

# Netacad Technical and Program Updates

Semyon Ovsyannikov

Technical Manager, Cisco Netacad Europe

Belgium Instructor Event

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# Agenda:

1. New Portfolio and Platform
2. New Certification Track
3. CCNA v7 and The New CCNP
4. NetAcad Maintenance

# New Portfolio and Platform

# The IT Team of the Future

World of  
**Network Engineers**



World of  
**Software Developers**

# World of Network Engineers



## Automation

Software-defined infrastructure  
programmability

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## Multi-Cloud

New expectations for speed,  
scale, and security

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## AI/ML & Business Insights

For increased performance,  
reliability, and security

# World of Software Developers



## Application Economy

Speed of development, shift from IT to LOB,  
cloud offers quick and easy

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## Internet of Things

Connectivity increases value,  
edge computing and analytics

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## DevOps & Cloud

Powerful developer tools, APIs and open  
source, CI/CD and DevOps are enablers

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## Secure Foundation

# The New Network Requires New Skillsets

## Software Defined



Digital business and architectures rely on software defined networks

## Automation



Automation and virtualization now extend across all network domains

## APIs



Network device management moving from CLI to API

## Programming



Programming skills becoming essential to network admins

## Wireless



Wireless technologies now prevalent in access networks

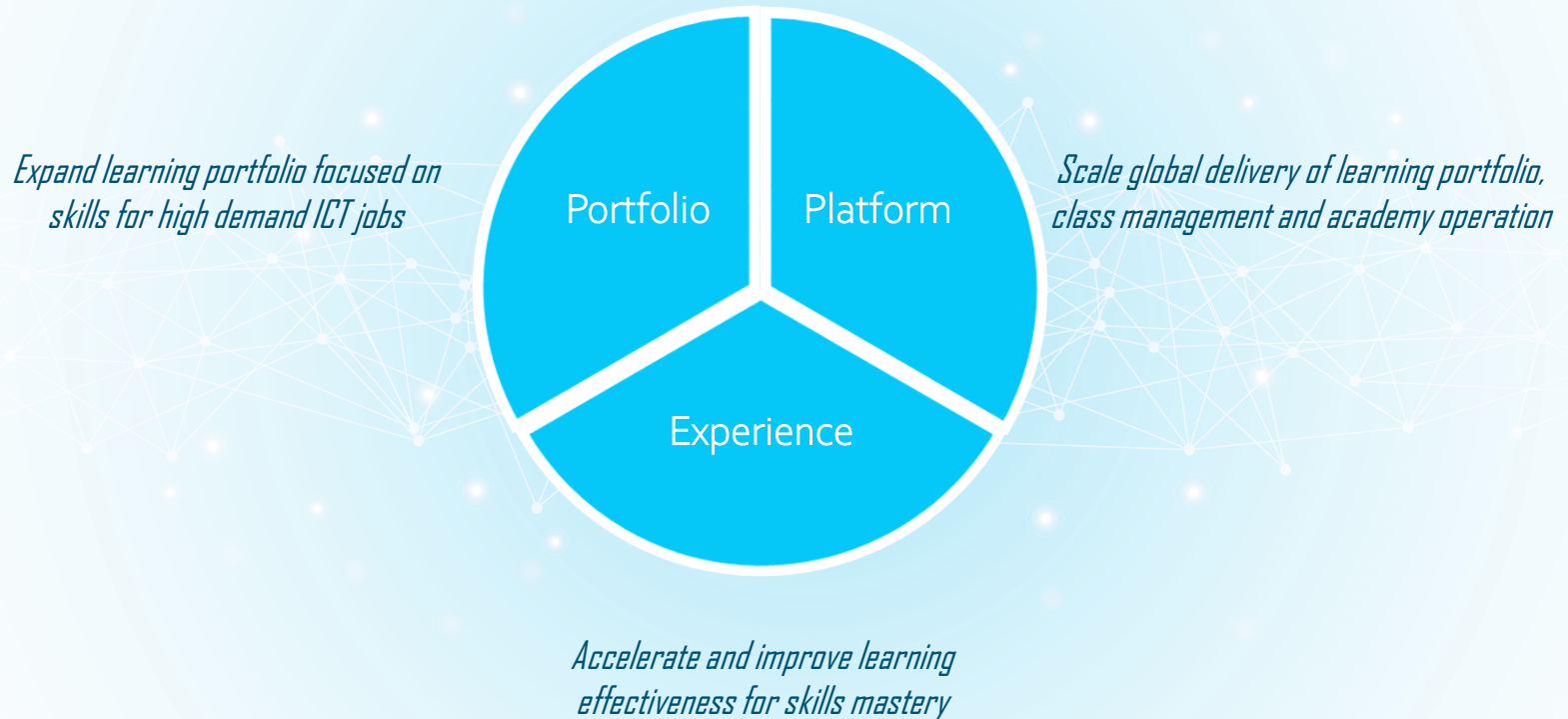
## Security



Expanding security threats require new analytics and corresponding skills

***Employers expect foundational IP skills and breadth of knowledge from network engineers***

# NetAcad Learning Strategy



# Portfolio

## Networking



- Provide breadth and depth in networking technology
- Expand coverage in key digital transformation technologies: Network programmability, virtualization, wireless, & security
- Emphasis on job ready skills and alignment to Cisco certifications
- New CCNA and CCNP Enterprise courses, right-sized content with optimized path to job readiness

## Programmable Infrastructure



- Domains: Software development, DevOps, Infrastructure Automation, IoT data analytics, Business Intelligence, Machine Learning, Artificial Intelligence
- Employability skills and alignment to Cisco certifications, e.g. DevNet Associate
- Expanding portfolio into software developer community with DevNet Associate course

## Cybersecurity



- Domains: IoT and Cloud Security, Digital Forensics, Security Audit
- Employability skills with alignment to Cisco and industry certifications
- Gamification
- Updated Security Foundation and Cyber Ops courses



# Portfolio Direction

Planned Updates/Releases  
within 12 months

Under Consideration

## Explore

Get Connected

Introduction to Packet Tracer

Linux Unhatched

Cybersecurity Essentials

Introduction to Cybersecurity

Introduction to IoT

Networking Essentials

## Career



Digital Essentials

IT Essentials  
NDG Linux Essentials  
Entrepreneurship 2.0

PCAP: Programming Essentials in Python

Design Thinking (Hackathon Playbook)



Networking

CCNA 7.0:

- Introduction to Networks
- Switching, Routing, and Wireless Essentials
- Enterprise Networking, Security, and Automation

CCNP Enterprise:  
Core  
Advanced Routing &  
Services



Programmable  
Infrastructure

DevNet Associate

Emerging Tech Workshops:  
Network Programmability  
Experimenting with REST APIs

IoT Fundamentals:  
Connecting Things  
Big Data & Analytics



Cybersecurity

CCNA Security  
CCNA Cybersecurity  
Operations

IoT Fundamentals:  
IoT Security

Cloud Security (CCSK)

Penetration Testing  
(CEH)

## Practice

Packet Tracer

Gaming

Prototyping  
Lab

Virtual  
Labs

Assessments

Physical  
Equipment

Complementary Offerings



# New Certification Track

# Technologies used in the New Network require new skillsets



Digital business and architectures rely on software defined networks



Programming skills becoming essential to network admins



Automation and virtualization now extend across all network domains



Wireless technologies now prevalent in access networks



Network device management moving from CLI to API



Expanding security threats require new analytics and corresponding skills

*Employers expect foundational IP skills and breadth of knowledge from network admins*

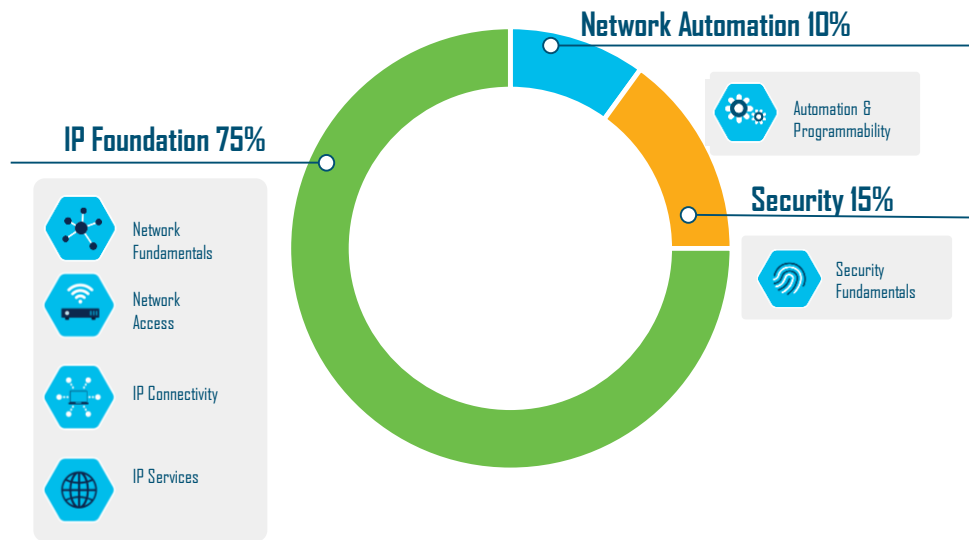
# New CCNA Certification

## Realigned CCNA to job and employer needs

- Network administrators need foundational IP (physical layer, switching and routing basics plus IP services)
- Broad awareness of technologies and problem solving skills
- New hires can be trained to support networking environment specific to that company/industry

## Right-sized CCNA exam blueprint

- Removed topics that extend beyond entry/associate level job roles



*Employers expect foundational IP skills and breadth of knowledge from network admins*

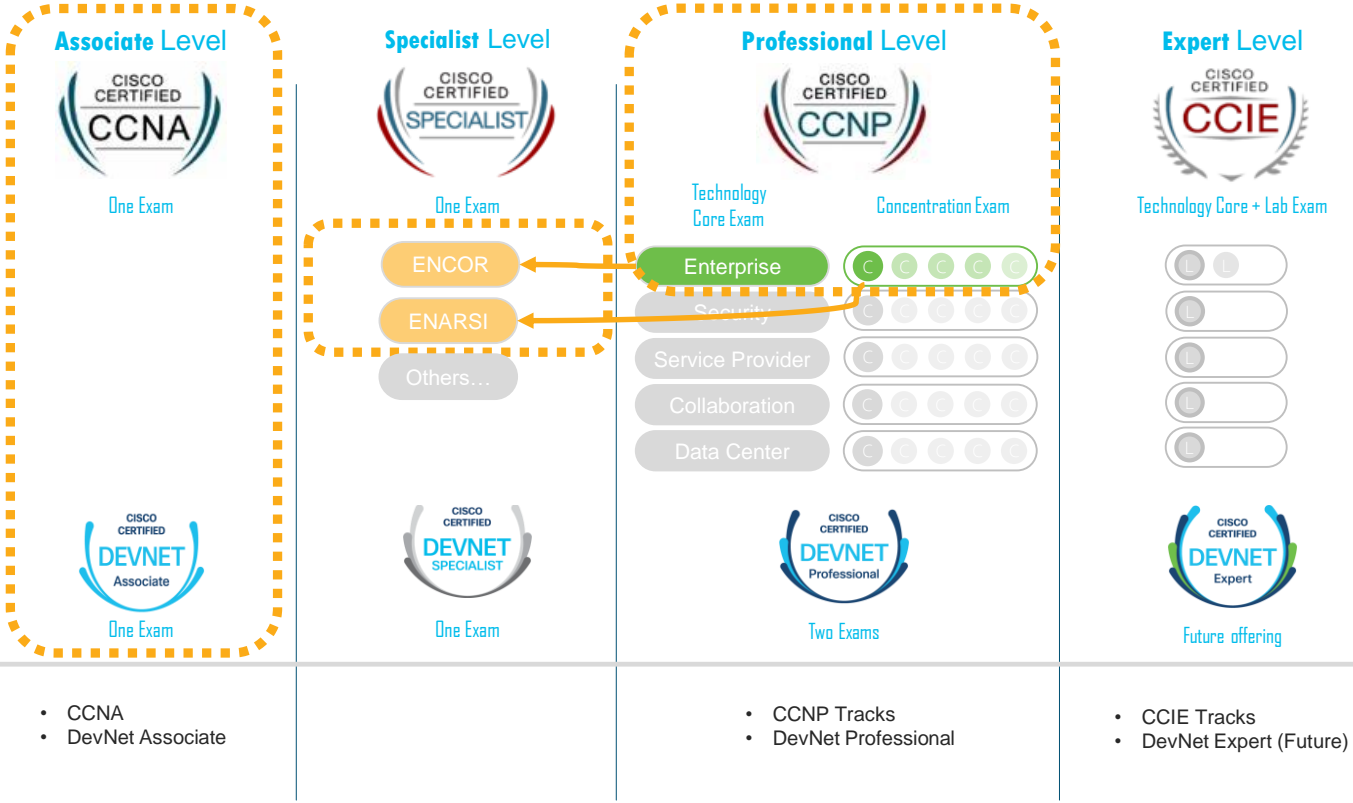
# Cisco Expanded Certifications & Training

Certifications

**Network Engineers**

**Software Developers**

Training



# My Digital Badges

ccclaim



This badge was issued to [Semyon Ovsyannikov](#) on 13 October 2016.  
Expires on 3 December 2021

Share



- **Like Certificate:** Can be issued, verified, expires, saved in history
- **Like Certification Credentials:** Can be shared, verifies, secure privacy
- **More than a Certificate:** Can be posted online, attached to your signature, embedded into online resource
- **Unlike the certificate:** can not be printed nor fixed to the wall



## Cisco Certified Network Associate Routing and Switching (CCNA Routing and Switching)

Issued by [Cisco](#)

This certification validates the skills required of associate-level network professionals to understand network fundamentals, LAN switching technologies, IPv4 and IPv6 routing technologies, WAN technologies, infrastructure services, security, and management.

### Skills

Cloud Resources	DHCP	eBGP	EIGRP	FHRP	GRE	Infrastructure Components
IPv4 And IPv6 Addressing	LAN Switching	Network Management	Network Programmability			
Network Security	Network Topologies	OSPF	PPPoE	QoS	RIPv2	
Static And Dynamic Routing	Troubleshooting	WAN Topologies				

[Additional Details](#)

# Badges for Netacad

Starting February 2020 issued for

- Completed courses
- Certifications
- Trainings
- Event participation
- Achievements

CCNA Security after Feb 24

Converted into

- CCNA Certification + Security Badge

Existing Certificate stays valid till the end of validity period

\* - badges example



**CompTIA A+ ce  
Certification**  
CompTIA



**Cisco Design Thinking  
Enthusiast**  
Cisco Design Thinking



**Cisco Certified Network  
Associate Cyber Ops...**  
Cisco



**Cisco Certified Network  
Associate Security...**  
Cisco

# CCNA 7.0 & CCNP Enterprise Course Updates



# CCNA 7.0 Course Outlines

Intro to Networks (ITN)
Networking Today
Basic Switch and End Device Configuration
Protocol Models
Physical Layer
Number Systems
Data Link Layer
Ethernet Switching
Network Layer
Address Resolution
Basic Router Configuration
IPv4 Addressing
IPv6 Addressing
ICMP
Transport Layer
Application Layer
Network Security Fundamentals
Build a Small Network

Switching, Routing, and Wireless Essentials (SRWE)
Basic Device Configuration
Switching Concepts
VLANs
Inter-VLAN Routing
STP
Etherchannel
DHCPv4
SLAAC and DHCPv6 Concepts
FHRP Concepts
LAN Security Concepts
Switch Security Configuration
WLAN Concepts
WLAN Configuration
Routing Concepts
IP Static Routing
Troubleshoot Static and Default Routes

Enterprise Networking, Security and Automation (ENSA)
Single-Area OSPFv2 Concepts
Single-Area OSPFv2 Configuration
WAN Concepts
Network Security Concepts
ACL Concepts
ACLs for IPv4 Configuration
NAT for IPv4
VPN and IPsec Concepts
QoS Concepts
Network Management
Network Design
Network Troubleshooting
Network Virtualization
Network Automation

Use 70h left of CCNA-4 for:

CCNP Enterprise (ENCOR, ENARSI)

OR

CCNA Security / CCNA CyberOps

OR

DevNet Associate

OR

Python / ETWs

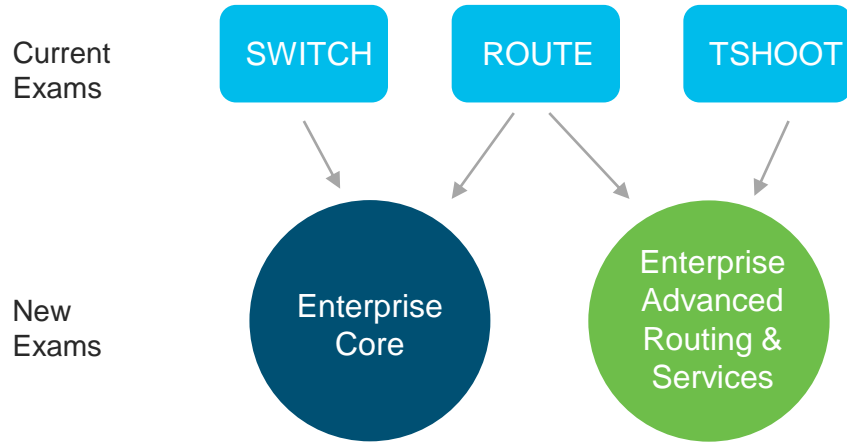
OR

IT Essentials

[Download Draft Scope and Sequence](#)

 New/significantly changed content

# CCNP Enterprise



Leverages ROUTE/SWITCH/TSHOOT topics and labs with addition of:

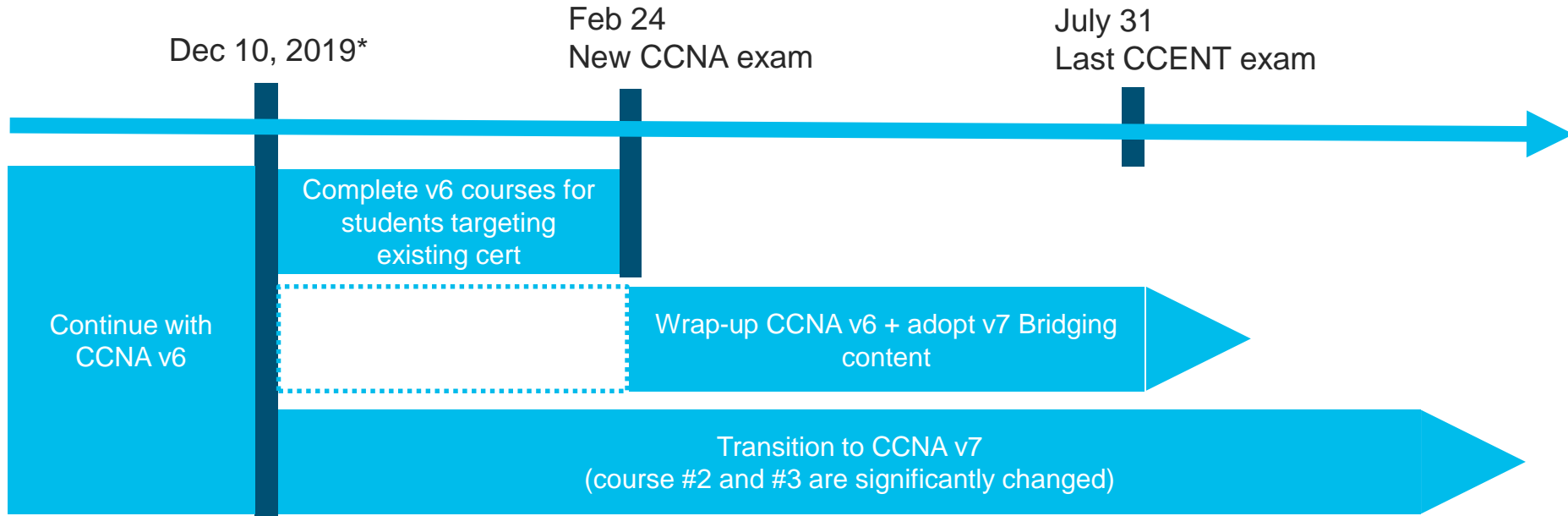
- 
- Virtualization
  - Wireless
  - Network Programmability
  - Automation
  - Analytics

- New Labs and Exams using Cisco Press Certification Guide as an anchor for text materials
  - ENCOR ~Jan release by CP
  - ENARSI ~Mar release by CP
- Digital badges for completion of labs & exams and passing assessments
- Target timeframes:
  - Equip list (end of Dec)
  - PPTs, Labs and Exams (Feb-Apr 2020)

# CCNA Instructor Qualification Mapping

CCNA R&S v6 Course Current Qualification(s)	CCNA v7 Course Qualification(s) Earned	Materials to Review*
CCNA 1 (Intro to Networks)	CCNA 1 (Intro to Networks)	No additional
CCNA 1 (Intro to Networks) CCNA 2 (Routing & Switching Essentials)	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials)	CCNA 2 (SRWE) v7
CCNA 1 (Intro to Networks) CCNA 2 (Routing & Switching Essentials) CCNA 3 (Scaling Networks)	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials) CCNA 3 (Enterprise Networking, Security, and Automation)	CCNA3 (ENSA) v7 + Bridging Course
CCNA 1 (Intro to Networks) CCNA 2 (Routing & Switching Essentials) CCNA 3 (Scaling Networks) CCNA 4 (Connecting Networks)	CCNA 1 (Intro to Networks) CCNA 2 (Switching, Routing, and Wireless Essentials) CCNA 3 (Enterprise Networking, Security, and Automation)	Bridging Course

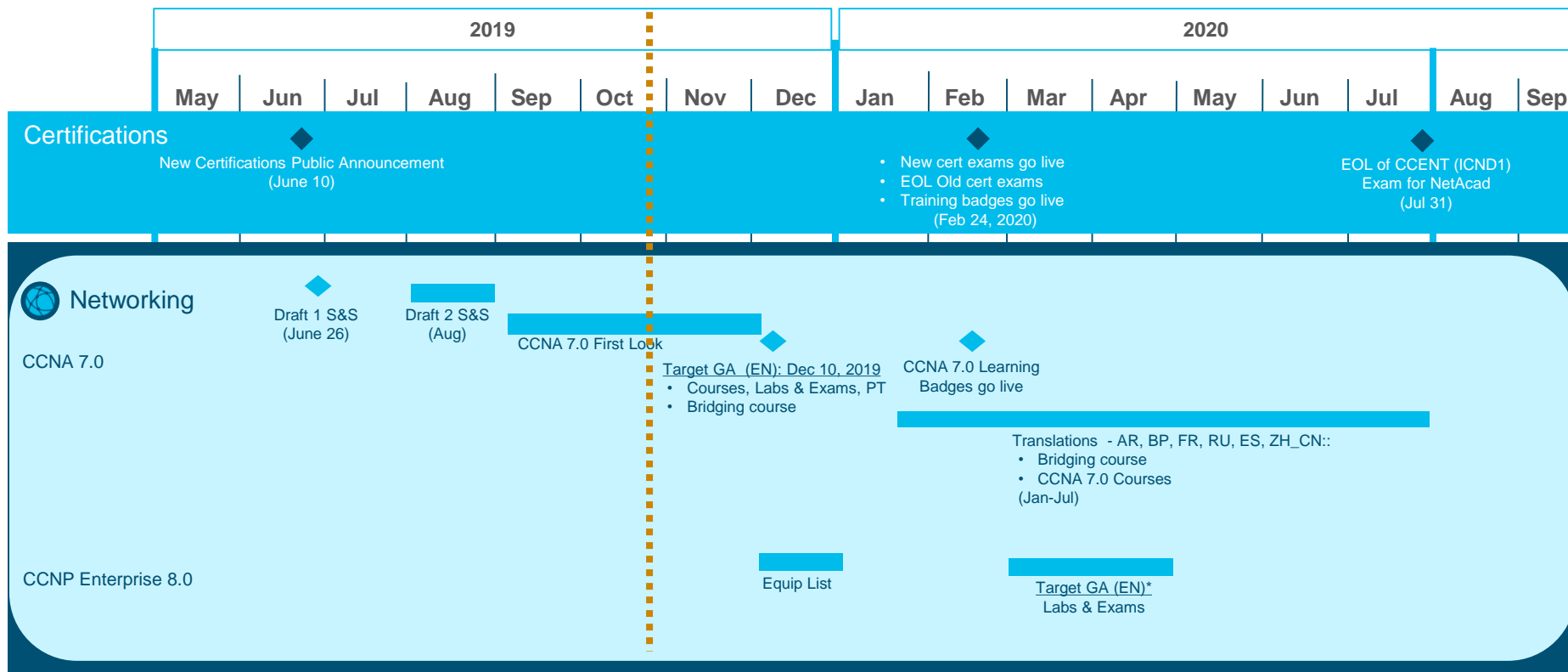
# CCNA v7 Migration Guidance



**The timeline is specific for English version of CCNA 7.**

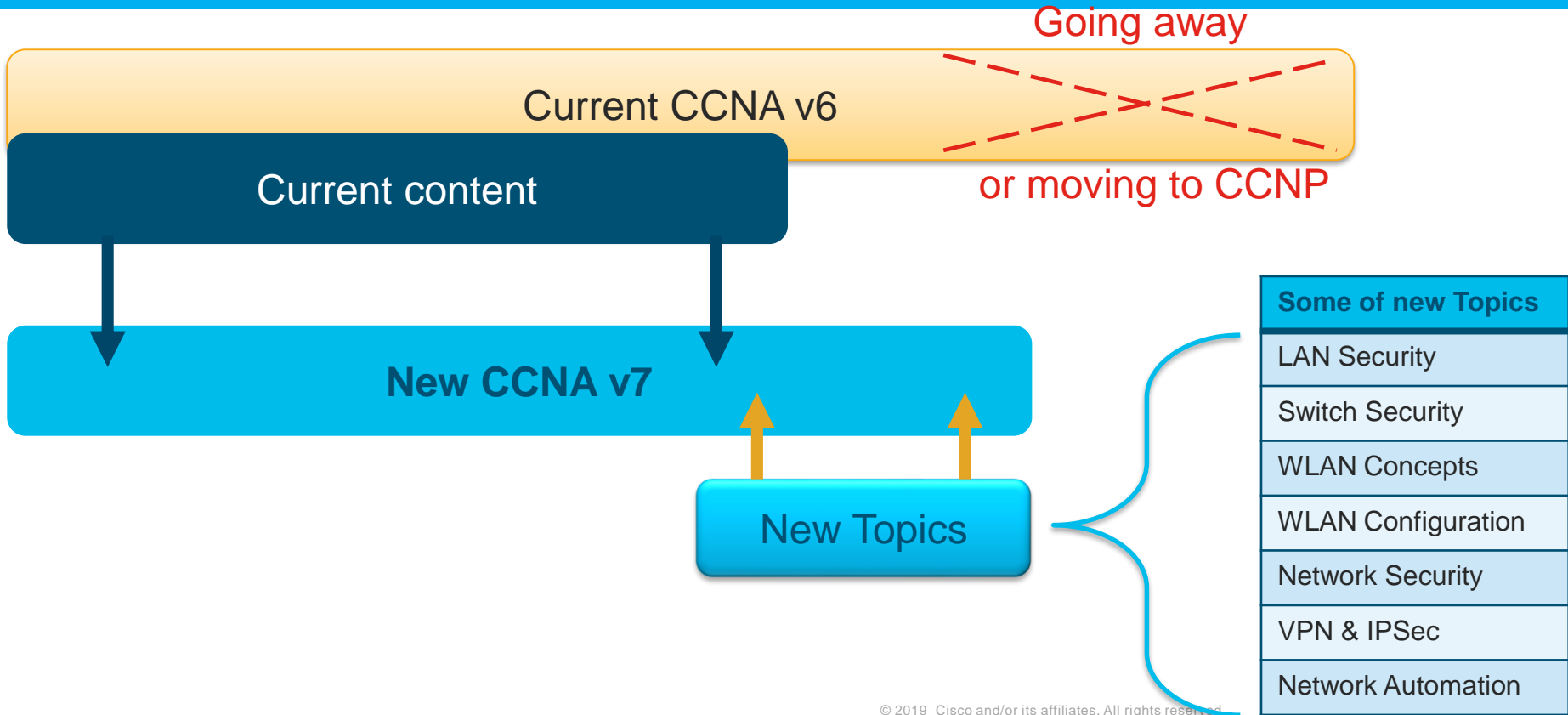
**For other languages, continue teaching v6 until v7 becomes available**

# Key Milestones & Timeline



# New CCNA

# Relative NetAcad Course Comparison



# CCNA R&S v6 Content Removed reference by size

ITN

CIDR

RSE

Port  
Forwarding

Parent/Child  
IPv4 Routes

RIPv2

Troubleshoot ACLs

Troubleshoot NAT

ScaN

VTP, Extended VLANs, DTP

Spanning-Tree Configuration

EIGRP

OSPFv3

OSPF Multiarea

CN

HDLC

Internet of  
Things

PPP

GRE

EBGP

IPv6 ACLs

Troubleshoot ACLs

PPPoE

SPAN



# CCNA R&S v6 Content Removed in Details for RSE, ScaN, CN

**DRAFT: Topics may change  
by the course release**

Routing & Switching Essentials (RSE)
Routing Concepts
Static Routing
Dynamic Routing (Moved to CCNA 3) <ul style="list-style-type: none"><li>3.2 RIPv2</li><li>3.3.2 Parent and Child Routes</li></ul>
Switched Networks
Switch Configuration
VLANs
Access Control List (Moved to CCNA 3) <ul style="list-style-type: none"><li>7.3 Troubleshoot ACLs (CCNP)</li></ul>
DHCP
NAT for IPv4 (Moved to CCNA 3) <ul style="list-style-type: none"><li>9.2.4 Configure Port Forwarding</li><li>9.3 Troubleshoot NAT (CCNP)</li></ul>
Device Discovery, Management (Moved to CCNA 3) & Maintenance <ul style="list-style-type: none"><li>10.3.2 Device Maintenance</li></ul>

Scaling Networks (ScaN)
LAN Design (Moved to CCNA 2)
Scaling Networks <ul style="list-style-type: none"><li>2.1 VTP, Extended VLANs &amp; DTP</li><li>2.2.3 VTP and DTP Issues</li></ul>
STP (Moved to CCNA 2) ?? Moved some to CCNP
EtherChannel and HSRP (Course 2) ?? Moved HSRP
Dynamic Routing <ul style="list-style-type: none"><li>5.2 Distance Vector Dynamic Routing (CCNP)</li><li>5.3 Link-State Dynamic Routing (CCNP)</li></ul>
EIGRP (CCNP)
EIGRP Tuning and Troubleshooting (CCNP)
Single-Area OSPF <ul style="list-style-type: none"><li>8.3 Single Area OSPFv3 (CCNP)</li></ul>
Multiarea OSPF (CCNP)
OSPF Tuning and Troubleshooting (CCNP)

Connecting Network (CN)
WAN Concepts
Point-to-Point Connections
Branch Connections <ul style="list-style-type: none"><li>3.2 PPPoE</li><li>3.4 GRE (CCNP)</li><li>3.5 eBGP (CCNP)</li></ul>
Access Control Lists <ul style="list-style-type: none"><li>4.3 IPv6 ACLs (CCNP)</li><li>4.4 Troubleshoot ACLs (CCNP)</li></ul>
Network Security and Monitoring <ul style="list-style-type: none"><li>5.3 Cisco Switch Port Analyzer (SPAN) (CCNP)</li></ul>
Quality of Service
Network Evolution <ul style="list-style-type: none"><li>7.1 Internet of Things</li></ul>
Network Troubleshooting <ul style="list-style-type: none"><li>8.3 NetFlow (CCNP)</li></ul>

Removed Removed

# New CCNA – 7 Modules

# LAN Security Concepts

- Endpoint Security
- Access Control
- Security Threats
- MAC Address Table Attacks
- LAN Attacks

# Switch Security Configuration

**DRAFT**

- Port Security
- VLAN Attacks
- DHCP Attacks
- ARP Attacks
- STP Attacks

# WLAN Concepts

- Introduction to Wireless
- WLAN Components
- WLAN Operation
- CAPWAP Operation
- Channel Management
- WLAN Threats
- Secure WLANs

# WLAN Configuration

- Remote Site WLAN Configuration
- Configure a Basic WLAN on the WLC
- Configure a WPA2 Enterprise WLAN on the WLC
- Troubleshoot WLAN Issues

# Network Security Concepts

**DRAFT**

- Current State of Cybersecurity
- Threat Actors
- Threat Actor Tools
- Malware
- Common Network Attacks
- IP Vulnerabilities and Threats
- TCP and UDP Vulnerabilities
- IP Services
- Network Security Best Practices
- Cryptography

# VPN and IPsec Concepts

**DRAFT**


- VPN Technology
- Types of VPN
- IPsec













# Network Automation

- Automation Overview ← ETW on NetProg and Model-Driven Prog
- Data Formats ← All ETWs
- APIs ← All ETWs
- REST ← All ETWs
- Configuration Management Tools ← ETW on NetProg and Model-Driven Prog
- IBN and Cisco DNA Center ← ETW on NetProg and Model-Driven Prog

# IPD Week (<http://cs.co/IPD20>)

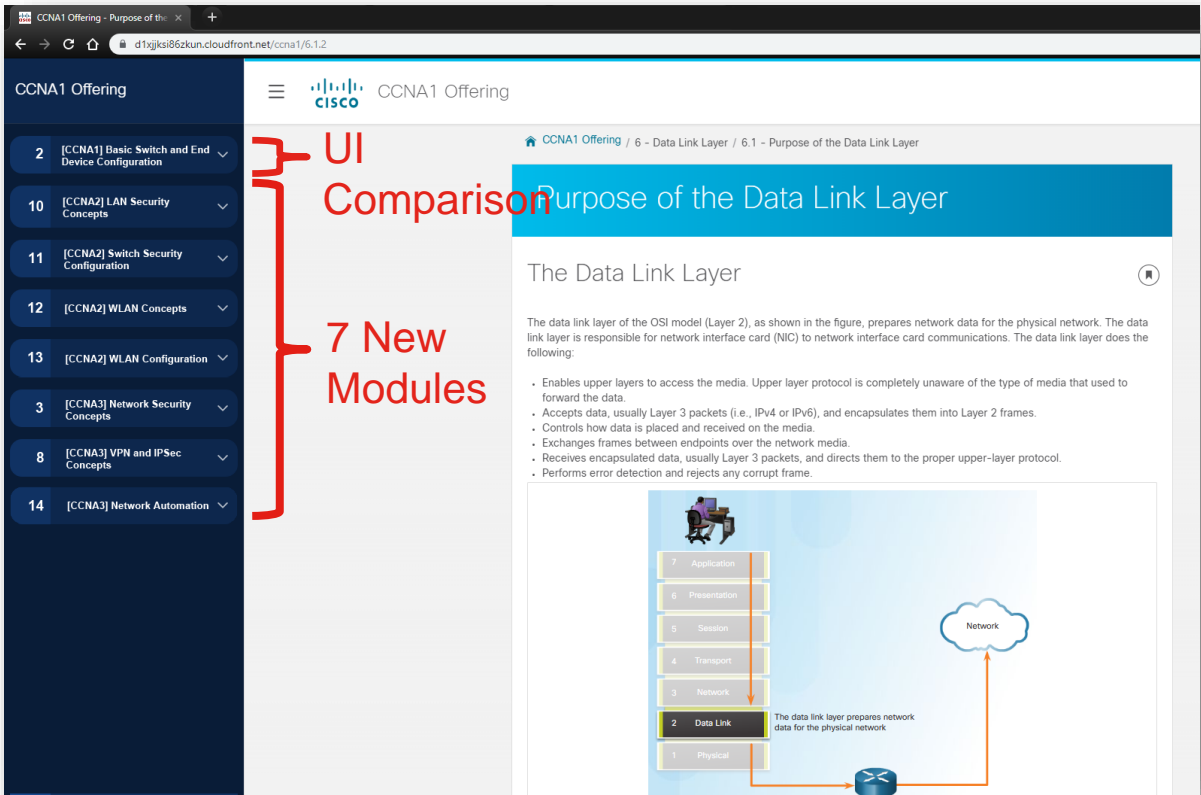
 Check out the new section for CCNA v7 topics!

Topic	Session	Recording	Presentation
Overview	New Technical Topics in CCNA v7		
	Program Update Special Session 1 - CCNA v7		
Virtualization	Network Virtualization		
Security	Network Security Concepts		
	LAN Security Concepts		

Content added in May and September  
Will be complemented in December

Network Automation	Getting to know Cisco DNA Center		
	Puppet, Chef and Ansible		
	REST API and JSON Encoded Data		
	SDN an Open Source Demo		
Wireless	WLAN Fundamentals		
	Wireless Security		

# CCNA 1<sup>st</sup> Look / Bridging Course



CCNA1 Offering

UI Comparison

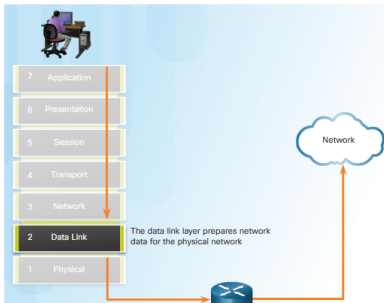
7 New Modules

## Purpose of the Data Link Layer

### The Data Link Layer

The data link layer of the OSI model (Layer 2), as shown in the figure, prepares network data for the physical network. The data link layer is responsible for network interface card (NIC) to network interface card communications. The data link layer does the following:

- Enables upper layers to access the media. Upper layer protocol is completely unaware of the type of media that is used to forward the data.
- Accepts data, usually Layer 3 packets (i.e., IPv4 or IPv6), and encapsulates them into Layer 2 frames.
- Controls how data is placed and received on the media.
- Exchanges frames between endpoints over the network media.
- Receives encapsulated data, usually Layer 3 packets, and directs them to the proper upper-layer protocol.
- Performs error detection and rejects any corrupt frame.



The data link layer prepares network data for the physical network.

ITrs already have access to it

Focused on 7 new Modules

Bridging course to be released Dec 10<sup>th</sup>

# CCNA Certification

- 1 exam

The new CCNA certification replaces these certifications:

CCNA Cloud

CCNA Collaboration

CCNA Data Center

CCNA Industrial

CCDA

CCNA Routing and Switching

CCNA Security

CCNA Service Provider

CCNA Wireless

# CCNP Certifications

- Every track has 1 Core and multiple Concentrations
- Technology Core + Concentration = CCNP
- Concentration without Core = Specialist

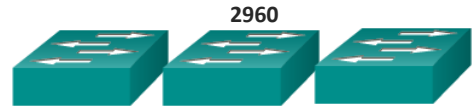
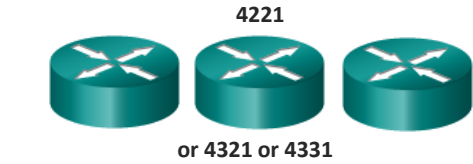
- CCNP Enterprise
- CCNP Data Center
- CCNP Security
- CCNP Service Provider
- CCNP Collaboration

NetAcad  
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Networking	
Required exam	
Core exam:	
	350-401 ENCOR
Concentration exams	
	300-410 ENARSI
	300-415 ENSDWI
	300-420 ENSLD
	300-425 ENWLSI
	300-430 ENWLSI
	300-435 ENAUTO

# Hardware changes in CCNA

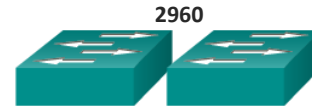
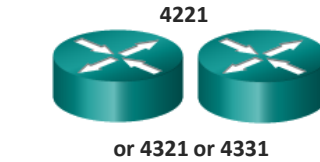
# CCNA 6 vs CCNA v7 Minimal Lab Bundle



Server



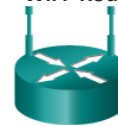
Various end devices



Server



SOHO  
WiFi Router



Various end devices



PT for 3-router  
topologies



# SOHO Wi-Fi Router is Back in CCNA



- 1 wireless router (generic brand) with WPA2 support
- Configure a Home Network with Wireless
- Configure WLAN with WPA2 Encryption
- GUI

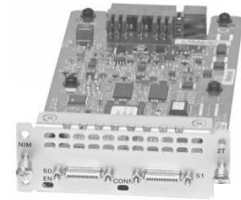


# HWIC Serial Interfaces and Cables are Optional

- Trend in the industry toward Ethernet links
- Reducing cost to the Academy

## The Following Parts are Moving to Optional:

- *NIM-2T*= 2 Port Serial WAN Interface Card
- *CAB-SS-V35MT*= V.35 DTE Male to Smart Serial
- *CAB-SS-V35FC*= V.35 DCE Female to Smart Serial



# Considerations to Equipment Updates

- Minimal lab POD will now be cheaper
- Existing academies with 3R+3SW PODs can now be more efficient in student/equipment ratio: ex. **Academies with 12R + 12SW can now serve simultaneously 6 complete lab PODs instead of 4**
- SOHO Wi-Fi Router was a requirement earlier in CCNAv5 and now it's in action again
- HWIC Modules and Cables still can be used in more advanced courses

# New Equipment List Published Oct 2019

**Cisco Networking Academy  
CCNA Equipment List**

This equipment list supports the CCNA v7 curriculum.

(Academies that plan to offer CCNA Security v2 and leverage this equipment should be aware that the equipment requirements for CCNA Security labs include 3 routers and 3 switches)

## Lab Equipment Requirements in this Spreadsheet

1. Equipment Lists: Option 1, Option 2, Option 3 (Note: Select option from below that would best fit your specific curriculum delivery audience and budget. Option 1 requires the least investment and provides all needed equipment for CCNA labs. Options 2 & 3 can support labs with advanced service modules, Unified Communications features, or to support more complex topologies.)
2. Optional Products
3. Additional Lab Hardware and Software Required

## Equipment List (Option 1)

The Cisco 4221 router shown in Option 1 should be ordered with IOS-XE Image with Payload Encryption:  
e.g. SISR4200UK9-xxx (select a current version for xxx), Cisco ISR 4200 Series IOS XE Universal

Qty	Product Number	Description	Notes
2	ISR4221/K9	Cisco ISR 4221 (2GE, 2NIM, 8G FLASH, 4G DRAM,IPB) See note above regarding IOS-XE image.	1,2
2	WS-C2960+24TC-L (IN BRAZIL:SUBSTITUTE WS-C2960+24TC-BR= IN RUSSIA:SUBSTITUTE WS-C2960R+24TC-L)	Catalyst 2960 Plus 24 10/100 + 2T/SFP LAN Base Image	1, 2
1	Wireless Router	Wireless router (generic brand) with WPA2 support. Note: Wireless router is required for course #2 - Switching, Routing, and Wireless Essentials (SRWE)	

## Equipment List (Option 2)

The Cisco 4321 router shown in Option 2 should be ordered with IOS-XE Image with Payload Encryption:  
e.g. SISR4300UK9-xxx (select a current version for xxx), Cisco ISR 4300 Series IOS XE Universal

Qty	Product Number	Description	Notes
2	ISR4321/K9	Cisco ISR 4321 (2GE,2NIM,4G FLASH,4G DRAM,IPB). See note above regarding IOS-XE image.	1,2
2	WS-C2960+24TC-L (IN BRAZIL:SUBSTITUTE WS-C2960+24TC-BR= IN RUSSIA:SUBSTITUTE WS-C2960R+24TC-L)	Catalyst 2960 Plus 24 10/100 + 2T/SFP LAN Base Image	1, 2
1	Wireless Router	Wireless router (generic brand) with WPA2 support. Note: Wireless router is required for course #2 - Switching, Routing, and Wireless Essentials (SRWE)	

# Netacad Maintenance

...see separate Overview deck...

# NetAcad Maintenance

## Determining if you are Signed up

1. Login to Cisco.com
2. Click on your profile icon in the top right corner
3. Click Manage Profile
4. Click Access Management
5. Under "Your Current Access" you will see your Contract Number list
6. NetAcad Maintenance Contract = 95698496



The screenshot shows the Cisco Access Management interface. At the top, there is a "Back to Profile Management" link. Below that, there is a navigation bar with "Access" selected. The main content area includes a "Services & Support" section with links for "Smart Accounts", "Ordering", "Smart Services", "CCIE", "Partners", and "P10". A message asks if the user needs additional access to services and support. Below this is an "Add Access" button and two tabs: "Your Current Access" (selected) and "Your Access Requests". A table displays the current access contracts, with the first row highlighted in red. The table has two columns: "Contract Number" and "Bill-to ID".

Contract Number	Bill-to ID
- Find Access -	- Find Access -
95698496	--

