

# Earning Your CCNP Enterprise Certification

**cisco** Live !

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Leader Exam Program Manager  
CCIEW#42079

# Cisco Webex App

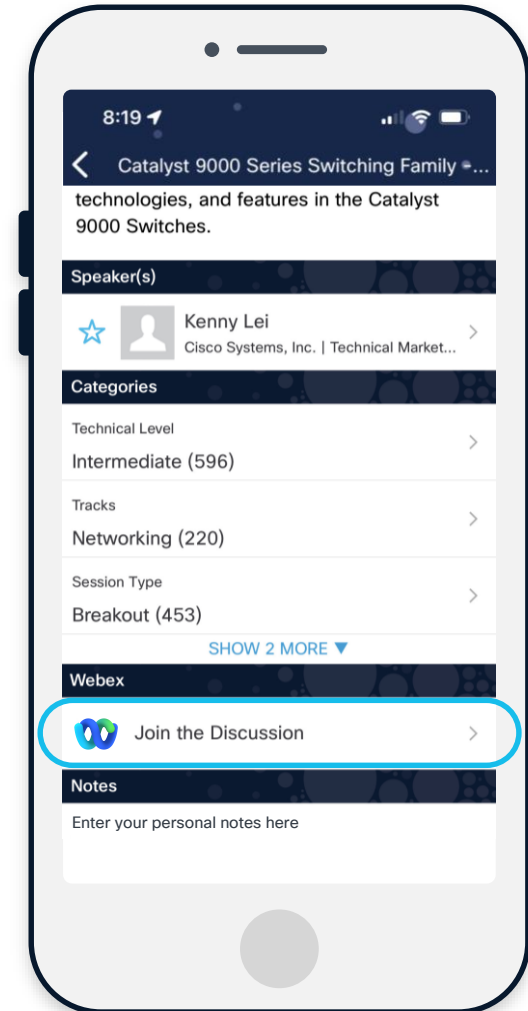
## Questions?

Use Cisco Webex App to chat with the speaker after the session

## How

- 1 Find this session in the Cisco Live Mobile App
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**Webex spaces will be moderated by the speaker until June 13, 2025.**



<https://ciscolive.ciscoevents.com/ciscolivebot/#BRKCRT-2008>

# Agenda

- 01 Value of the Cisco
- 02 Certification brand
- 03 Roadmap and changes
- 04 Preparing for the
- 05 Enterprise exams:
  - Enterprise Core Blueprint
  - Sample exam questions
  - Tools and resources
- 06 Q&A

# “CCNP Required”

time this meeting was productive and has brought major changes on Earth. We will visit several places of strategic interest and will discuss possible collaborations nationally.

ssion for global warming and terrorism issues. Other things will discuss new measures global security. Last time this meeting was very productive and has brought major changes on Earth. We will visit several places of strategic interest and will discuss possible collaborations nationally.

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Will also discuss new measures on global security. Last time this meeting was very productive and has brought major changes on Earth. We will visit several places of strategic interest and will discuss possible collaborations nationally.

Disc global warming terrorism issues. Other things will

**NOW HIRING**  
The PERFECT position for YOU !!

# Benefits of Cisco Certification

- ✓ Increased quality of work.
- ✓ More innovative.
- ✓ Increased productivity.

Keeps you in sync with changing technology.

The benefits of certification are real:

63% Received a job promotion.

---

82% Are more determined to succeed professionally.

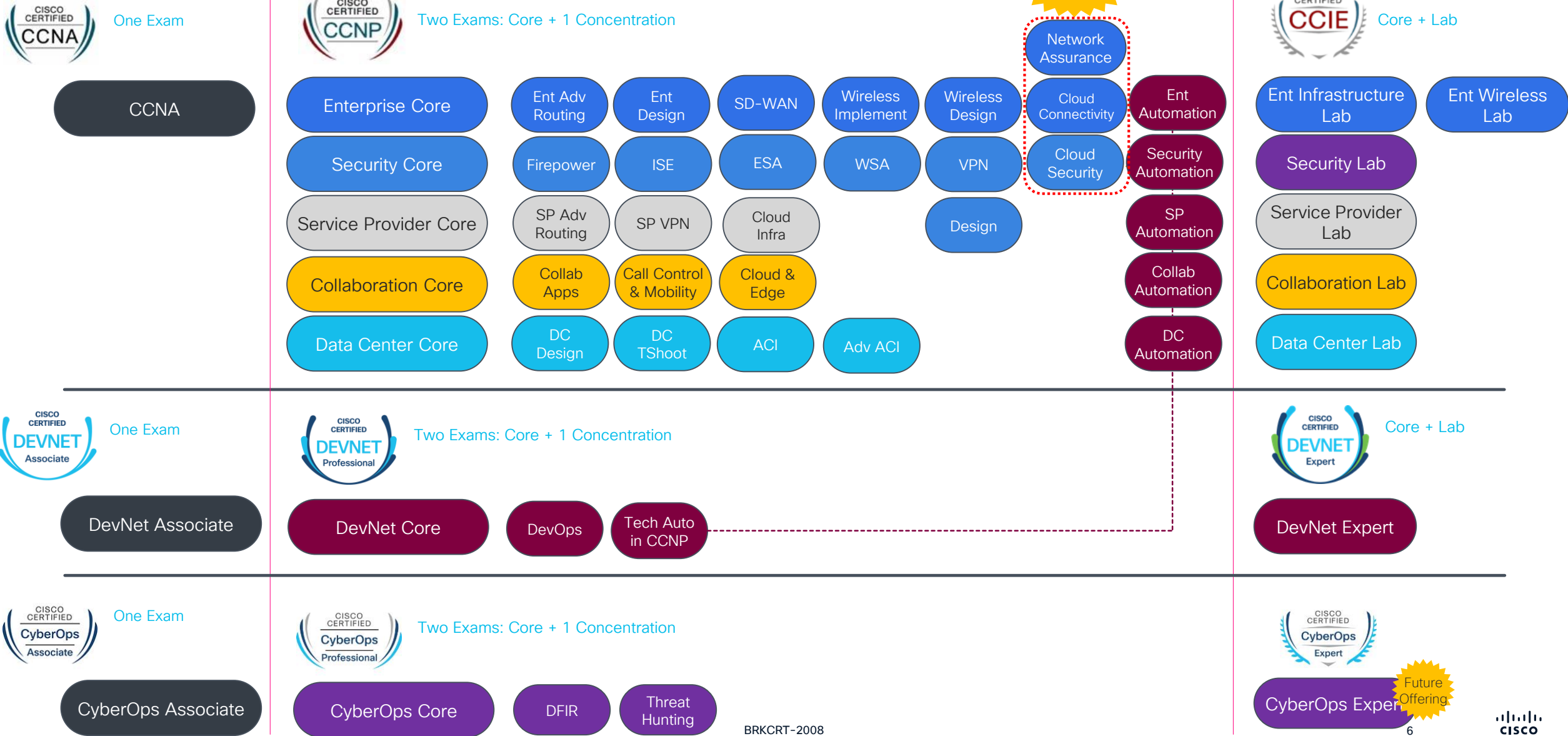
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32% Received pay increases of 20% or more.

Cisco Certifications are time-honored proof you know what you're doing. Plus, they're ANSI and NIST certified, which means they're industry certs with greater value in the marketplace.

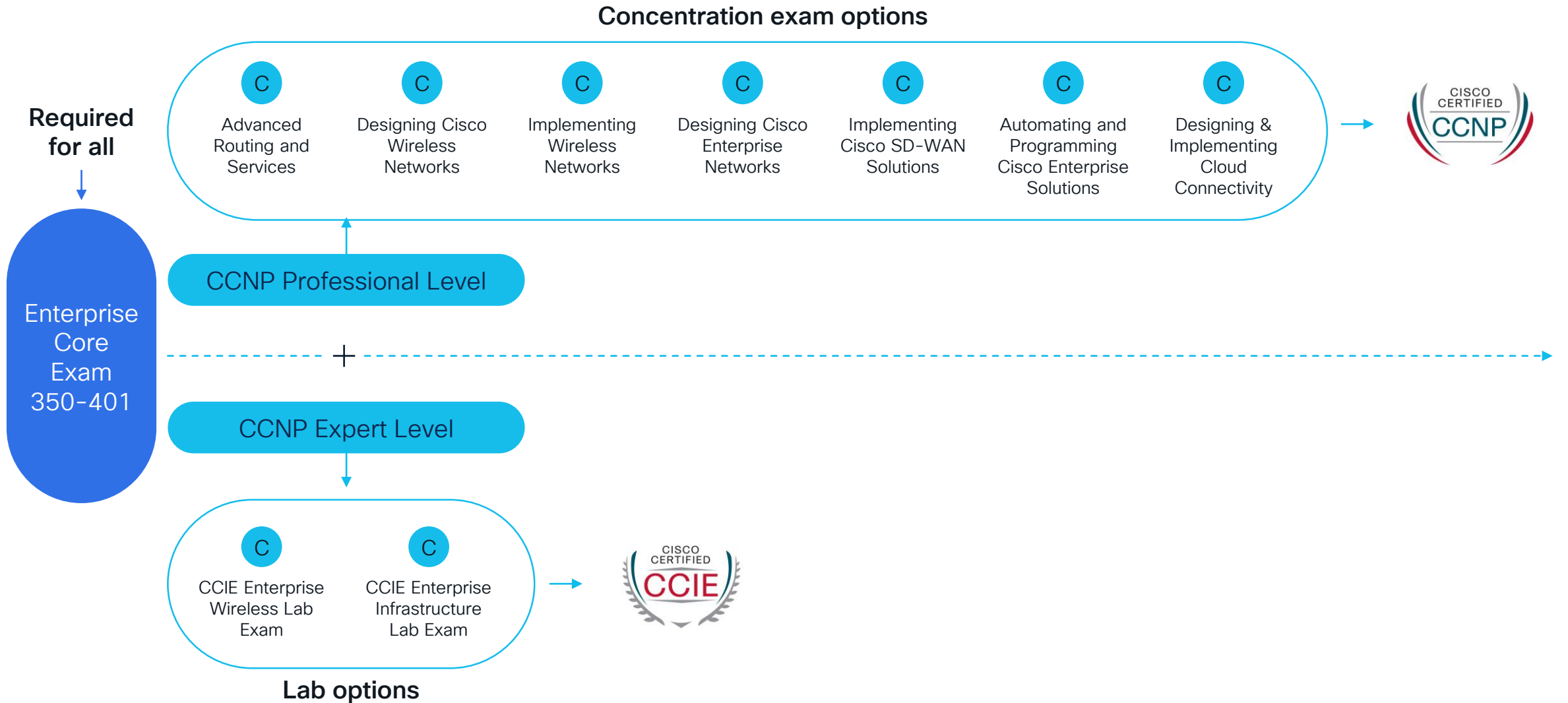
<sup>1</sup> [Pearson VUE 2023 Value of IT Certification](#)

# Cisco Career Certifications





# CCNP = Core + 1 concentration (in any order)



# Certification Roadmap



# Certification roadmap publishing process

Stay in sync with the latest updates on a regular, rotating schedule

## How it works:

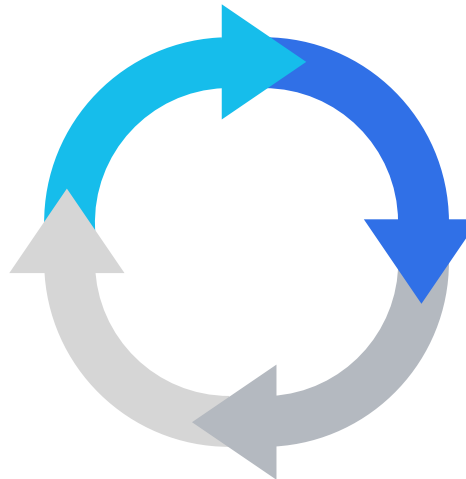
1. Cisco **reviews** each technology on the same quarterly schedule each year to make sure our exams align with the latest Cisco technologies.
2. We **announce** blueprint changes 3–6 months in advance along with revised exam topics and release notes, if applicable.
3. We **publish** the updated exam 3–6 months after the exam blueprint publication, if applicable.

### Data Center & Collaboration

Q1: Review/Job Task analysis  
Q2: New blueprints published  
Q3: Updated exam go live

### Security & CyberOps

Q4: Review/Job Task analysis  
Q1: New blueprints published  
Q2: Updated exam go live



### Enterprise & DevNet

Q2: Review/Job Task analysis  
Q3: New blueprints published  
Q4: Updated exam go live

### CCNA & Service Provider

Q3: Review/Job Task analysis  
Q4: New blueprints published  
Q1: Updated exam go live

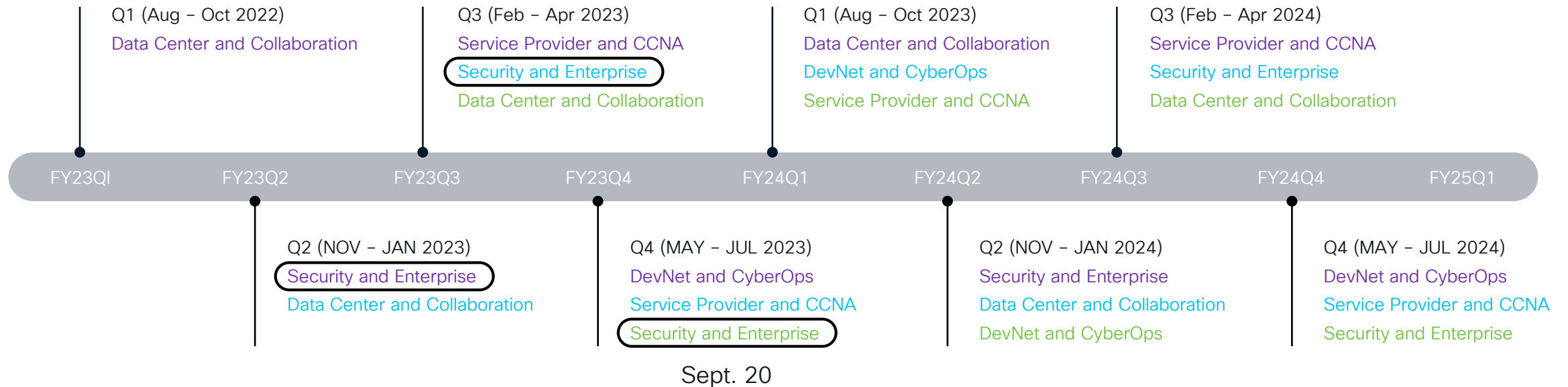
*Dates shown reflect Cisco's fiscal year calendar.*

*Q1: August–October, Q2: November–January, Q3: February–April, Q4: May–July*

# Certification roadmap

## How it works:

1. Cisco **reviews** each technology on the same quarterly schedule each year to make sure our exams align with the latest Cisco technologies.
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3. We **publish** the updated exam 3-6 months after the exam blueprint publication.



# Revision framework

## Major revision

(Traditional revision model)



Large revisions

Major changes

Steep learning curve

Wider alignment (Product & Technology)

## Minor revision

(Agile revision model)



Smaller modular revisions

Incremental changes

Easy bite-size learning model

Frequent alignment (Product & Technology)

# ENCOR v1.0 vs ENCOR v1.1 summary

## Legend

Blue: Minor change

Gold: Removed

Green: Addition

## 1.0 Architecture

- Describe wireless client density
- Interpret QoS configurations

## 2.0 Virtualization

- No changes

## 3.0 Infrastructure

- Spanning Tree enhancements
- Area types
- Describe policy-based routing
- Describe wireless segmentation with groups, profiles, and tags
- Interpret NTP and PTP configurations

## 4.0 Network Assurance

- ~~Traditional NetFlow configuration~~

## 5.0 Security

- EAPOL

## 6.0 Automation

- No changes



# ENWLSD v1.0 vs ENWLSD v1.1

## Legend

Blue: Minor change

Gold: Removed

Green: Addition

## 2.4 Apply design requirements for these types of wireless networks

- 2.4.a Data
- 2.4.b Voice and video
- 2.4.c Location
- ~~2.4.d Hyperlocation~~

## 2.5 Design high-density wireless networks and their associated components (~~campus, lecture halls, conference rooms~~)

## 4.2 Design high availability for APs

- 4.2.a AP prioritization
- 4.2.b Fall-back (assigning primary, secondary, and tertiary)
- 4.2.c Embedded Wireless Controller (EWC)

# ENAUTO v1.0 vs ENAUTO v1.1

## Legend

Blue: Minor change

Gold: Removed

Green: Addition

1.6 Explain the benefits of using network configuration tools such as Ansible and **Terraform Puppet** for automating IOS XE platforms

2.1 Identify the JSON instance based on a YANG model (**including YANG Suite**)

2.2 Identify the XML instance based on a YANG model (**including YANG Suite**)

4.2 Describe the features and capabilities of Cisco DNA Center

~~• 4.2.c Multivendor support (3rd party SDKs)~~

• **4.2 eSDA**

4.4 Implement API requests for Cisco DNA Center to accomplish network management tasks

• **4.4.d SDA APIs**

5.1 Describe features and capabilities of Cisco SD-WAN vManage ~~Certificate-Management~~ APIs

Upcoming Exam Changes

Select the technology tabs below for specific exam changes:

DevNet

Cybersecurity

Service Provider

CCNA

Security

Enterprise

Collaboration

Data Center

CCDE

Exam Number	Release Notes	Exam Topic Blueprint	Learning Matrix
Cisco Enterprise Exams	CCNP Release Notes		
CCNP/CCIE Core Exam Updates			
350-401 ENCOR v1.1		Exam Topics	ENCOR v1.1 Learning Matrix
CCNP Concentration Exam Updates			
300-410 ENARSI v1.1		Exam Topics	
300-415 ENSDWI v1.2		Exam Topics	
300-420 ENSLD v1.1		Exam Topics	
300-425 ENWLSLSD v1.1		Exam Topics	
300-430 ENWLSI v1.1		Exam Topics	
300-435 ENAUTO v1.1		Exam Topics	
300-440 ENCC v1.0		Exam Topics	
300-445 ENNA v1.0		Exam Topics	

# Learning Matrix

ID	Domain	Sub-Domain	Task-ID	Sub-Task-ID	Books	Training	Cisco Live	Online Ref.
1 Architecture								
1.1	Explain the different design principles used in an enterprise network				<a href="#">CCNP and CCIE Enterprise Core ENCOR Official Cert Guide</a>	<a href="#">Implementing and Operating Cisco Enterprise Network Core Technologies</a>	<a href="#">BRKENS-1501</a> <a href="#">BRKENS-1500</a> <a href="#">BRKENS-2030</a>	
1.1.a	High-level enterprise network design such as 2-tier, 3-tier, fabric, and cloud							<a href="#">Campus LAN and Wireless LAN Solution Design Guide</a>
1.1.b	High availability techniques such as redundancy, FHRP and SSO							<a href="#">Campus Network for High Availability Design Guide</a>
1.2	Describe wireless network design principles				<a href="#">CCNP and CCIE Enterprise Core ENCOR Official Cert Guide</a>	<a href="#">Implementing and Operating Cisco Enterprise Network Core Technologies</a>	<a href="#">BRKCOC-2031</a>	<a href="#">Campus LAN and Wireless LAN Solution Guide</a>
1.2.a	Wireless deployment models (centralized, distributed, controller-less, controller							<a href="#">Cisco Unified Wireless Technology and Architecture</a>
1.2.b	Location services in a WLAN design						<a href="#">BRKEWN-2012</a>	<a href="#">Cisco Unified Wireless Location-Based Services</a>
1.2.c	Client Density							<a href="#">Client Density</a>
1.3	Explain the working principles of the Cisco SD-WAN solution				<a href="#">CCNP and CCIE Enterprise Core ENCOR Official Cert Guide</a>	<a href="#">Implementing and Operating Cisco Enterprise Network Core Technologies</a>	<a href="#">BRKENT-2108</a>	<a href="#">Official Cisco SD-WAN and Cloud Networking YouTube Channel</a>
1.3.a	SD-WAN control and data planes elements							<a href="#">Cisco SD-WAN Getting Started Guide</a>
1.3.b	Benefits and limitations of SD-WAN solutions							<a href="#">Cisco SD-WAN</a>
1.4	Explain the working principles of the Cisco SD-Access solution				<a href="#">CCNP and CCIE Enterprise Core ENCOR Official Cert Guide</a>	<a href="#">Implementing and Operating Cisco Enterprise Network Core Technologies</a>	<a href="#">BRKCRS-2810</a>	<a href="#">SD-Access Design Guide</a>
1.4.a	SD-Access control and data planes elements						<a href="#">BRKENT-2075</a>	
1.4.b	Traditional campus interoperating with SD-Access						<a href="#">BRKENS-2827</a>	
1.5	Interpret wired and wireless QoS configurations				<a href="#">CCNP and CCIE Enterprise Core ENCOR Official Cert Guide</a>	<a href="#">Implementing and Operating Cisco Enterprise Network Core Technologies</a>	<a href="#">BRKCRS-2501</a>	<a href="#">Quality of Service (QoS) Configuration Guide</a>
1.5.a	QoS components							
1.5.b	QoS policy							
1.6	Describe hardware and software switching mechanisms such as CEF, CAM, and TCAM				<a href="#">CCNP and CCIE Enterprise Core ENCOR Official Cert Guide</a>	<a href="#">Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR)</a>		<a href="#">RIB FIB</a> <a href="#">CAM TCAM</a> <a href="#">CEF</a>




# Preparing for your exams

# Exam Blueprint

<https://learningnetwork.cisco.com>

The Cisco Learning Network



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Communities ▾

Webinars & Videos ▾

Study Resources ▾

Certifications / CCNP Enterprise / 350-401 ENCOR Exam Topics

350-401 ENCOR Exam: Implementing Cisco Enterprise Network Core Technologies

Exam Description

Implementing Cisco Enterprise Network Core Technologies v1.0 (ENCOR 350-401) is a 120-minute exam associated with the CCNP and CCIE Enterprise Certifications. This exam tests a candidate's knowledge of implementing core enterprise network technologies including dual stack (IPv4 and IPv6) architecture, virtualization, infrastructure, network assurance, security and automation. The course, Implementing Cisco Enterprise Network Core Technologies, helps candidates to prepare for this exam.

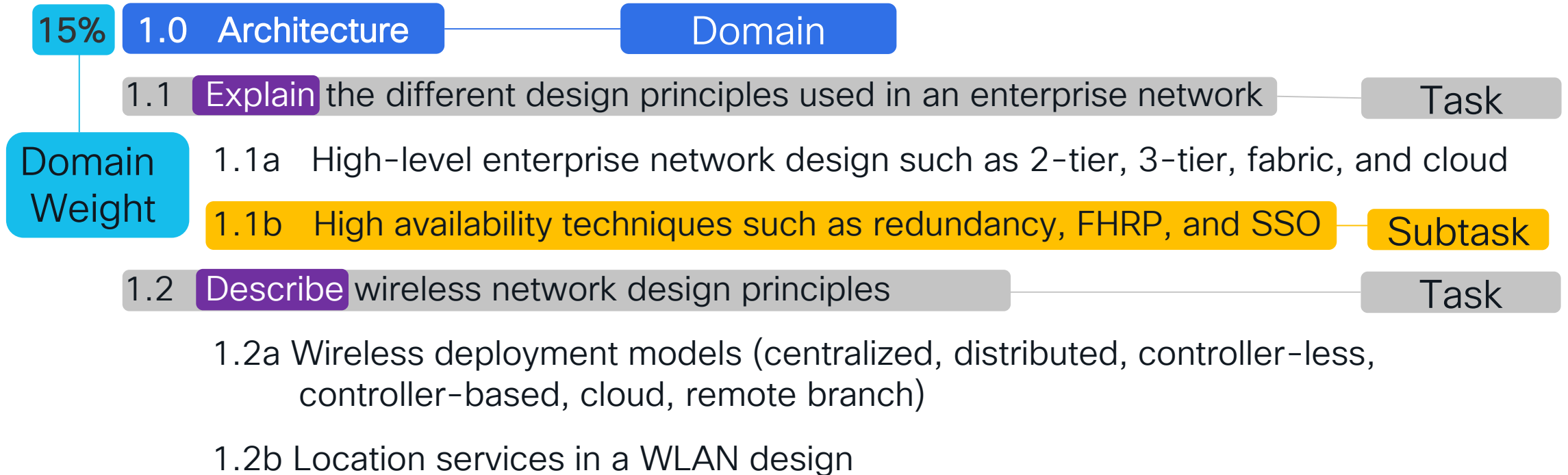
The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

Download Complete List of Topics in PDF format

1.0 Architecture	15%	▾
2.0 Virtualization	10%	▾
3.0 Infrastructure	30%	▾
4.0 Network Assurance	10%	▾
5.0 Security	20%	▾
6.0 Automation	15%	▾

# Deciphering the Blueprint:

## Implementing Cisco Enterprise Network Core Technologies (350-401)



# Blueprint Verbs

---

Describe/Explain/Understand

Compare/Differentiate

Configure/Interpret/Implement/Construct

Diagnose/Troubleshoot/Determine/Analyze

Design

Depth of Knowledge





# Types of questions

Multiple  
choice

Drag and  
drop

Labs

## Domain 1: Architecture

### Tasks

- 1.1 Explain the different design principles used in an enterprise network
  - 1.1.a Enterprise network design such as 2 Tier, 3 Tier, and Fabric Capacity planning
  - 1.1.b High availability techniques such as redundancy, FHRP, and SSO
- 1.2 Describe design principles of a WLAN deployment
  - 1.2.a Wireless deployment models (centralized, distributed, controller-less, controller-based, cloud, remote branch,
  - 1.2.b Location services in a WLAN design

# Multiple Choice “Describe”

## Task

### 1.2 Describe wireless network design principles

#### 1.2.a Wireless deployment models (centralized, distributed, controller-less, controller-based, cloud, remote branch)

## Question

A customer with multiple stores around the country needs a wireless solution that will provide easy installation, visibility, and easy to manage. Which solution matches the requirements?

- A. centralized
- B. distributed
- C. controller-less
- D. cloud



# Study resources

Cisco U.

For YouExploreCommunityView Plans

Implementing and Operating Cisco Enterprise Network Core Technologies | ENCOR

Gain the knowledge and skills needed to install, configure, operate, and troubleshoot an enterprise network.

The Cisco Learning Network Store

Certification TrainingTechnology TrainingAll Training

Home / Cisco Study Bundles

CCNP/CCIE Enterprise - Core

ENCOR E-Learning and Exam Bundle

Continuing Education Credits: 64

Labs

Practice Questions

Self-Paced Training

Video Training

Official Cert Guide

CCNP and CCIE Enterprise Core

ENCOR 350-401

2nd Edition

BRADLEY EDGEMORTH, CCE# No. 31574  
RAYMOND GARCIA RIVERA, CCE# No. 15469  
JASON GOOLLEY, CCE# No. 36759  
DAVID MCCARTY, CCE# No. 4264

Official Cert Guide

CCNP Enterprise Advanced Routing

ENARSI 300-410

2nd Edition

BRAD EDGEMORTH, CCE# No. 31574  
RAYMOND LACOSTE

Official Cert Guide Library

CCNP Enterprise

Core ENCOR 350-401 and Advanced Routing ENARSI 300-410

2nd Edition

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RAYMOND GARCIA RIVERA, CCE# No. 15469  
JASON GOOLLEY, CCE# No. 36759  
DAVID MCCARTY, CCE# No. 4264  
RAYMOND LACOSTE

CCIE Enterprise Infrastructure Foundation

Mark Kucharski, CCE# No. 12410

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ClearSD-Access170 sessions

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Recommended for you

Featured

Event

Technology

Program

Technical Level

Cisco SD-Access - A Look Under the Hood - BRKCRS-2810

Event: 2018 Barcelona

Shawn Wargo, PRINCIPAL ENGINEER, TECHNICAL MARKETING, Cisco Systems, Inc. - Distinguished Speaker

Are you facing some, or all, of these challenges?

Host Mobility (w/o stretching VLANs)

Network Segmentation (w/o implementing MPLS)

Real World Use Cases for Deploying and Operating Cisco SD-Access - BRKEMT-2102

Event: 2021 Digital

Ivan Caduff, Technical Solutions Architect, Cisco Systems, Inc. - Distinguished Speaker

Patrick Mosimann, Technical Solutions Architect, Cisco Systems, Inc. - Distinguished Speaker

This Session gives you the possibility to understand how the Cisco DNA can help you towards an intent based operations. A common challenge in today's networks is manageability of the network elements and applications installed on Customers...





## Domain 2: Virtualization

### Tasks

- 2.1 Describe device virtualization technologies
  - 2.1.a Hypervisor type 1 and 2
  - 2.1.b Virtual machine
  - 2.1.c Virtual switching
- 2.2 Configure and verify data path virtualization technologies
  - 2.2.a VRF
  - 2.2.b GRE and IPsec tunneling
- 2.3 Describe network virtualization concepts
  - 2.3.a LISP
  - 2.3.b VXLAN

# Multiple Choice “Configure”

Task



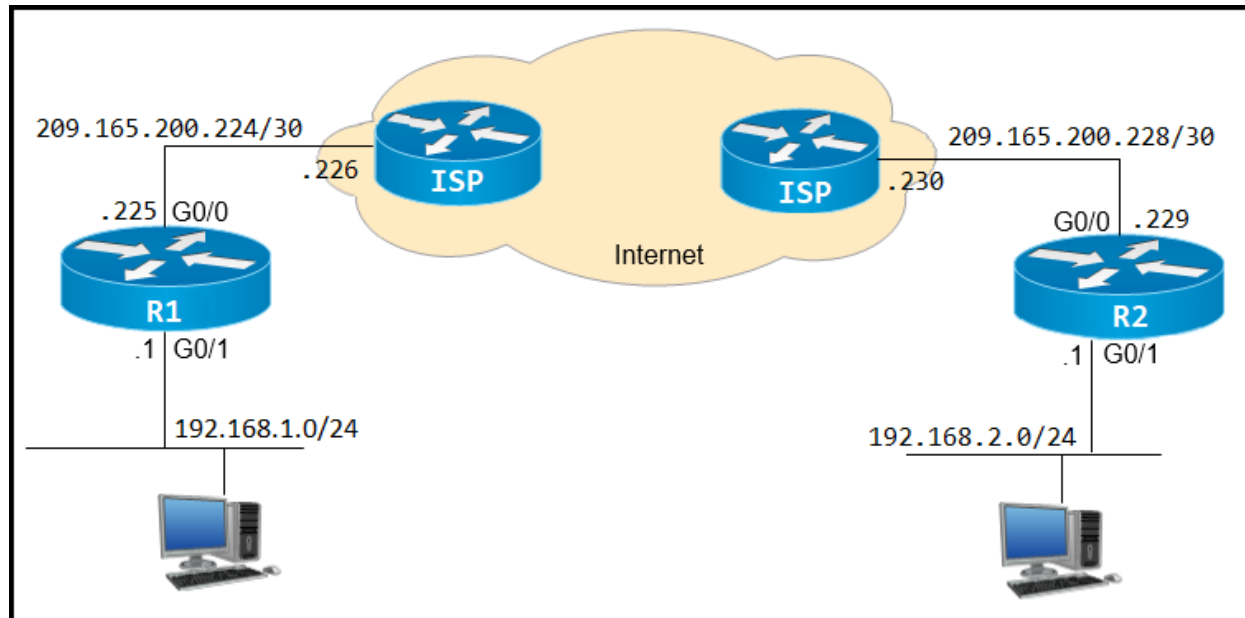
2.2 **Configure** and verify data path virtualization technologies

2.2.b GRE and IPsec tunneling

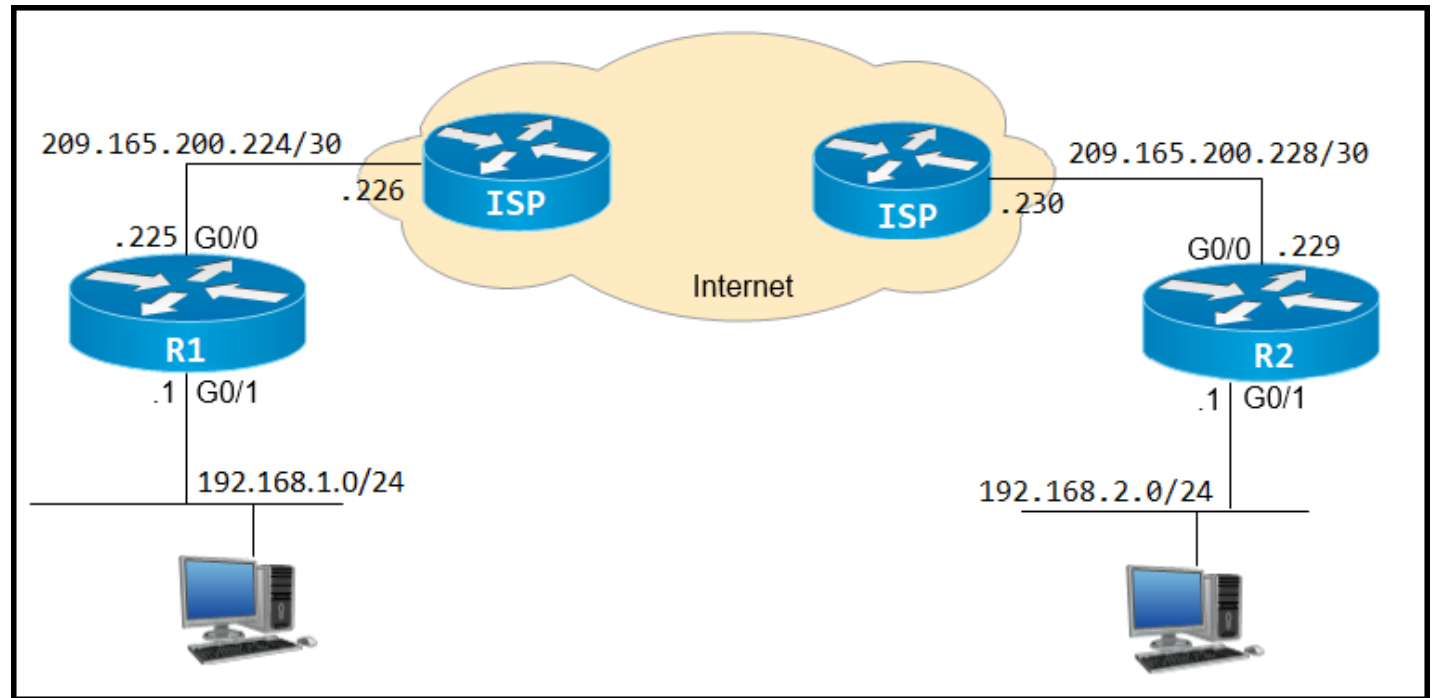
Question



Which configuration is required on R1 to configure a GRE tunnel between R1 and R2?



Which configuration is required on R1 to configure a GRE tunnel between R1 and R2?



A. interface Tunnel1



```
ip address 192.168.5.1 255.255.255.0
tunnel source GigabitEthernet0/0
tunnel destination 209.165.200.229
```

B. interface Tunnel1

```
ip address 192.168.1.2 255.255.255.0
tunnel source GigabitEthernet0/0
tunnel destination 209.165.200.230
```

C. interface Tunnel1

```
ip address 209.165.200.225 255.255.255.252
tunnel source GigabitEthernet0/0
tunnel destination 209.165.200.229
```

D. interface Tunnel1

```
ip address 192.168.1.1 255.255.255.0
tunnel source GigabitEthernet0/0
tunnel destination 172.16.1.1
```

# Cisco e-Learning (Self Paced Training)

Cisco U.

For YouExploreCertificationsCommunityView Plans

encor

GK

Implementing and Operating Cisco Enterprise Network Core Technologies (New) | ENCOR

Gain the skills you need to configure and manage enterprise networks while you prepare to take 350-401 ENCOR v1.1 exam.

Intermediate47h 45m32 Courses31 Labs14 Assessments64 Creditsv1.3

DESCRIPTION

The Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) learning path provides you with the knowledge and skills needed to install, configure, operate, and troubleshoot an enterprise network. It introduces you to overlay network design through SD-Access and SD-WAN solutions and teaches you to implement security principles and automation and programmability within an enterprise network. This learning path helps prepare you to take the 350-401 ENCOR exam, which is part of the CCIE Enterprise Infrastructure and CCIE Enterprise Wireless certifications. This version is aligned to the updated version of the 350-401 exam, version 1.1, first date to test September 20, 2023.

Implementing and Operating Cisco Enterprise Network Core Technologies (New)

Learning Path Completion 0%

Learning Path CurriculumExpand All

Labs

Assessments

Courses

1

Network Switching7h 25m

2

Network Routing12h 10m

3

Network Security5h 30m

4

Wireless Networking6h 15m

5

Virtualization and Networking Services6h 20m

6

Programmability4h 30m

7

Software-Defined Networking5h 35m

[Return to Learning Path Overview](#)

Lab

## Configure Standard and Extended ACLs

Through this discovery, you will review the implementation of standard and extended ACLs using both numbered and named configuration methods. SRV2 is a public DNS server. The domain names of the devices are the same as their hostnames. SRV1 and SRV2 are also HTTP/HTTPS servers.

The diagram illustrates a network topology divided into two spaces by a dashed line. On the left, the 'Private IP Address Space' contains PC1 connected to SW1 (Eth0/0 to PC1 Eth0/0, SW1 Eth0/1 to R1 Eth0/1), and SRV1 connected to SW2 (Eth0/0 to SW2 Eth0/1, SW2 Eth0/0 to R1 Eth0/0). On the right, the 'Public IP Address Space' contains R2 connected to SW3 (R2 Eth0/3 to SW3 Eth0/2, SW3 Eth0/0 to PC2 Eth0/0, SW3 Eth0/1 to SRV2 Eth0/0). A central connection exists between R1 Eth0/3 and R2 Eth0/3.

5% complete

- ▶ Introduction
- ≡ ACL Overview
- ▶ ACL Wildcard Masking
- ▶ Types of ACLs
- ≡ Configure Numbered Access Li...
- ≡ Use ACLs to Filter Network Tra...
- ≡ Apply ACLs to Interfaces
- ≡ Configure Named Access Lists
- ▶ **Configure Standard and Exten...**
- ≡ Control Plane Overview
- ▶ Control Plane Policing
- ▶ Configure Control Plane Policing
- ≡ Summary

Blueprint  
structure



Hands-on Labs



# Lab help

Cisco U.

Lab | Configure Standard and Extended ACLs

Exit Lab Mode X

← |

PC1

| →

Step 3

Show Me

Standard ACLs can filter traffic based on source IP address only. A typical best practice is to configure a standard ACL as close to the destination as possible. In this step, you are configuring a numbered standard ACL on R1. The ACL is designed to block traffic from host 10.10.1.10 to the 10.10.2.0/24 network on R1. This ACL will be applied outbound on the R1 Ethernet 0/1 interface.

Step 4

Show Me

Test the ACL by pinging from PC1 to SRV1. Since the ACL is designed to block traffic with source addresses from the 10.10.1.10 host, PC1 should not be able to ping SRV1. Perform a similar test from PC2 to ensure that other devices still have access to SRV1. Verify the ACL using the `show access-list` command.

PC1

DEVICES

1 PC1

2 PC2

3 R1

4 R2

5 SRV1

6 SRV2

7 SW1

8 SW2

9 SW3

RESOURCES

Scenario


Topology

Job Aid



# Lab help

Cisco U.

 **Lab** | Configure Standard and Extended ACLs



Exit Lab Mode ✕

Get Help

## Step 4

Test the ACL by pinging from PC1 to SRV1. Since the ACL is designed to block traffic with source addresses from the 10.10.1.10 host, PC1 should not be able to ping SRV1. Perform a similar test from PC2 to ensure that other devices still have access to SRV1. Verify the ACL using the `show access-list` command.

### Answer

On PC1, enter the following command:

```
PC1# ping srv1
Translating "srv1"...domain server (203.0.113.30)
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.2.20, timeout is 2 seconds:
U.U.U
Success rate is 0 percent (0/5)
```

First, notice that the DNS requests sent to SRV2 are still functional. SRV2 has resolved the "srv1" domain name and returned the 10.10.2.20 address to PC1. PC1 then sends five echo-request messages to SRV1 but R1 drops the packets and returns ICMP destination unreachable messages to PC1 because of the deny statement in the ACL.

PC1

## DEVICES

- 1 PC1
- 2 PC2
- 3 R1
- 4 R2
- 5 SRV1
- 6 SRV2
- 7 SW1
- 8 SW2
- 9 SW3

## RESOURCES

- Scenario
- Topology
- Job Aid

## Domain 3: Infrastructure

### Tasks

#### 3.1 Layer 2

3.1.a Troubleshoot static and dynamic 802.1q trunking protocols

3.1.b Troubleshoot static and dynamic EtherChannels

3.1.c Configure and verify common Spanning Tree Protocols (RSTP, MST) and Spanning Tree enhancements such as root guard and BPDU guard

#### 3.2 Layer 3

3.2.a Compare routing concepts of EIGRP and OSPF (advanced distance vector vs. link state, load balancing, path selection, path operations, metrics, and area types)

3.2.b Configure and verify simple OSPF environments, including multiple normal areas, summarization, and filtering

# Labs

- ➡ Configure
- ➡ Construct
- ➡ Diagnose
- ➡ Troubleshoot

Labet - Candidate Name


Time Remaining 01:26:03  
1 of 1

Comment


GuidelinesTopologyTasks

OSPF Process ID 200  
Area 0

Lo0:  
1.1.1.1 /32

  
R1

Lo0:  
2.2.2.2 /32

  
R2

10.1.1.0/24

E0/0 .1 — E0/0 .2

R1R2

R1>

Next ➡

## Task



## Question

### 3.2 Layer 3

#### 3.2.b Configure and verify simple OSPF environments

Tablet - Candidate Name Time Remaining 01:17:16 1 of 1

Comment

Guidelines Topology **Tasks**

**R1** R2

Task 1:  
Configure OSPF according to the topology. Match the network mask of each interface and ensure that all routers use Lo0 for the router ID.

Task 2:  
Configure OSPF MD5 authentication between R1 and R2.

**Next** →

## Task



## Question

### 3.1 Layer 2

#### 3.1.b Troubleshoot static and dynamic EtherChannels

Tablet - Candidate Name Time Remaining 01:17:16 1 of 1

[Comment](#)

Guidelines Topology **Tasks**

**S1** S2

Task:  
The port channel between Switch1 and Switch2 is not operational. Resolve the issue so that the switches actively negotiate an LACP port channel.

[Next](#)

# Live DEMO

Let's try a real Lablet



# More about lablets (check it on On-Demand Library)

FULL CONFERENCE

Labs in Cisco's CCNA and CCNP Certification Programs - IBOCRT-2002



# DevNet Sandbox Cisco Modeling Labs Demo

<https://developer.cisco.com>

ALWAYS-ON

or

RESERVE

## Networking Sandbox Highlights

Version 2.0



Cisco Modeling Labs Enterprise  
Start your Network DevOps journey

### RESERVATION SANDBOX

#### Cisco Modeling Labs Enterprise

Cisco Modeling Labs is a tool for building virtual network simulations (or labs) for you to test out new topologies, protocols, and config changes; automate network tests via CI/CD pipeline integration; and learn new things about the cool world of networking. This sandbox provides access to a Cisco Modeling Labs system that can be used to explore the capabilities of the newest release of Cisco Modeling Labs Personal and Enterprise.



Multi Domain

### RESERVATION SANDBOX

#### Multi Domain

This Sandbox was designed for developers to build applications and operational tools to manage the diverse set of platforms deployed across an enterprise. This Sandbox provides developers access to multiple domains and platforms, including Cisco HyperFlex, Cisco SD-WAN, Cisco Action Orchestrator, as well as open source tools like NetBox and GitLab.

Version 19.2



Cisco SD-WAN  
Cloud-delivered overlay  
WAN architecture

### RESERVATION SANDBOX

#### Cisco SD-WAN

This sandbox consists a complete virtual SD-WAN environment and all of its components, that developers can utilize to develop, debug and test their sample SD-WAN applications. The developer can also interact with the SD-WAN API calls using a variety of REST clients such as POSTMAN.

## Domain 4: Network Assurance

### Tasks

- 4.1 Diagnose network problems using tools such as debugs, conditional debugs, trace route, ping, SNMP, and syslog
- 4.2 Configure and verify Flexible NetFlow
- 4.3 Configure and verify SPAN/RSPAN/ERSPAN
- 4.4 Configure and verify IPSLA
- 4.5 Describe Cisco DNA Center workflows to apply network configuration, monitoring, and management
- 4.6 Configure and verify NETCONF and RESTCONF

# Multiple Choice “Describe”

Task



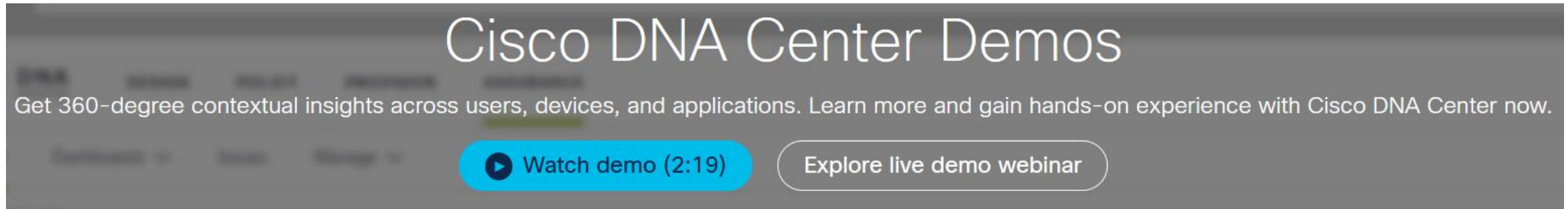
Question

4.6 Describe Cisco DNA Center workflows to apply network configuration, monitoring, and management

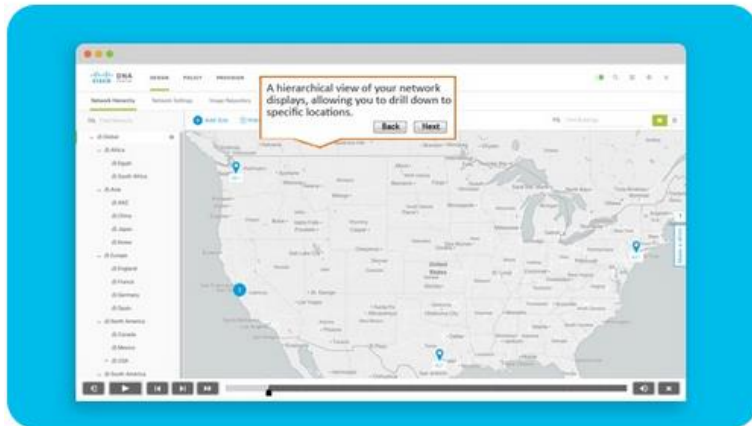
How does Cisco DNA Center perform a network discovery?

- A. Through a network scan
- B. Through a DHCP server
- ☒ C. Using CDP with a seed address
- D. Using SNMP

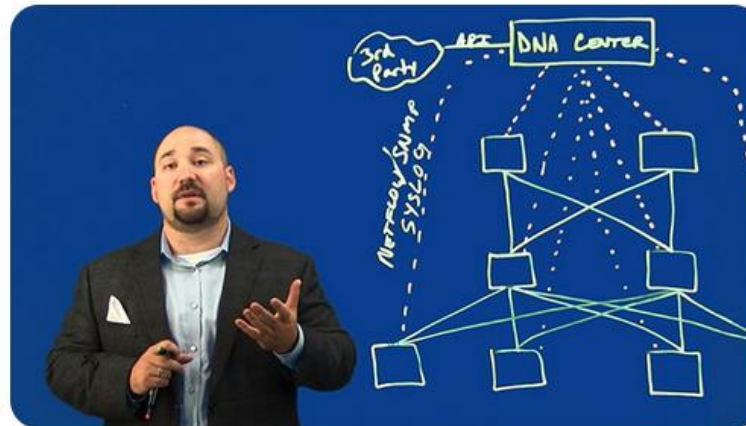
# dCloud Cisco DNA Center Demo (dcloud.cisco.com)



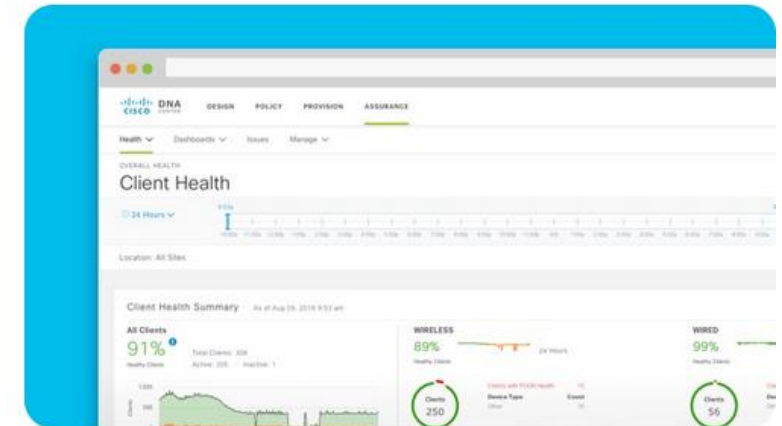
Take demos to the next level



Self-guided demo: Cisco DNA Center



Walk-through: Cisco DNA Center



Live instant demo: Cisco DNA Center

## Tasks

### Domain 6: Automation

- 6.1 Interpret basic Python components and scripts
- 6.2 Construct valid JSON encoded file
- 6.3 Describe the high-level principles and benefits of a data modeling language, such as YANG
- 6.4 Describe APIs for Cisco DNA Center and vManage
- 6.5 Interpret REST API response codes and results in payload using Cisco DNA Center and RESTCONF
- 6.6 Construct EEM applet to automate configuration, troubleshooting, or data collection
- 6.7 Compare agent vs. agentless orchestration tools, such as Chef, Puppet, Ansible, and SaltStack



# Drag-and-Drop “Construct”

Task

6.2 Construct valid JSON encoded file

Question

Drag and drop the code snippets onto the blanks in the Python script to convert a Python object into a JSON string.

A. json.dumps

B. json

C. json\_string

```
import                     

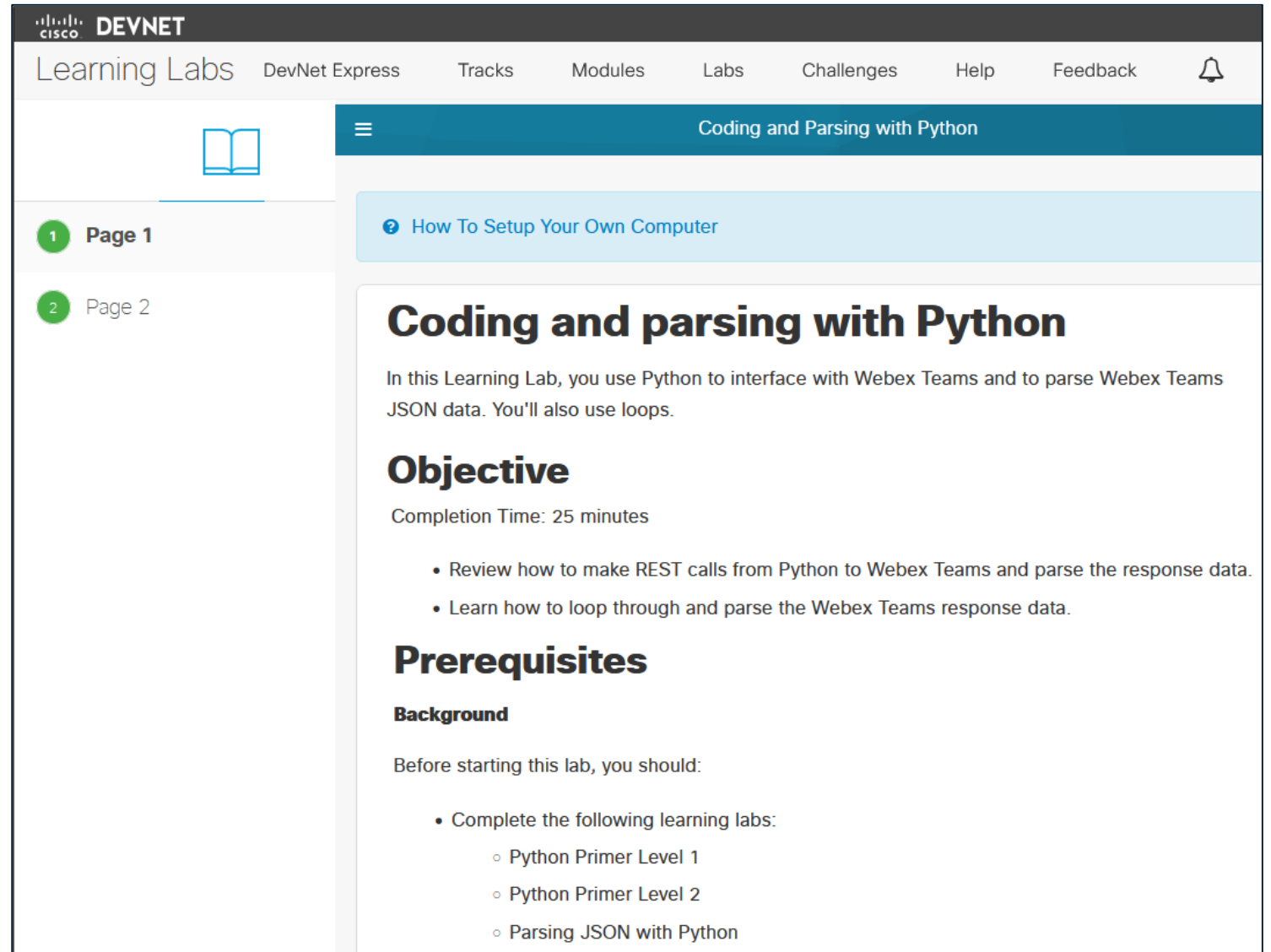
data = {
    "measurement": "freeMemory",
    "maxDataPoints": 30,
    "alert": True,
    "policy": "1.2.1",
    "devices": [{"model": "Cisco 9200", "ipv4": '10.10.10.1'}]
}
model = data["devices"][0]["model"]

json_string =                      (data)

print(                    )
```

# DevNet Learning Labs

<https://developer.cisco.com>



The screenshot shows the DevNet Learning Labs interface. The top navigation bar includes links for Learning Labs, DevNet Express, Tracks, Modules, Labs, Challenges, Help, and Feedback. A sidebar on the left shows a list of pages: Page 1 (active) and Page 2. The main content area is titled 'Coding and Parsing with Python' and includes a sub-header 'How To Setup Your Own Computer'. The main heading is 'Coding and parsing with Python'. The text describes the lab's purpose: using Python to interface with Webex Teams and parse JSON data. The 'Objective' section states a completion time of 25 minutes and lists two goals: reviewing REST calls and learning to loop through and parse response data. The 'Prerequisites' section, under the 'Background' heading, lists three required labs: Python Primer Level 1, Python Primer Level 2, and Parsing JSON with Python.

**DEVNET**

Learning Labs DevNet Express Tracks Modules Labs Challenges Help Feedback

**Coding and Parsing with Python**

**1 Page 1**

**2 Page 2**

**How To Setup Your Own Computer**

## Coding and parsing with Python

In this Learning Lab, you use Python to interface with Webex Teams and to parse Webex Teams JSON data. You'll also use loops.

### Objective

Completion Time: 25 minutes

- Review how to make REST calls from Python to Webex Teams and parse the response data.
- Learn how to loop through and parse the Webex Teams response data.

### Prerequisites

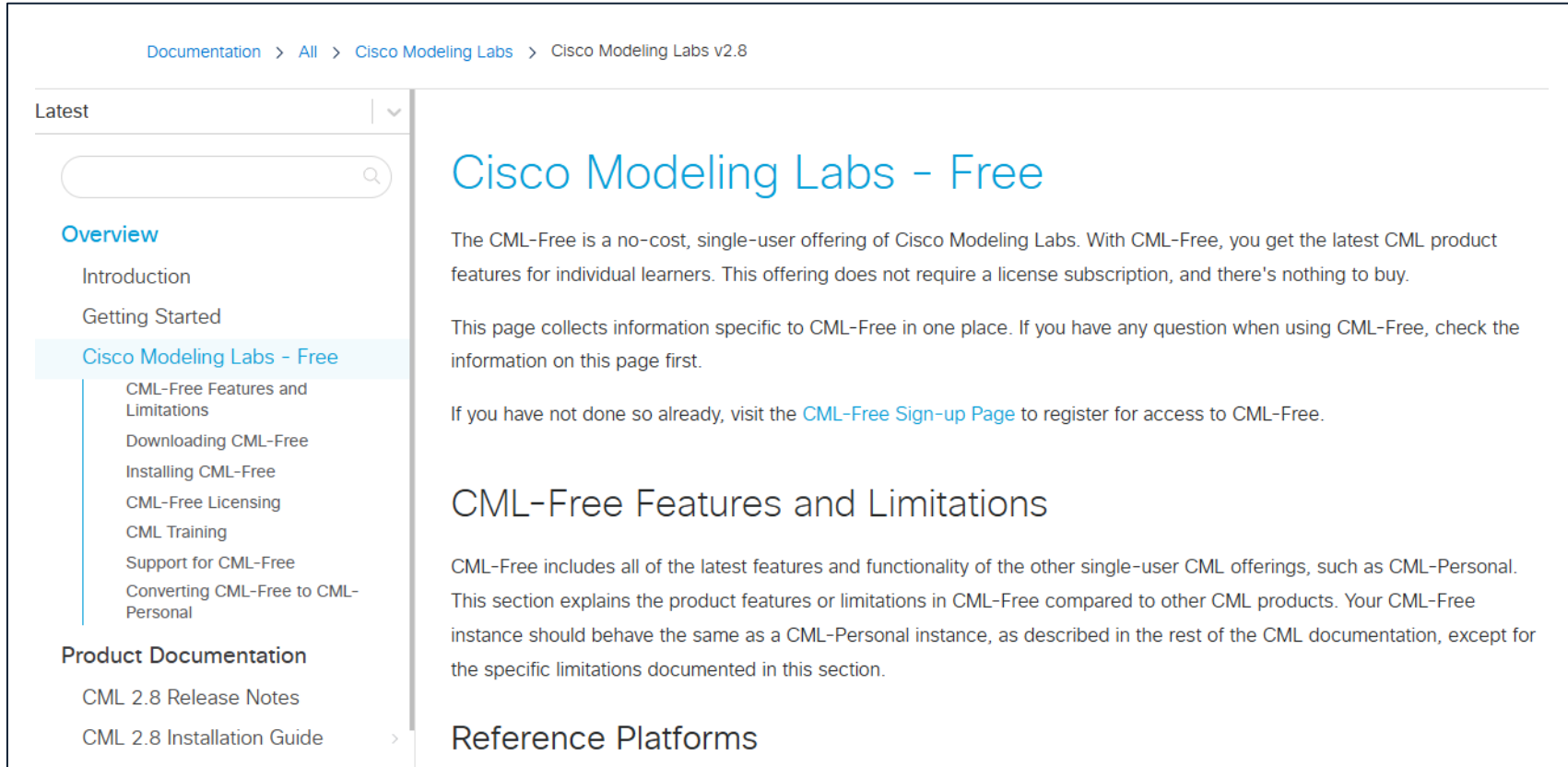
#### Background

Before starting this lab, you should:

- Complete the following learning labs:
  - Python Primer Level 1
  - Python Primer Level 2
  - Parsing JSON with Python

# Cisco Modeling Labs - Free

<https://developer.cisco.com/docs/modeling-labs/cml-free/>



The screenshot shows the Cisco Modeling Labs - Free documentation page. The breadcrumb trail at the top reads: Documentation > All > Cisco Modeling Labs > Cisco Modeling Labs v2.8. The left sidebar contains a search bar and a table of contents. The 'Overview' section is expanded, showing links to Introduction, Getting Started, Cisco Modeling Labs - Free (which is highlighted), CML-Free Features and Limitations, Downloading CML-Free, Installing CML-Free, CML-Free Licensing, CML Training, Support for CML-Free, and Converting CML-Free to CML-Personal. The 'Product Documentation' section includes links to CML 2.8 Release Notes and CML 2.8 Installation Guide. The main content area has the title 'Cisco Modeling Labs - Free' and the following text: 'The CML-Free is a no-cost, single-user offering of Cisco Modeling Labs. With CML-Free, you get the latest CML product features for individual learners. This offering does not require a license subscription, and there's nothing to buy. This page collects information specific to CML-Free in one place. If you have any question when using CML-Free, check the information on this page first. If you have not done so already, visit the [CML-Free Sign-up Page](#) to register for access to CML-Free.' Below this is a section titled 'CML-Free Features and Limitations' with the text: 'CML-Free includes all of the latest features and functionality of the other single-user CML offerings, such as CML-Personal. This section explains the product features or limitations in CML-Free compared to other CML products. Your CML-Free instance should behave the same as a CML-Personal instance, as described in the rest of the CML documentation, except for the specific limitations documented in this section.' At the bottom of the main content area is a section titled 'Reference Platforms'.

Documentation > All > Cisco Modeling Labs > Cisco Modeling Labs v2.8

Latest

Overview

- Introduction
- Getting Started
- Cisco Modeling Labs - Free**
  - CML-Free Features and Limitations
  - Downloading CML-Free
  - Installing CML-Free
  - CML-Free Licensing
  - CML Training
  - Support for CML-Free
  - Converting CML-Free to CML-Personal

Product Documentation

- CML 2.8 Release Notes
- CML 2.8 Installation Guide

## Cisco Modeling Labs - Free

The CML-Free is a no-cost, single-user offering of Cisco Modeling Labs. With CML-Free, you get the latest CML product features for individual learners. This offering does not require a license subscription, and there's nothing to buy.

This page collects information specific to CML-Free in one place. If you have any question when using CML-Free, check the information on this page first.

If you have not done so already, visit the [CML-Free Sign-up Page](#) to register for access to CML-Free.

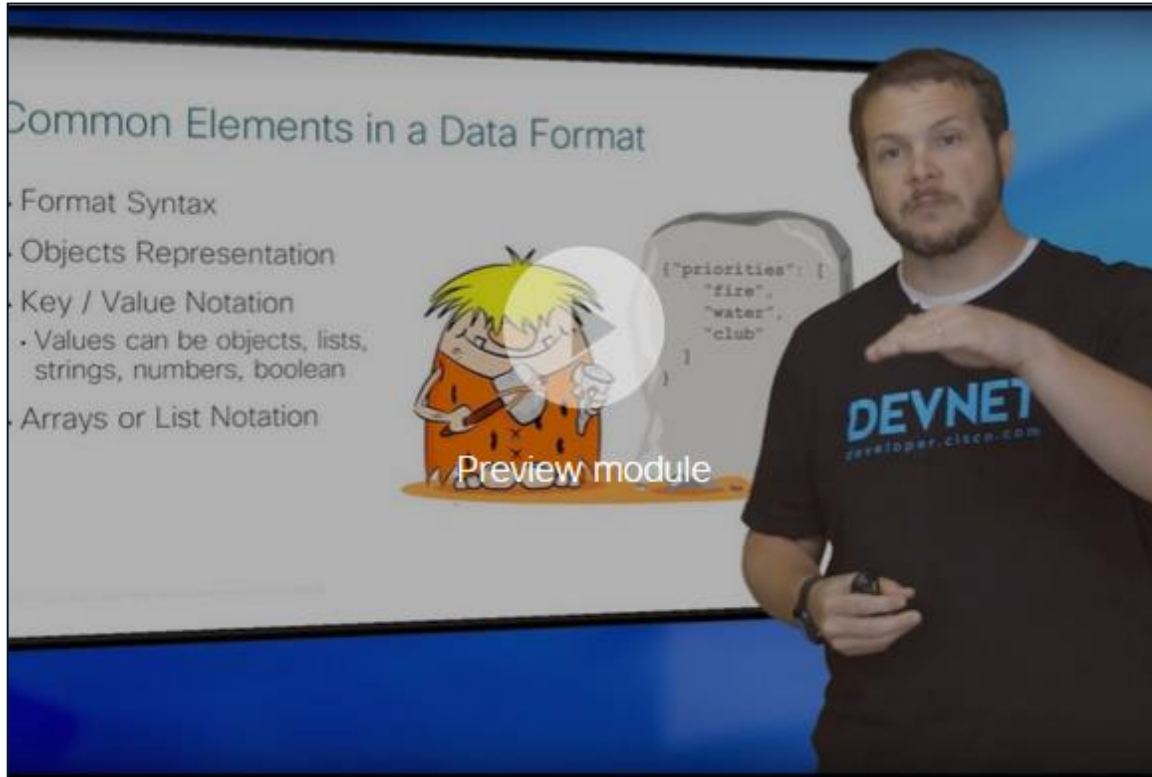
## CML-Free Features and Limitations

CML-Free includes all of the latest features and functionality of the other single-user CML offerings, such as CML-Personal. This section explains the product features or limitations in CML-Free compared to other CML products. Your CML-Free instance should behave the same as a CML-Personal instance, as described in the rest of the CML documentation, except for the specific limitations documented in this section.

## Reference Platforms

# DevNet Video Courses

<https://developer.cisco.com>




Common Elements in a Data Format

- Format Syntax
- Objects Representation
- Key / Value Notation
  - Values can be objects, lists, strings, numbers, boolean
- Arrays or List Notation

Preview module

## Programming Fundamentals


Jumpstart your journey into Network Programmability with this quick introduction to the core programming fundamental topics you'll explore.



[Play module](#)

1	Data Formats: Understanding and using JSON, XML and YAML	21:21
2	APIs are Everywhere... but what are they?	13:00

# Community – Study groups

 The Cisco Learning Network

Log in | Register | Help

Home ▾ | Certifications ▾ | Community ▾ | Learning Center ▾ | IT Careers ▾ | Store | Browse ▾ |


Home > Enterprise Networking Certifications Study Group

## Enterprise Networking Certifications Study Group


Overview | Content | People

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Welcome to the Enterprise Networking Technology track Study Group, the place on the Cisco Learning Network where you can ask questions, share ideas and connect with other members as you prepare for your Certification exams.



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This team can help you locate the resources you need to meet your study goals and act as your advocate on the Cisco Learning Network.



**Karlo Bobiles**  
[Connect with me!](#)

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**Attend** the interactive education with DevNet, Capture the Flag, and Walk-in Labs



**Visit** the On-Demand Library for more sessions at [www.CiscoLive.com/on-demand](https://www.CiscoLive.com/on-demand)

**Contact me at:** Insert preferred comms method

# Q&A



Thank you

**CISCO** Live !

