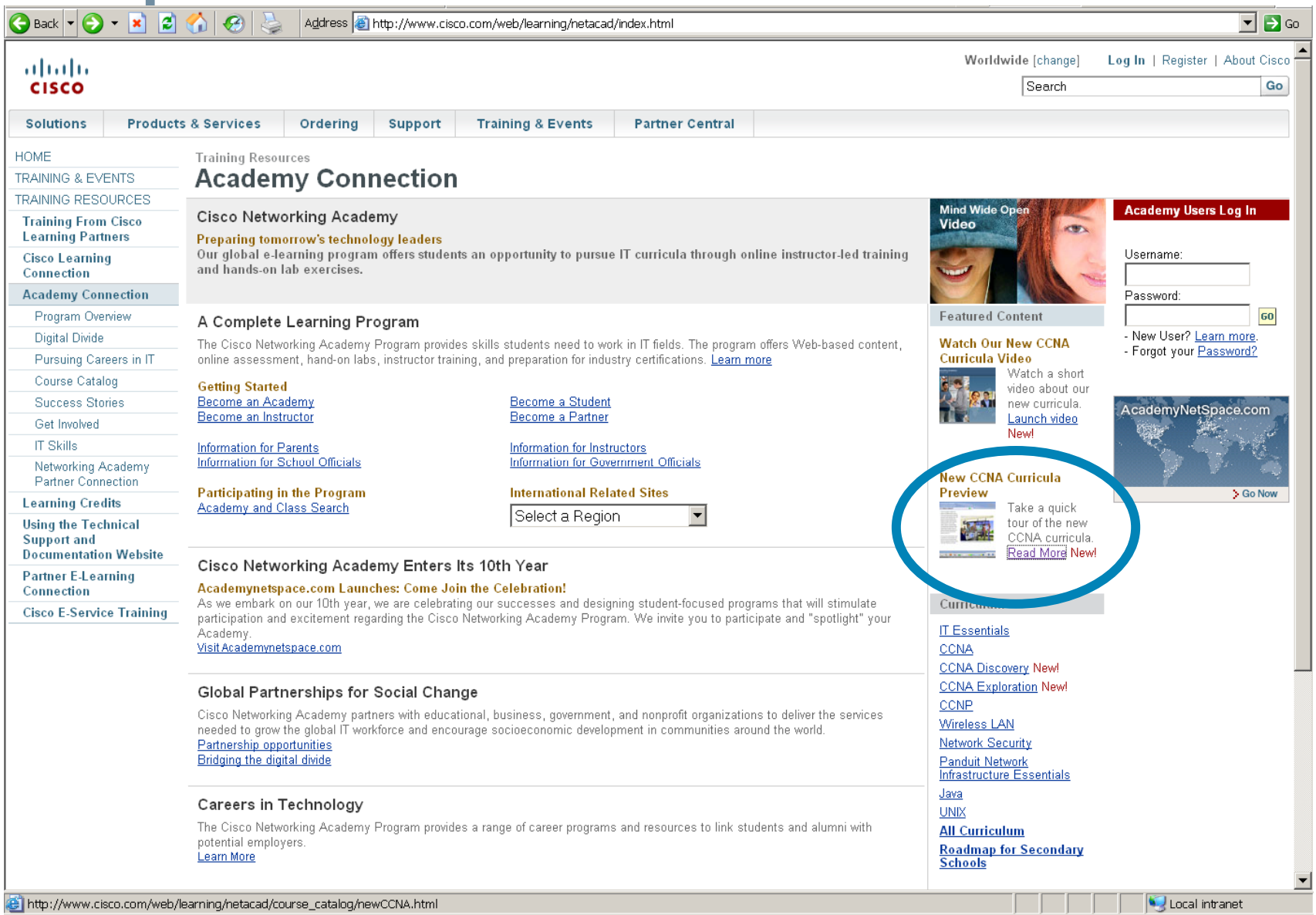
Adoption & Migration

Tools Available to You

Currently Available

- Datasheets
- Scope and Sequence documents
- Detailed equipment list
- Chapter demos
- FAQs
- At-A-Glance
- Job framework information
- Curriculum Selection Guidelines
- Presentations
- New CCNA Video

Chapter Demos



New Courses Video

CCNA Discovery and CCNA Exploration Migration

- Institutions midway through delivering CCNA v3.1 should continue with the CCNA v3.1 curriculum until completion
- Countries with translated versions of CCNA v3.1 courses can wait until a translated version of the new CCNA curricula is available, or adopt the English version
- CCNA v3.1 curriculum English end of availability

Course 1	31 July 2008
Courses 2 - 4	31 July 2009

CCNA Discovery

Detail

CCNA Discovery Course Outline

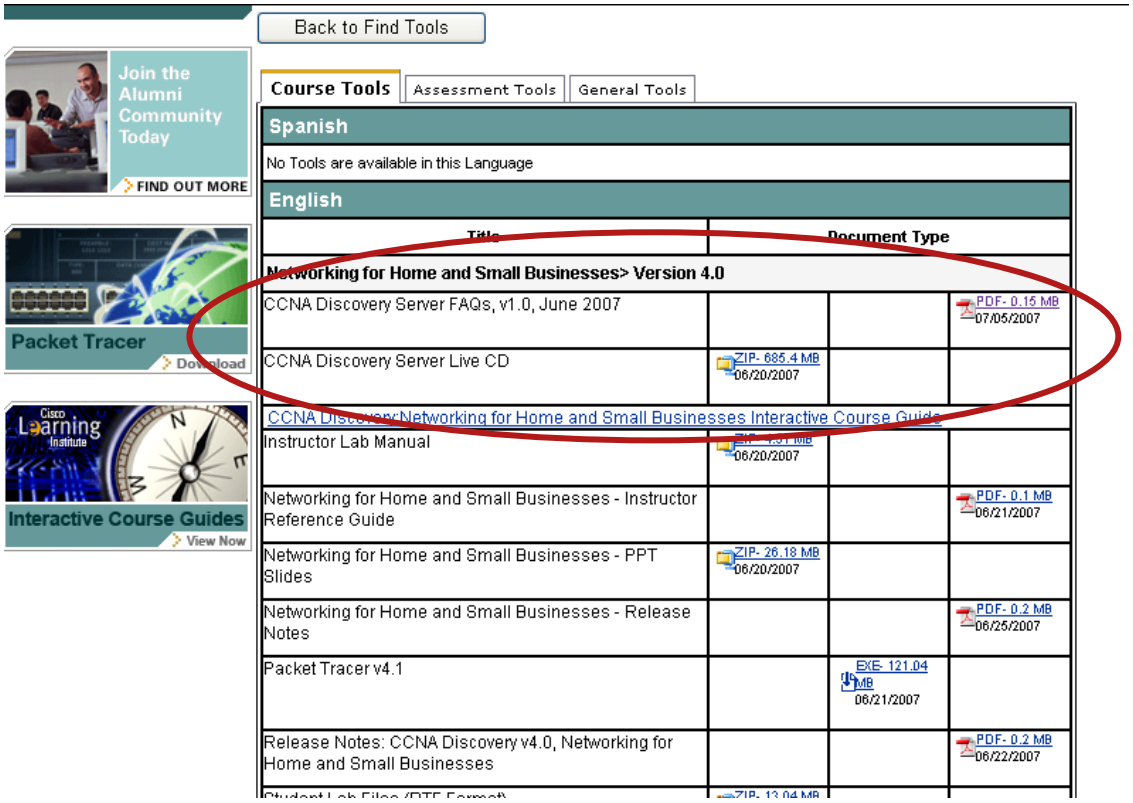
Ch	Networking for Home and Small Businesses	Working at a Small-to-Medium Business or ISP	Introducing Routing and Switching in the Enterprise	Designing and Supporting Computer Networks
1	Personal Computer Hardware	The Internet and Its Uses	Networking in the Enterprise	Reviewing the Concepts of Network Design
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 an Enterprise Network	Estimating the Impact of Applications on a 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 with a Link-State Protocol	IP Addressing in the Network Design
7	Wireless Technologies	ISP Services	Implementing Enterprise WAN Links	Prototyping the LAN Design
8	Basic Security	ISP Responsibility	Filtering Traffic Using Access Control Lists	Prototyping the WAN
9	Troubleshooting Your Network		Troubleshooting an Enterprise Network	Presenting and Implementing the Network Design
10			Putting it all together	Preparing for the Job Market and Certification

CCNA Discovery Server

- Discovery Server is software that provides network services in an isolated lab environment, disconnected from the Internet
- Offers great flexibility to enrich the learning experience
- Discovery Server provides the following network services:
  - DNS
  - Web Server
  - FTP
  - Telnet
  - SSH
  - DHCP
- Discovery Server is not required. It is an optional configuration that can be used in some labs
- It does not require any additional equipment
- Discovery Server software and detailed instructions/FAQ are available for download on Academy Connection Tools page

How do I get Discovery Server?

- The Discovery Server is available for download from any CCNA Discovery course tools page on Academy Connection



CCNA Discovery 3 and 4

CCNA Discovery: Introducing Routing and Switching in the Enterprise

This course familiarizes students with the equipment, applications, and protocols installed in enterprise networks, with a focus on switched networks, traffic flow, 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 include configuration, installation, and troubleshooting.

Course Goals

Upon completion of the Introducing Routing and Switching in the Enterprise course, students will be able to perform the following tasks:

- Implement a LAN given an approved network design
- Configure a switch with VLANs and inter-switch communication
- Configure EIGRP and OSPF routing protocols on Cisco devices
- Implement WAN links
- Implement access control lists to permit or deny specified traffic
- Perform LAN, WAN, and VLAN troubleshooting using a structured methodology and the OSI model

CCNA Discovery: Introducing Routing and Switching in the Enterprise Outline

- Chapter 1: Networking in the Enterprise
- Chapter 2: Creating the Enterprise Network Infrastructure
- Chapter 3: Switching in an Enterprise Network
- Chapter 4: Addressing in an Enterprise Network
- Chapter 5: Routing with a Distance Vector Protocol in an Enterprise Network
- Chapter 6: Routing with a Link-State Protocol
- Chapter 7: Implementing Enterprise WAN Links
- Chapter 8: Filtering Traffic Using Access Control Lists
- Chapter 9: Troubleshooting an Enterprise Network
- Chapter 10: Putting It Altogether

CCNA Discovery: Designing and Supporting Computer Networks

Learners progress through a variety of case studies and role-playing exercises, which include gathering requirements, designing basic networks, establishing proof-of-concept, and performing project management tasks.

Lifecycle services; including upgrades, competitive analysis, and system integration, are presented in the context of pre-sale support.

Course Goals

Upon completion of the Designing and Supporting Computer Networks course, students will be able to perform the following tasks:

- Gather customer requirements
- Design a simple Internetwork using Cisco technology
- Design an IP addressing scheme to meet LAN requirements
- Create an equipment list to meet LAN design requirements
- Create and present a proposal to a customer
- Install and configure a prototype Internetwork
- Obtain and upgrade Cisco IOS® software in Cisco devices

CCNA Discovery: Designing and Supporting Computer Networks Outline

- Chapter 1: Reviewing the Concepts of Network Design
- Chapter 2: Gathering Network Requirements
- Chapter 3: Characterizing the Existing Network
- Chapter 4: Estimating the Impact of Applications on a Network Design
- Chapter 5: Creating the Network Design
- Chapter 6: IP Addressing in the Network Design
- Chapter 7: Prototyping the LAN
- Chapter 8: Prototyping the WAN
- Chapter 9: Presenting and Implementing the Network Design
- Chapter 10: Prepare for the Job Market and Certification

CCNA Discovery Instructional Methodology

Skill	Course 1 – Networking for Home or Small Businesses	Course 2 – Working at a Small-to-Medium Business or ISP	Course 3 – Introducing Routing and Switching in the Enterprise	Course 4 – Designing and Supporting Computer Networks
Routing	Routing table operation	Introduce protocols; configure routes and routers	Configure VLAN, RIPv6, 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.	Intro 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			Verify, implement and troubleshoot ACLs in the Enterprise	Review ACLs and use to incorporate security in a branch office network

Example – CCNA Discovery Skills Development

Skill	Course 1 – Networking for Home or Small Businesses	Course 2 – Working at a Small-to-Medium Business or ISP	Course 3 – Introducing Routing and Switching in the Enterprise	Course 4 – Designing and Supporting Computer Networks
Network Devices	Introduced hosts, hubs, switches, routers, access points and firewalls. Generic and in context of Linksys devices. Introduced 3-Layer network model and the devices at each layer.	Introduced Cisco devices - 1841 ISRs, routers, Catalyst 2960 switches. Review firewall functions. Introduce IDS and IPS	Review router and switch functionality. Introduce Enterprise converged networks that include voice.	Review router and switch functionality. Describe Quality of Service and how it is implemented on networking devices.
TCP/IP Protocols	Introduced Protocol Stack TCP and UDP functionality TCP/IP Application Layer protocols.	Expanded on functionality of TCP and UDP. Expanded concept of ports and sockets Expanded discussion of application layer protocols, with a focus on DNS, HTTP, FTP and the e-mail protocols.	Apply traffic filters based on protocol and port recognition.	Design implementations of access-list filters based on application, protocol, and port recognition.
OSI Model	Introduced OSI Model and functionality.	Reviewed OSI Model functionality. Reinforced OSI Model as troubleshooting tool. Placed TCP/IP protocols and network device functionality at appropriate OSI model layers.	Review OSI Model Functionality and use as a troubleshooting tool.	Review OSI model functionality in context of network design - Layer 1, 2, and 3 design issues.

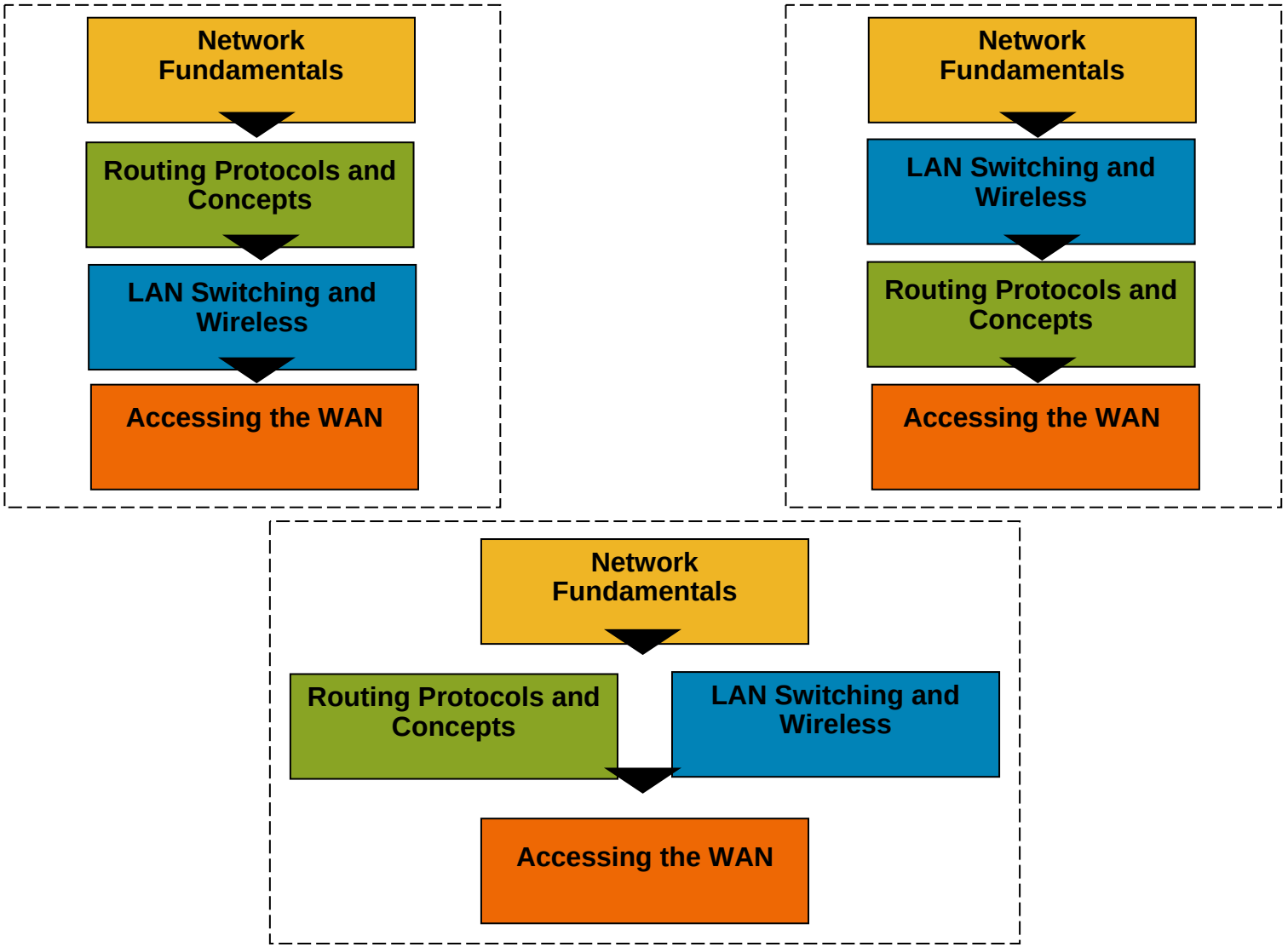
CCNA Exploration

Detail

CCNA Exploration Course Outline

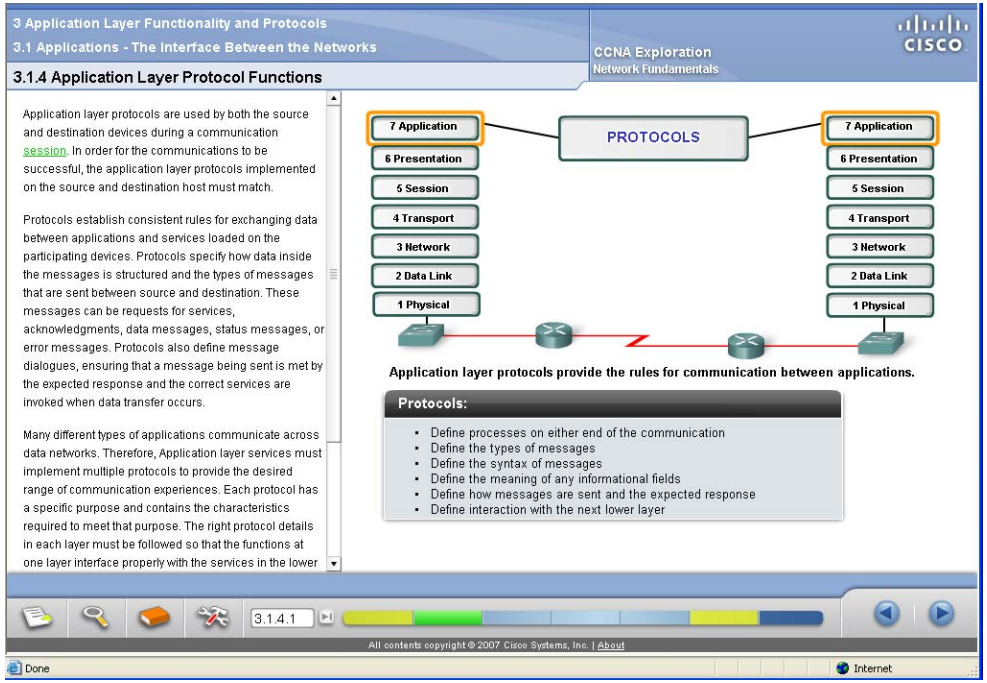
Ch	Network Fundamentals	Routing Protocols and Concepts	LAN Switching and Wireless	Accessing the WAN
1	Living in a Network-Centric World	Introduction to Routing and Packet Forwarding	LAN Design	Services in a Converged WAN
2	Communicating over the Internet	Static Routing	Configure a Switch	PPP
3	Application Layer Functionality and Protocols	Introduction to Dynamic Routing Protocols	VLANS	Advanced Frame Relay Concepts
4	OSI Transport Layer	Distance Vector Routing Protocols	Implement VTP	Enterprise 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 Enterprise Networks
9	Ethernet	EIGRP		
10	Planning and Cabling Your Network	Link-State Routing Protocols		
11	Configuring and Testing Your Network	OSPF		

CCNA Exploration: Flexibility in Course Sequence



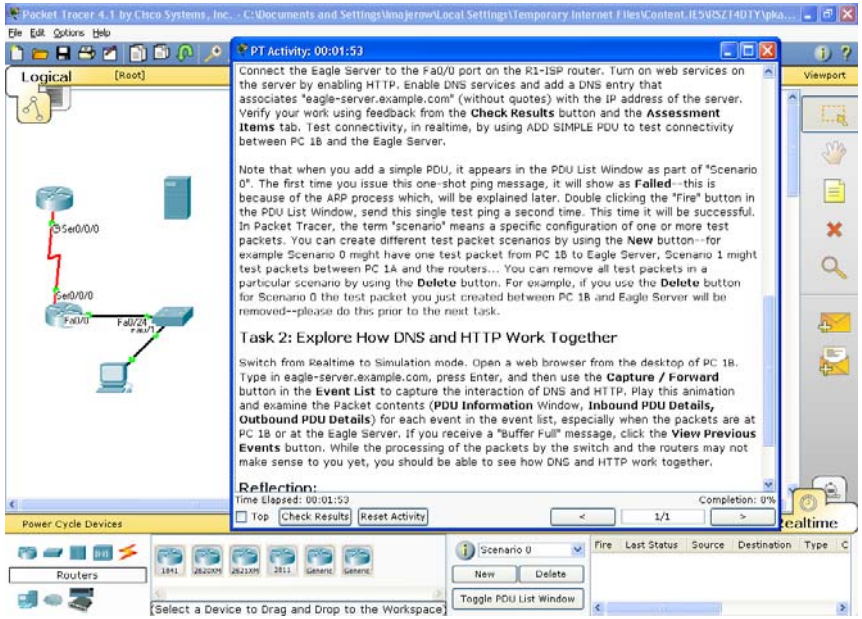
Top Down Approach

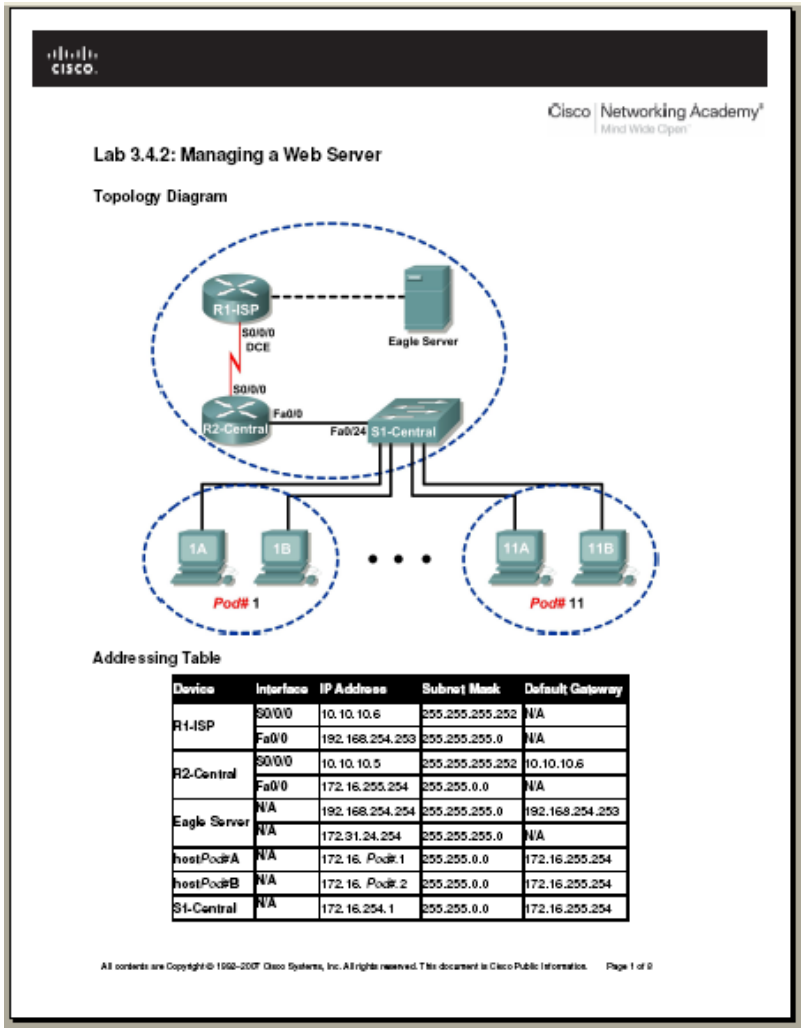
- Following a top down approach to teaching Networking, CCNA Exploration introduces application and application services very early in the course
- The course explains the role and nature of the main application protocols and their relation to protocols and services provided to them by the lower layers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



Lab Activities and Packet Tracer Activities

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





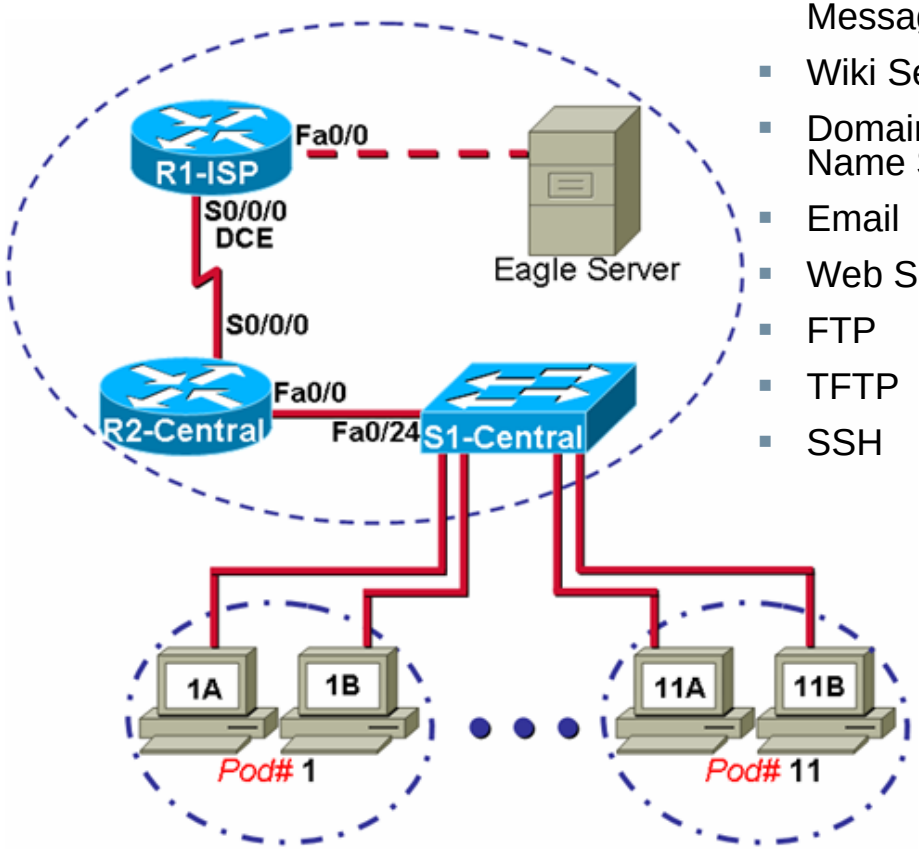
Device	Interface	IP Address	Subnet Mask	Default Gateway
R1-ISP	S0/0/0	10.10.10.6	255.255.255.252	N/A
	Fa0/0	192.168.254.253	255.255.255.0	N/A
R2-Central	S0/0/0	10.10.10.5	255.255.255.252	10.10.10.6
	Fa0/0	172.16.255.254	255.255.0.0	N/A
Eagle Server	N/A	192.168.254.254	255.255.255.0	192.168.254.253
	N/A	172.31.24.254	255.255.255.0	N/A
hostPod#A	N/A	172.16. Pod#.1	255.255.0.0	172.16.255.254
hostPod#B	N/A	172.16. Pod#.2	255.255.0.0	172.16.255.254
S1-Central	N/A	172.16.254.1	255.255.0.0	172.16.255.254

CCNA Eagle Server

- Eagle Server is software that provides network services and applications in an isolated lab environment, disconnected from the Internet
- Offers great flexibility to enrich the learning experience
- Eagle Server provides the following network services and applications:
  - DNS
  - Web Server
  - FTP
  - TFTP
  - SSH
  - Instant Messaging
  - Wiki Server
  - Email
- Eagle Server is required to complete most of the labs
- It does not require any additional equipment
- Eagle Server software and detailed instructions/FAQ are available for download on Academy Connection Tools page

Eagle Server

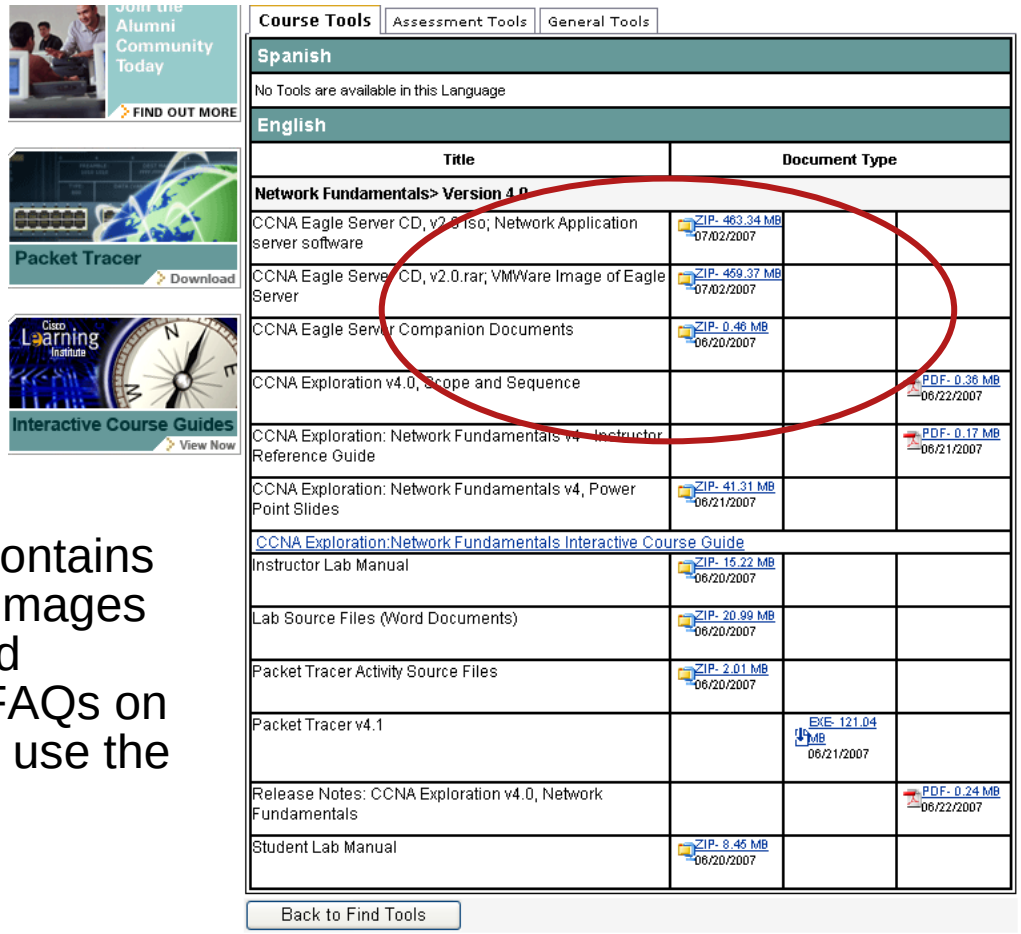
- The graph illustrates the topology used throughout the Network Fundamentals course.
- The Eagle Server is a tool provided by Cisco that includes the set of application services and protocols used in the lab activities



Eagle Server includes

- Instant Messaging
- Wiki Server
- Domain Name Server
- Email
- Web Server
- FTP
- TFTP
- SSH

Eagle Server images and documentation



The Tools page contains the Eagle server images as well as detailed instructions and FAQs on how to install and use the tool

A quick look at the Courses

Discovery 1

Discovery 2

Exploration 1

Exploration 2

Translation

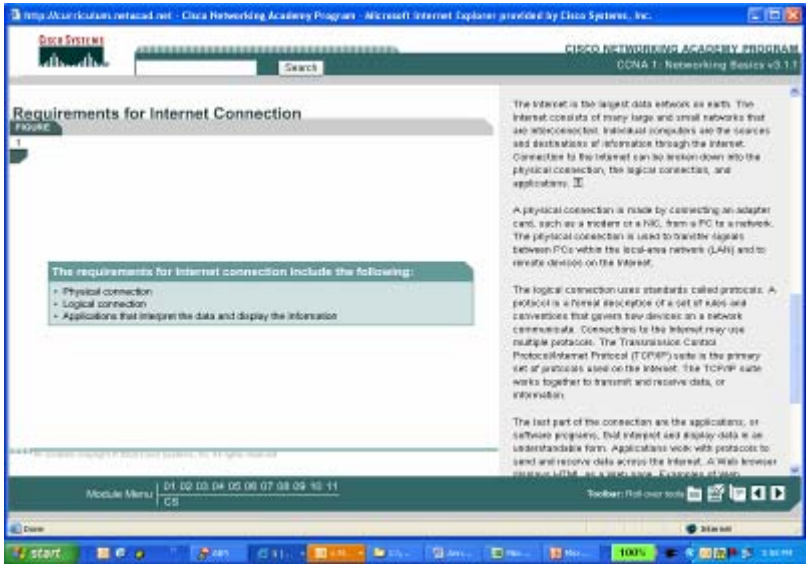
CCNA Discovery and CCNA Exploration
Translation Strategy

- Deliver cost-effective, timely curricula in prioritized languages
- Partnership model between corporate, field, and partners
  - Share costs
  - Drive prioritization
- Clear quality control process
  - Protect Cisco brand
  - Leverage partnership involvement

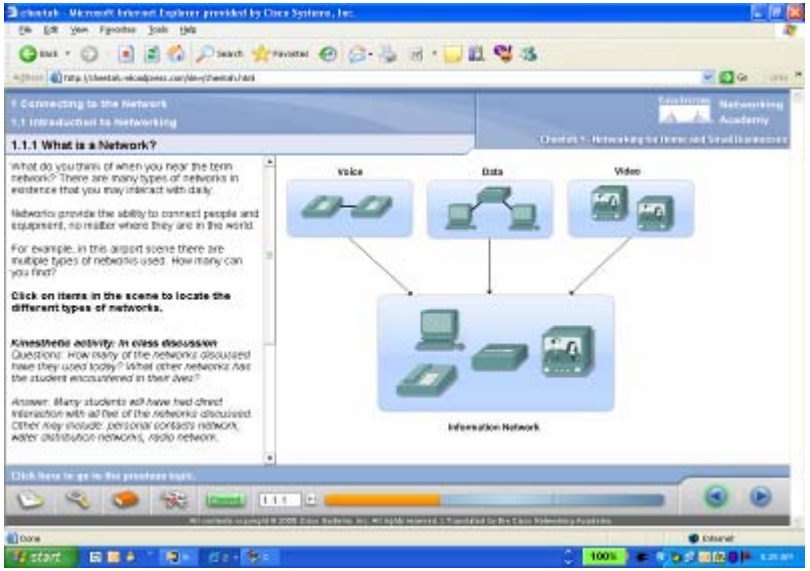
CCNA Courses Designed for Translation

- Text expansion allowance
- Language translation toggle
- Graphical and GUI text is stored separately, then automatically pulled into GUI from English and local text files
- Content reviewed globally by instructors with technical and English experience

Old GUI



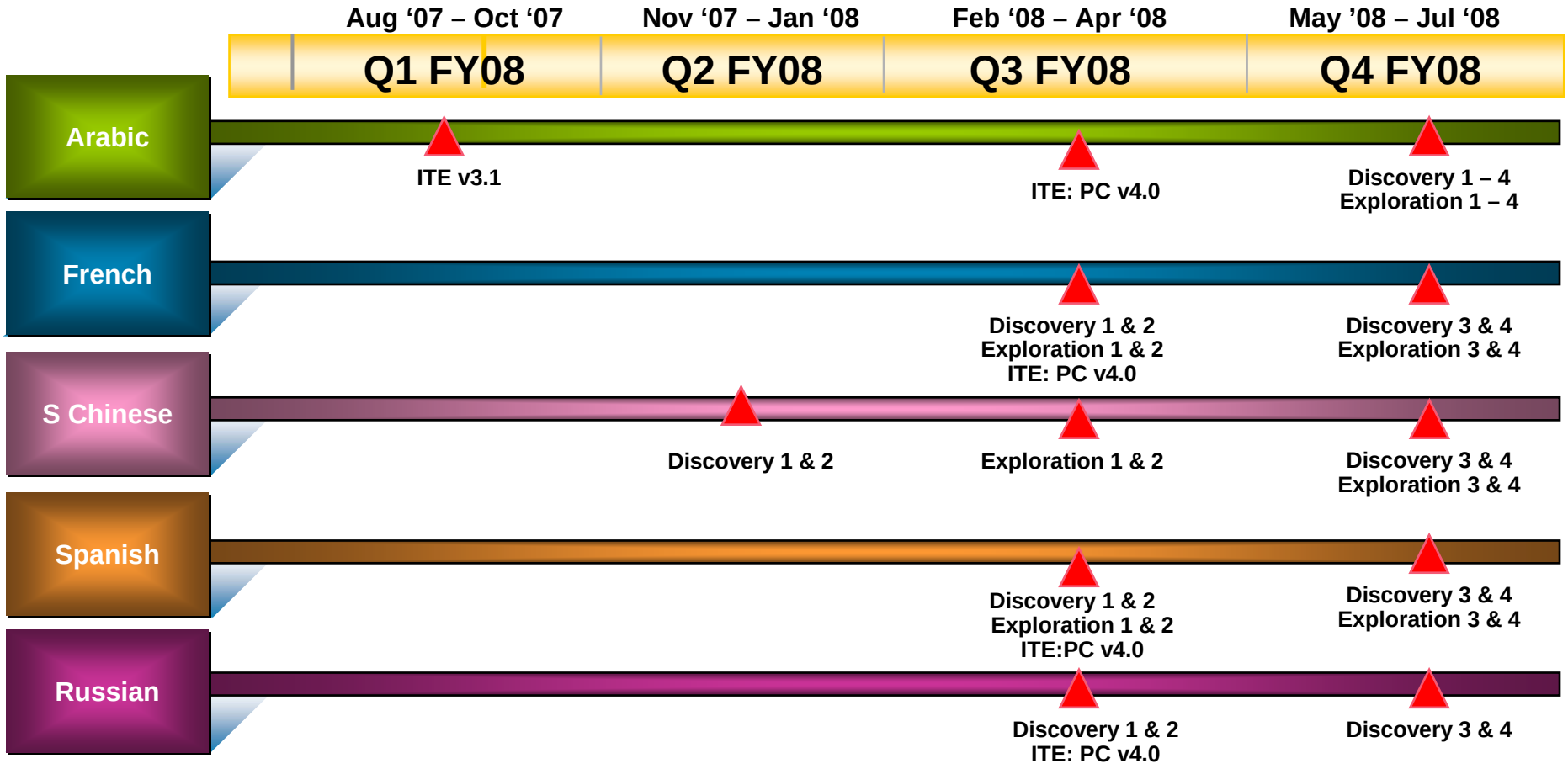
New GUI



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 ▪ NetAcad global alignment	▪ Moderate Networking Academy market potential ▪ Moderate demand for skilled people ▪ Alignment with certification priorities and partner goals ▪ Networking Academy theatre alignment	▪ Networking Academy country alignment ▪ Alignment with partner goals
Languages	6 UN languages: Arabic, English, French, Russian, Simplified Chinese, Spanish	Prioritized installed base + theatre priorities Examples: Br. Portuguese, German, Japanese, Polish	Examples: ▪ Hungarian ▪ Slovak

FY'08 Translation Roadmap
U.N. Languages

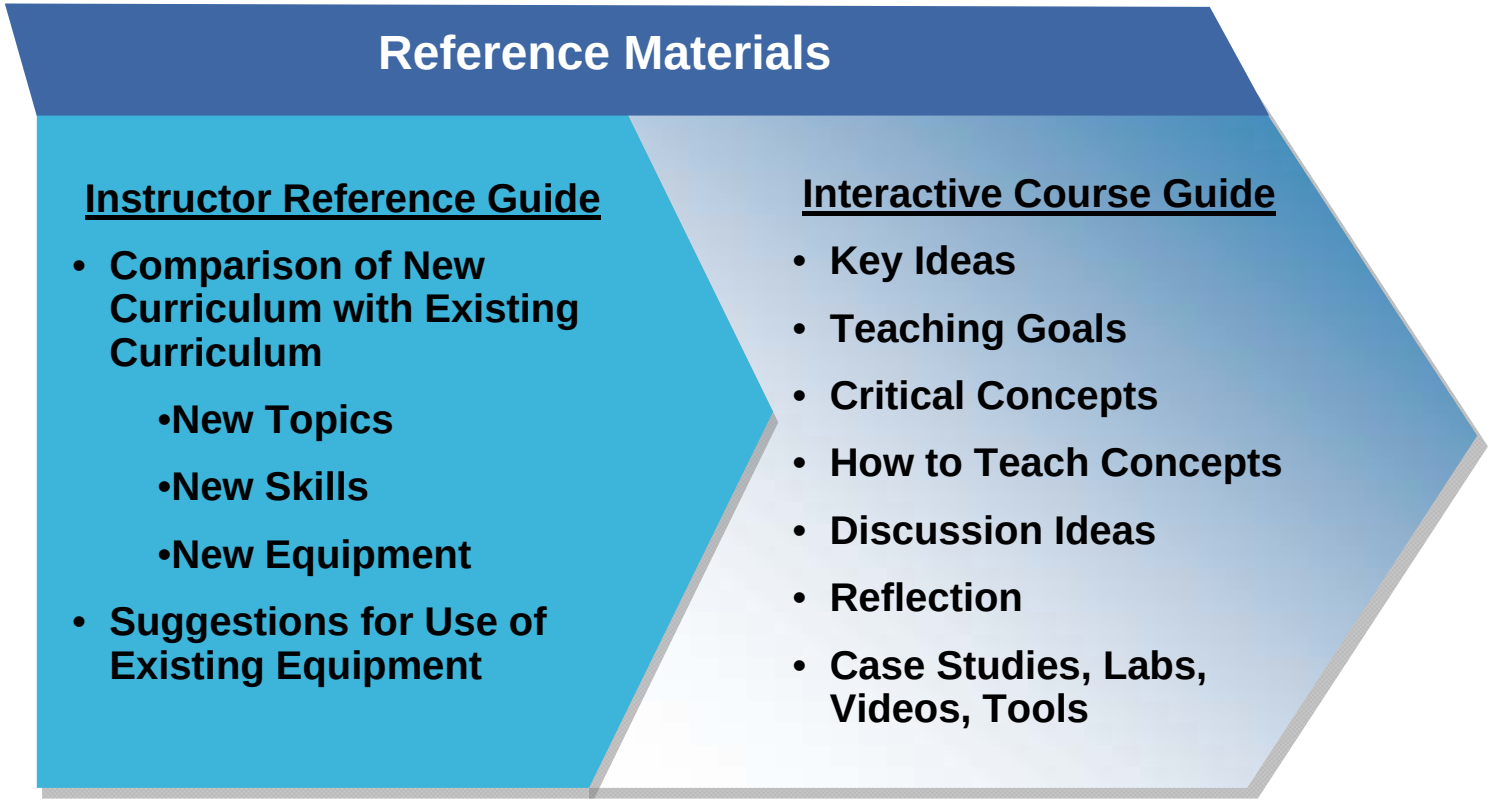


Instructor Training

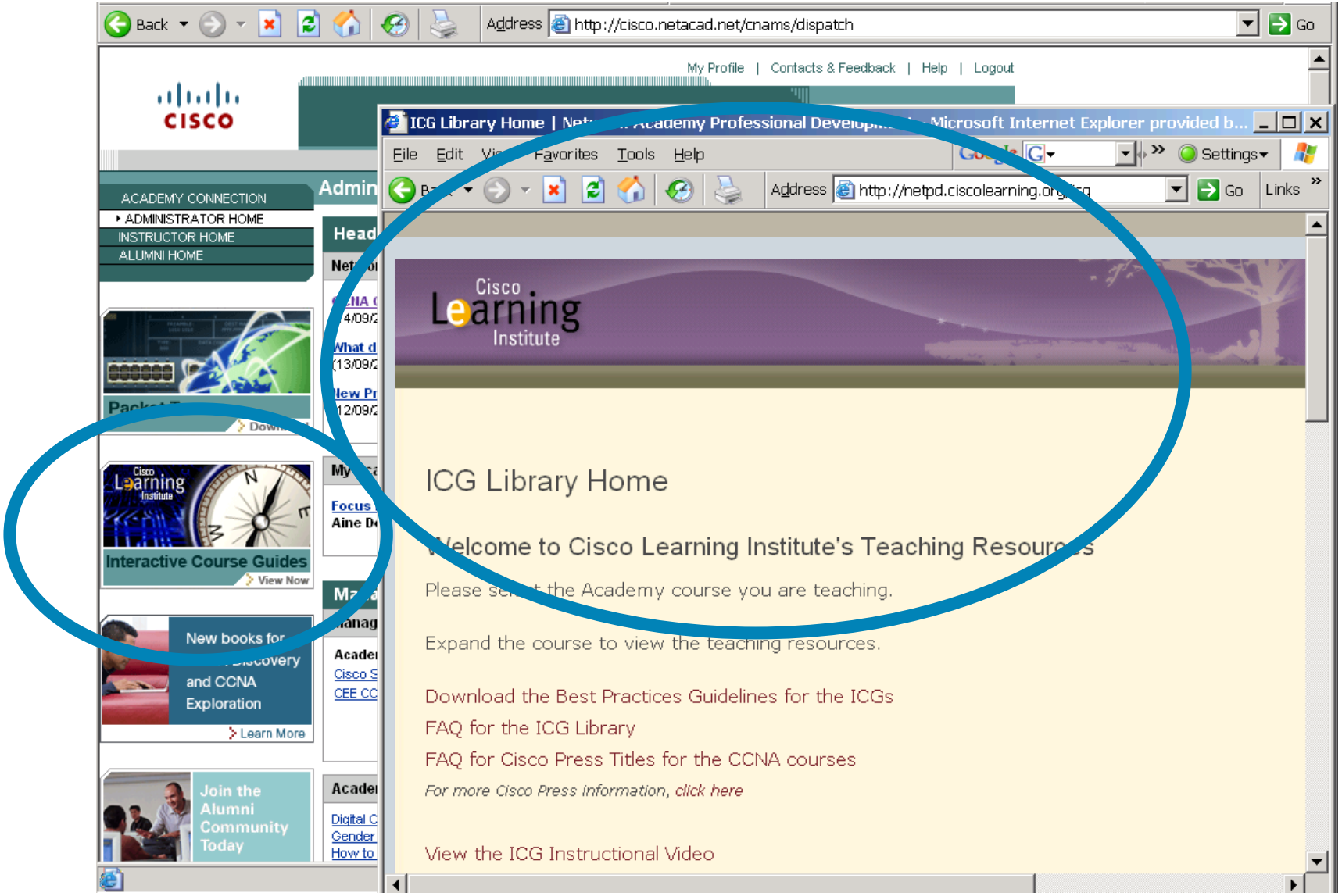
Instructor Training

	CCNA Discovery	CCNA Exploration
Current Instructor	▪ Not required but strongly recommended ▪ Encouraged to read the new CCNA curricula, Interactive Course Guide (ICG), Instructor Reference Guide (IRG) and slide presentations	
	(min. 8-10 hours per course)	(min. 4-8 hours per course)
New Instructor	▪ In person training required. Approximately 40 classroom hours per course; similar to current CCNA v3.1	

Training Resources for Existing Instructors



Training Resources for Existing Instructors



Training Scenarios for New CCNA Curricula

Existing Instructor

- Log into Academy Connection
- Select Academy Course Materials
- Select ICG for course
- Review Instructor Reference Guide

New Instructor

- Attend scheduled training at Training Center
- Complete course exam and skills exam

- **Existing instructors are automatically enabled to offer the new CCNA courses**

Cisco Certifications

Certification Levels – New Entry Point

General → Focused

Expert: CCIE®		▪ Security ▪ IP Communications ▪ Wireless ▪ Storage Networking ▪ Optical ▪ Advanced Routing and Switching ▪ Foundation
Professional: CCNP®, CCIP®, CCSP®, CCVP™, CCDP®		
Associate: CCNA®, CCDA®		

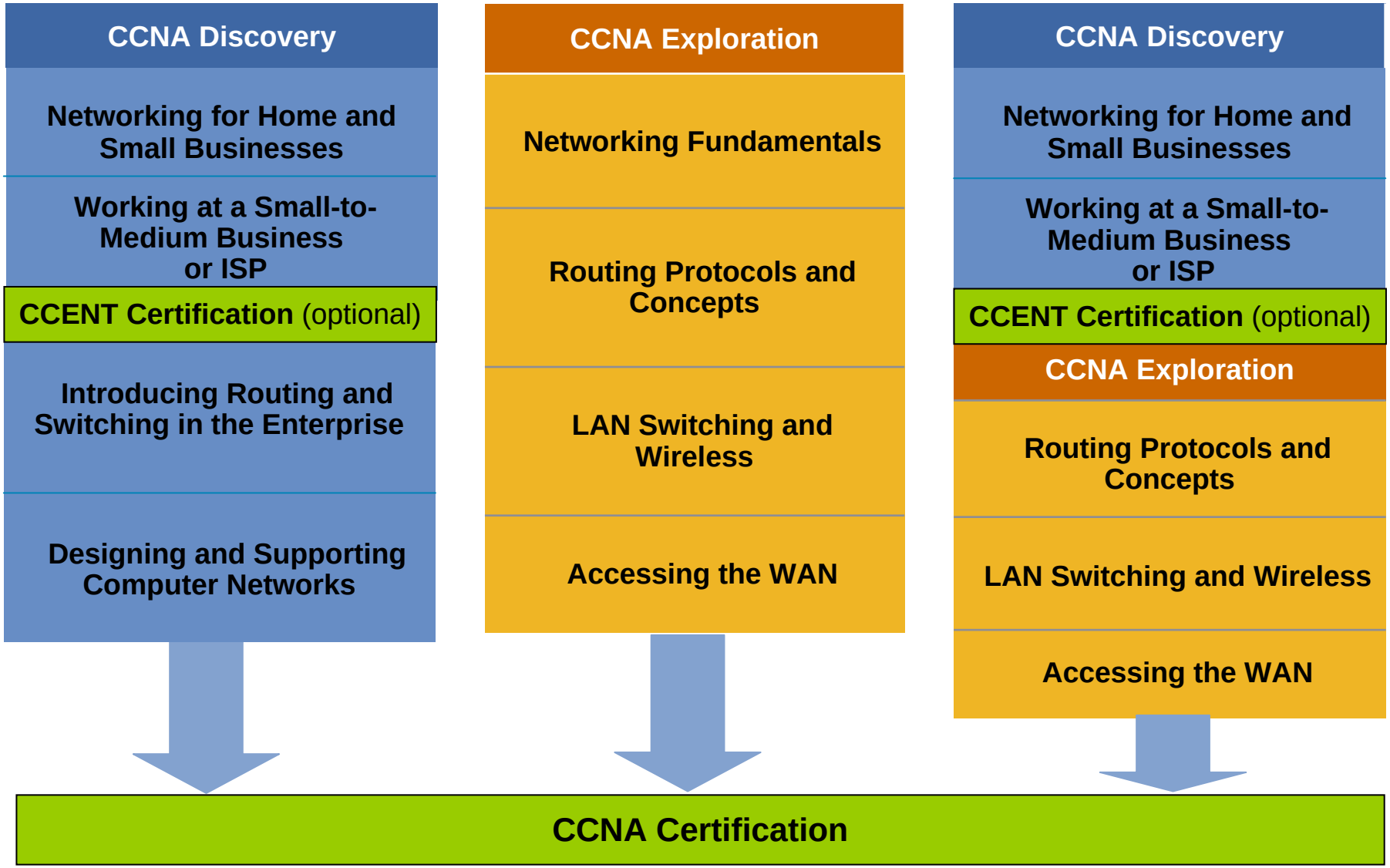
NEW

Cisco Certified Entry Network Technician (CCENT™)

Updates to Cisco Certification

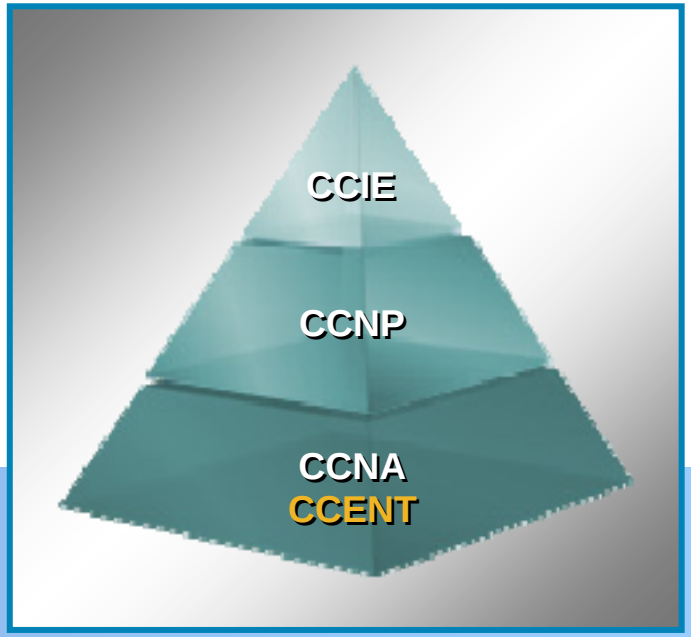
- Cisco is expanding certification of entry level skills and knowledge--the foundation of a successful career in networking.
- ***New CCNA certification exam*** has greater breadth—more security, troubleshooting and basic wireless—*and* more time devoted to performance-based skills.
- Introduction of ***new CCENT*** entry level certification
  - Cisco Certified Entry Network Technician
  - Optional certification after the first two courses of CCNA Discovery curriculum
  - Aligns with entry level networking support positions

Paths to CCNA Certification



Cisco CCENT Certification

- 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
- Requires first of two CCNA exams (ICND 1 640-822)
- An optional, intermediate step towards CCNA certification
- Recipients gain access to Cisco Certification Community and use of CCENT logo



www.cisco.com/go/ccent

Cisco CCNA Network Associate

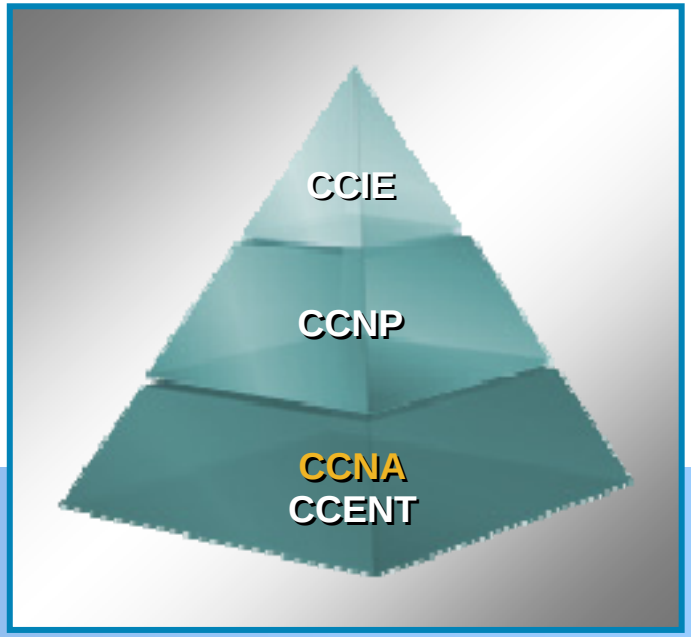
- Certifies knowledge and skills to install, operate and troubleshoot a small to medium size enterprise branch network
- Includes connecting to multiple WANs, basic security measures and wireless extension of the network.
- Two options for the exams (2 exam option or one composite exam)

2 Exam option:

- ICND1 640-822 exam
- ICND2 640-816 exam

1 Composite Exam option:

- CCNA 640-802 exam



www.cisco.com/go/ccna

Extension Vouchers

- Zero discount vouchers enabling qualified NetAcad students to take retired versions of Cisco certification exams including:
  - Until December 31, 2007:
    - CCNP BSCI (642-801)
    - CCNP BCMSN (640-604)
  - Starting 6 Nov 2007: Ending 31 July 2009
    - INTRO (640-821)
    - ICND (640-811)
    - CCNA (640-801)
- Requested by instructors through Academy Connection Help Feature
- Instructors provide extension voucher information to students

Q and A

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