

The background is a vibrant, abstract graphic. It features a central bright white light source from which numerous colorful rays emanate, creating a sunburst or starburst effect. The rays transition through a spectrum of colors including yellow, orange, red, and various shades of blue and green. Overlaid on this are large, flowing, wavy shapes in similar colors, giving the impression of liquid or smoke being illuminated by the light. The overall effect is dynamic and energetic.

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The bridge to possible

# Get prepared for Your CCNP Collaboration Certification

What you need to know

Stacy Stevens, Exam Program Manager  
Dan Quinlan, Systems Architect

BRKCRT-2011

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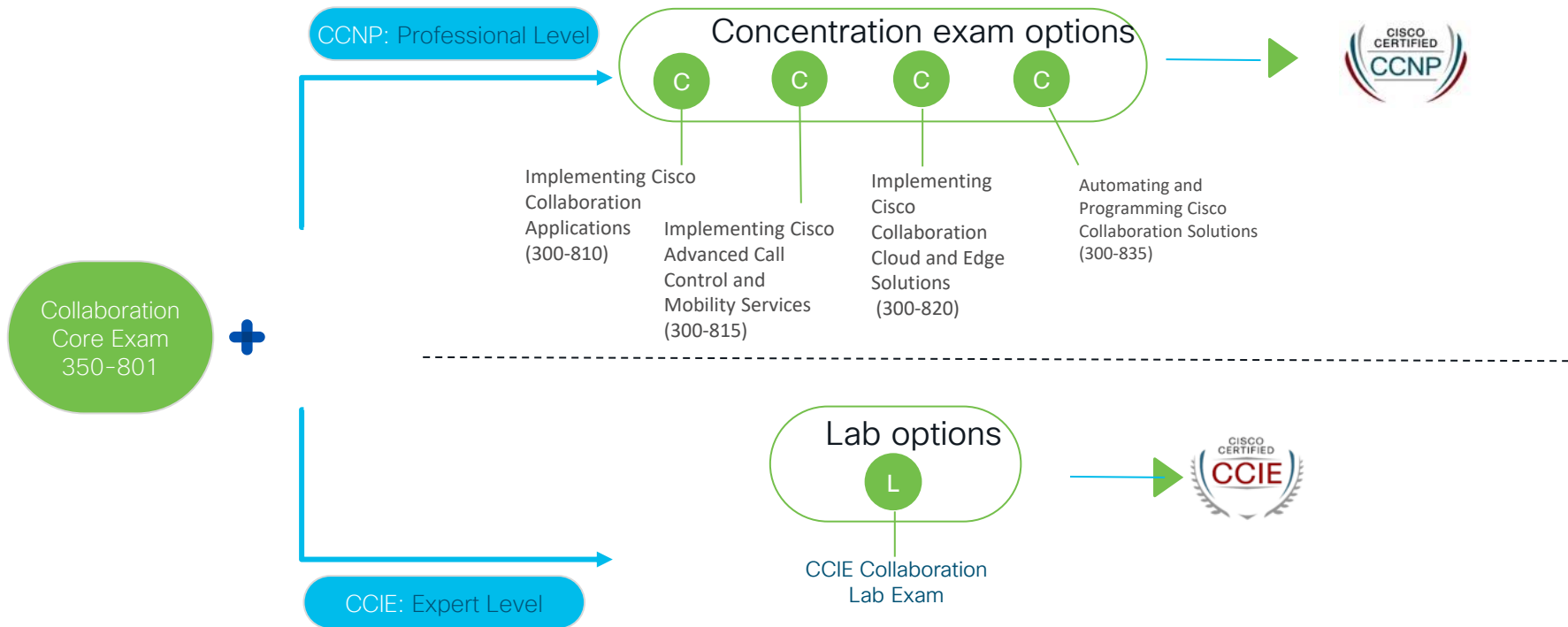
# Agenda

- What are the requirements?
- Collaboration Core Blueprint and sample exam questions
- Preparing for the Collaboration exams
- Continuing Education Credits
- Certification Lifestyle Management
- Q&A

# What are the requirements?



# Cisco Collaboration certification track



# Collaboration Core Blueprint and sample exam questions

# Exam Blueprint

- <https://learningnetwork.cisco.com>

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Certifications / CCNP Collaboration / CCIE Collaboration / 350-801 CLCOR Exam Topics

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## 350-801 CLCOR Exam: Implementing Cisco Collaboration Core Technologies

### Exam Description

The Implementing Cisco Collaboration Core Technologies v1.0 (CLCOR 350-801) exam is a 120-minute exam associated with the CCNP Collaboration, CCIE Collaboration, and Cisco Certified Specialist - Collaboration Core certifications. This exam tests a candidate's knowledge of implementing core collaboration technologies including infrastructure and design, protocols, codecs, and endpoints, Cisco IOS XE gateway and media resources, Call Control, QoS, and collaboration applications. The course, Implementing Cisco Collaboration 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

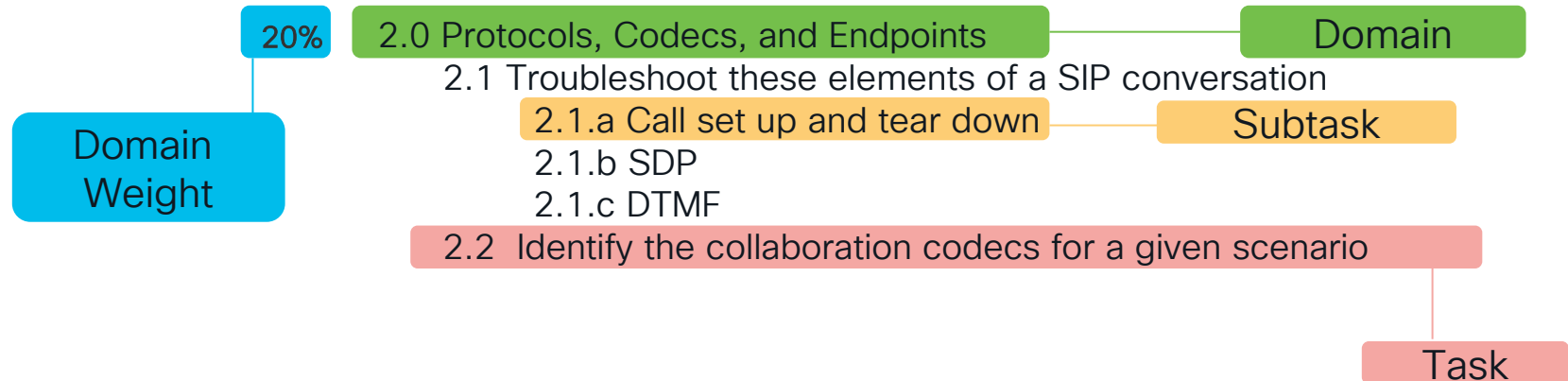
1.0 Infrastructure and Design	20%	▾
2.0 Protocols, Codecs, and Endpoints	20%	▾
3.0 Cisco IOS XE Gateway and Media Resources	15%	▾
4.0 Call Control	25%	▾
5.0 QoS	10%	▾
6.0 Collaboration Applications	10%	▾



# Deciphering the Blueprint:

## Implementing Cisco Collaboration Core Technologies (350-801)

**Exam Description:** Implementing Cisco Collaboration Core Technologies v1.0 (CLCOR 350-801) is a 120-minute exam associated with the CCNP and CCIE Collaboration Certifications. This exam tests a candidate's knowledge of implementing core collaboration technologies including infrastructure and design, protocols, codecs, and endpoints, Cisco IOS XE gateway and media resources, Call Control, QoS, and collaboration applications. The course, Implementing Cisco Collaboration Core Technologies, helps candidates to prepare for this exam.



# Blueprint Verbs

Describe/Explain

Remember

Configure/Implement/Deploy

Apply

Troubleshoot/Identify

Analyze

Depth of Knowledge

# Implementing Cisco Collaboration Core Technologies (350-801)

350-801

Six major areas of knowledge

## Domains / Weight

- Infrastructure and Design (20%)
- Protocols, Codecs, and Endpoints (20%)
- Cisco IOS XE Gateway and Media Resources (15%)
- Call Control (25%)
- QoS (10%)
- Collaboration Applications (10%)

# Implementing Cisco Collaboration Core Technologies (CLCOR)

## Domain 1

## Tasks

### Infrastructure and Design

- 1.1 Describe the Cisco on-premises, hybrid, and cloud collaboration solution design elements described in the SRND/PA
- 1.2 Describe the purpose of Edge devices in the Cisco Collaboration architecture such as Expressway and Cisco Unified Border Element
- 1.3 Configure these network components to support Cisco Collaboration solutions
- 1.4 Troubleshoot these network components in a Cisco Collaboration solution
- 1.5 Explain these components to support Cisco Collaboration solutions
- 1.6 Describe Webex Control Hub features

# Implementing Cisco Collaboration Core Technologies (CLCOR)

## Domain 2

## Tasks

Protocols, Codecs, and Endpoints

- 2.1 Troubleshoot these elements of a SIP conversation
- 2.2 Identify the collaboration codecs for a given scenario
- 2.3 Deploy SIP endpoints
- 2.4 Troubleshoot SIP endpoints
- 2.5 Describe SIP OAuth on Cisco UCM

# Implementing Cisco Collaboration Core Technologies (CLCOR)

## Domain 3

## Tasks

Cisco IOS XE Gateway and Media Resources

- 3.1 Configure Voice Gateway elements
- 3.2 Troubleshoot ISDN PRI/BRI
- 3.3 Identify the appropriate IOS XE media resources
- 3.4 Describe Cloud Calling hybrid local gateway

# Implementing Cisco Collaboration Core Technologies (CLCOR)

## Domain 4

## Tasks

### Call Control

- 4.1 Describe the Cisco UCM digit analysis process
- 4.2 Implement toll fraud prevention on Cisco UCM
- 4.3 Configure globalized call routing in Cisco UCM
- 4.4 Describe Mobile and Remote Access (MRA)
- 4.5 Describe Webex Calling dial plan features

# Implementing Cisco Collaboration Core Technologies (CLCOR)

## Domain 5

## Tasks

QoS

- 5.1 Describe problems that can lead to poor voice and video quality
- 5.2 Describe the QoS requirements for voice and video
- 5.3 Describe the class models for providing QoS on a network
- 5.4 Describe the purpose and function of these DiffServ values as it pertains to Collaboration
- 5.5 Describe QoS trust boundaries and their significance in LAN-based classification and marking
- 5.6 Describe and determine location-based CAC bandwidth requirements
- 5.7 Configure LLQ (class-map, policy-map, service policy)



# Implementing Cisco Collaboration Core Technologies (CLCOR)

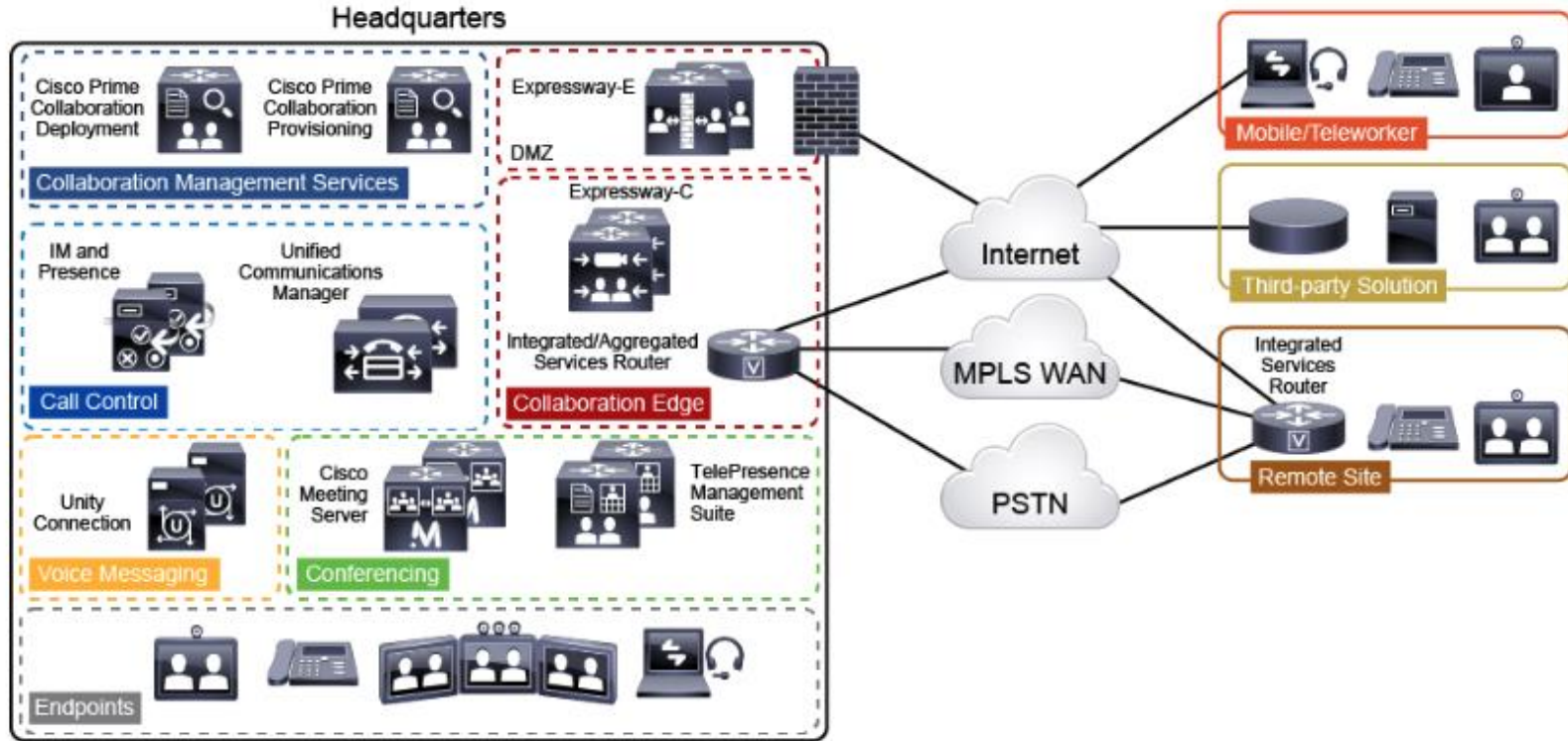
## Domain 6

## Tasks

### Collaboration Applications

- 6.1 Configure Cisco Unity Connection mailbox and MWI
- 6.2 Configure Cisco Unity Connection SIP integration options to call control
- 6.3 Describe Cisco Unity Connection call handlers
- 6.4 Deploy Webex App

# Cisco Collaboration Solutions Architecture



# “Remember” Example

## Task

1.1 Describe the Cisco on-premises, hybrid, and cloud collaboration solution design elements described in the SRND/PA

1.1.b Sizing

## Question

What is the maximum number of endpoints supported per node when using the Cisco Business Edition 7000?

- A. 40,000
- B. 1,000
- ☒ C. 10,000
- D. 2,500

# “Apply” Example

## Task

3.1 Configure voice gateway elements

3.1.d Dial peers

## Question

Refer to the exhibit. An engineer is configuring a POTS dial peer on a Cisco voice gateway. Which configuration will enable two-stage dialing?

```
dial-peer voice 2022 pots
translation-profile outgoing CiscoLive
destination-pattern ^[2-9]..[2-9].....$
incoming called-number .
direct-inward-dial
port 0/2/0:23
forward-digits all
```

# “Apply” Example cont.

## Task


### 3.1 Configure voice gateway elements

#### 3.1.d Dial peers

```
dial-peer voice 2022 pots
translation-profile outgoing CiscoLive
destination-pattern ^[2-9]..[2-9].....$
incoming called-number .
direct-inward-dial
port 0/2/0:23
forward-digits all
```

## Question

Refer to the exhibit. An engineer is configuring a POTS dial peer on a Cisco voice gateway. Which configuration will enable two-stage dialing?

- A. forward-digits 0
- B. preemption level immediate
- C. numbering-type unknown
-  D. no direct-inward-dial

# “Analyze” Example

## Task

2.1 Troubleshoot these elements of a SIP conversation

### 2.1.c DTMF

## Question

Refer to the exhibit. An engineer is troubleshooting reports that users can't interact with a SIP-connected remote IVR via the telephone keypad. What is the cause of this issue?

```
Content-Type: application/sdp
Content-Length: 506
v=0
o=CiscoSystemsCCM-SIP 1621269 1 IN IP4 192.168.10.230
s=SIP Call
c=IN IP4 192.168.1.108
b=TIAS:64000
b=AS:80
t=0 0
m=audio 32756 RTP/AVP 0 18 9 113 115 116 101
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:9 G722/8000
a=rtpmap:113 AMR-WB/16000
a=fmtp:113 mode-change-capability=2
a=rtpmap:115 AMR-WB/16000
a=fmtp:115 octet-align=1;mode-change-capability=2
a=rtpmap:116 iLBC/8000
a=maxptime:20
a=fmtp:116 mode=20
a=rtpmap:18 G729/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
```

```
Content-Type: application/sdp
Content-Disposition: session;handling=required
Content-Length: 197
v=0
o=CiscoSystemsSIP-GW-UserAgent 4016 7664 IN IP4 192.168.10.220
s=SIP Call
c=IN IP4 192.168.10.220
t=0 0
m=audio 16830 RTP/AVP 0
c=IN IP4 192.168.10.220
a=rtpmap:0 PCMU/8000
a=ptime:20
```

# “Analyze” Example cont.

## Task

### 2.1 Troubleshoot these elements of a SIP conversation

#### 2.1.c DTMF

```
Content-Type: application/sdp
Content-Length: 506
v=0
o=CiscoSystemsCCM-SIP 1621269 1 IN IP4 192.168.10.230
s=SIP Call
c=IN IP4 192.168.1.108
b=TIAS:64000
b=AS:80
t=0 0
m=audio 32756 RTP/AVP 0 18 9 113 115 116 101
b=TIAS:64000
a=rtpmap:0 PCMU/8000
a=rtpmap:9 G722/8000
a=rtpmap:113 AMR-WB/16000
a=fmtp:113 mode-change-capability=2
a=rtpmap:115 AMR-WB/16000
a=fmtp:115 octet-align=1;mode-change-capability=2
a=rtpmap:116 ILBC/8000
a=maxptime:20
a=fmtp:116 mode=20
a=rtpmap:18 G729/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15
```

```
Content-Type: application/sdp
Content-Disposition: session;handling=required
Content-Length: 197
v=0
o=CiscoSystemsSIP-GW-UserAgent 4016 7664 IN IP4 192.168.10.220
s=SIP Call
c=IN IP4 192.168.10.220
t=0 0
m=audio 16830 RTP/AVP 0
c=IN IP4 192.168.10.220
a=rtpmap:0 PCMU/8000
a=ptime:20
```

## Question

Refer to the exhibit. An engineer is troubleshooting reports that users can't interact with a SIP-connected remote IVR via the telephone keypad. What is the cause of this issue?



- A. The SIP Trunk on Cisco UCM is set to RFC 2833 only.
- B. The dial-peer on the gateway is set to RFC 2833.
- C. The negotiated audio codec doesn't support DTMF.
- D. DTMF is not supported on SIP trunks to Cisco gateways.

# Preparing for the Collaboration exams



# Study Resources

- DevNet Sandboxes
- Cisco Digital Learning / Cisco U.
- Cisco Press products
- DevNet Learning Labs
- Cisco Live Sessions
- Study Group Discussions
- Cisco.com documentation!



<https://developer.cisco.com>

# Collaboration Dev Center

Check out the latest APIs, SDKs and resources for Elastic Collaboration technologies

## Getting started

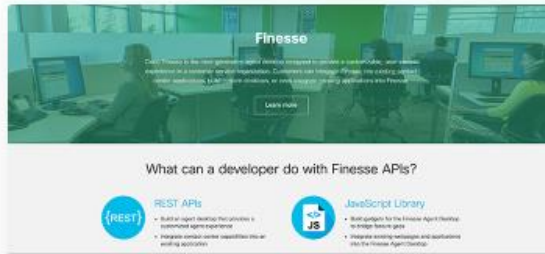
- Learn DevOps APIs
- Developer workspaces
- Elasticsearch Plugins, scripts, and engines

## I'm looking for information about...

- Cloud collaboration features
- Integrate with customer gate
- EVM configurations and management
- Cloud and on-prem meetings
- Integrate video, IM & presence
- SD-WAN call control capabilities

## Getting Started

Check out the latest APIs, SDKs and resources for Cisco Collaboration technologies.



Cisco Finesse is the next-generation agent desktop designed to provide a customizable, user-centric experience in a customer service organization.














Develop rich integrations and powerful automation with Webex cloud-collaboration platform APIs and SDKs.

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**Certification Training**

 <p><b>Cloud</b></p> <p>5 Courses</p> <ul style="list-style-type: none"><li>CCNA Cloud</li><li>CCNP Cloud</li></ul>	 <p><b>Collaboration</b></p> <p>7 Courses</p> <ul style="list-style-type: none"><li>CCNA Collaboration</li><li>CCNP Collaboration</li></ul>	 <p><b>Cyber Ops</b></p> <p>2 Courses</p> <ul style="list-style-type: none"><li>CCNA Cyber Ops</li></ul>
 <p><b>Data Center</b></p> <p>7 Courses</p> <ul style="list-style-type: none"><li>CCNA Data Center</li><li>CCNP Data Center</li></ul>	 <p><b>Design</b></p> <p>2 Courses</p> <ul style="list-style-type: none"><li>CCDP</li><li>CCDA</li></ul>	 <p><b>Digital Transformation Specialist</b></p> <p>2 Courses</p> <ul style="list-style-type: none"><li>Customer Success Manager Specialist</li><li>Cisco Business Architecture Analyst</li></ul>
 <p><b>Industrial</b></p> <p>1 Courses</p> <ul style="list-style-type: none"><li>CCNA Industrial</li></ul>	 <p><b>Network Programmability</b></p> <p>2 Courses</p> <ul style="list-style-type: none"><li>Network Programmability Specialist</li></ul>	 <p><b>Routing &amp; Switching</b></p> <p>5 Courses</p> <ul style="list-style-type: none"><li>CCNA Routing &amp; Switching</li><li>CCNP Routing &amp; Switching</li></ul>
 <p><b>Security</b></p> <p>5 Courses</p> <ul style="list-style-type: none"><li>CCNA Security</li><li>CCNP Security</li></ul>	 <p><b>Wireless</b></p> <p>5 Courses</p> <ul style="list-style-type: none"><li>CCNA Wireless</li><li>CCNP Wireless</li></ul>	

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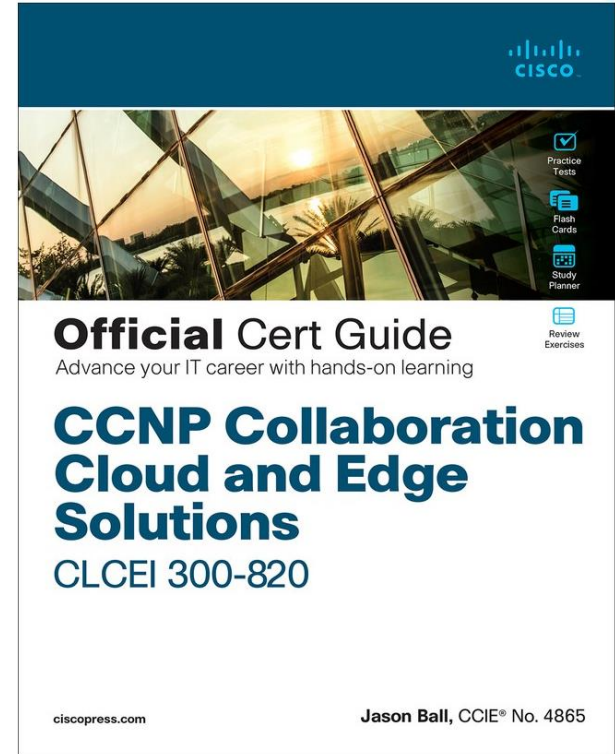
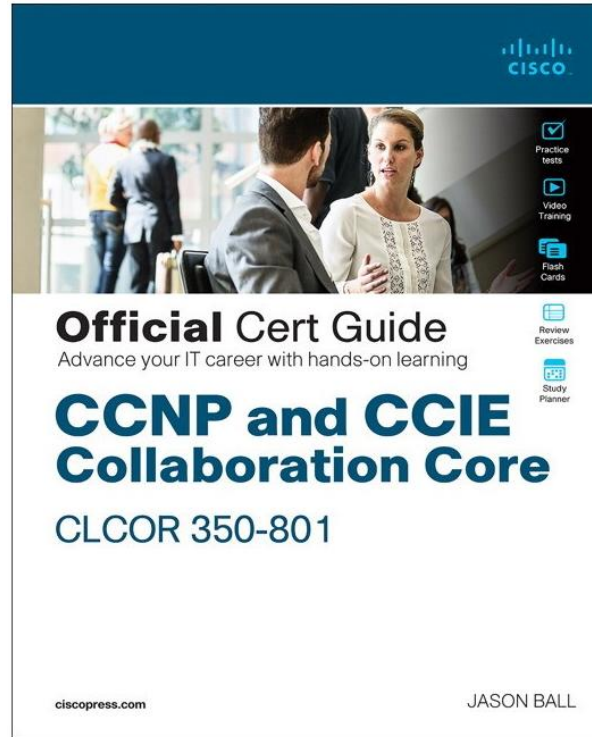
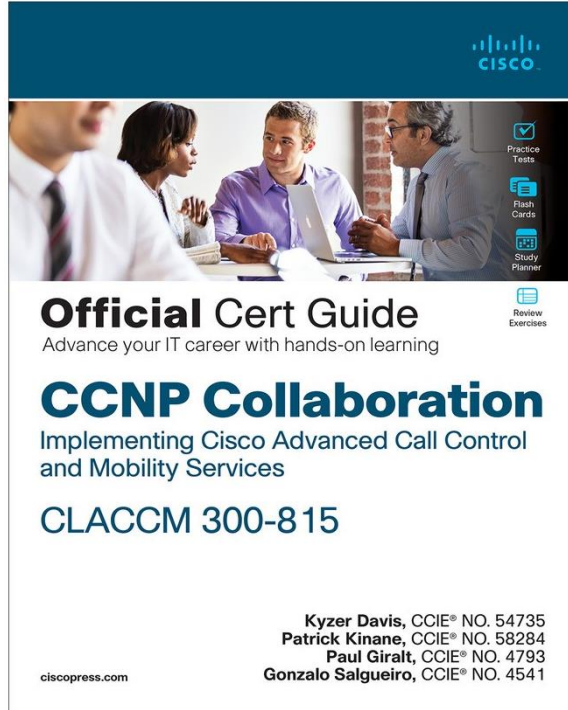


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# Cisco Press



# CLCOR



Blueprint  
structure

Hands-on Labs



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## Table of Contents

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- [Section 1: Describing the Cisco Collaboration Solutions Architecture](#)
- [Section 2: Exploring Call Signaling over IP Networks](#)
- [Section 3: Integrating Cisco Unified Communications Manager LDAP](#)
- [Section 4: Implementing Cisco Unified Communications Manager Provisioning Features](#)
- [Section 5: Exploring Codecs](#)
  - [5.1 Introduction](#)
  - [5.2 Define Codecs](#)
  - [5.3 Compare Audio Codecs](#)
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## 5.8 Exploring Codecs

### Configure Regions and Locations

**Configure Regions and Locations**

To realize the benefits of Locations-Based Call Admission Control, two elements need to be configured: Regions, and Locations. This lab will guide you through the steps of understanding and configuring these two important elements.

**Note**

This lab will take approximately 45 minutes to complete.

**Lab is currently initializing: 13% complete**

### Configure Two Regions in Cisco UCM

# Interactive Lab Interface

Exploring Codecs  
Configure Regions and Locations

Lab | Configure Regions and Locations

LEARNING CONTENT

Step 1

From the desktop of PC-1, open **Chrome** and navigate to **https://10.1.5.5/ccmadmin** and log in with username **Administrator** and password **COll@B**.

Show Me

Step 2

Select **System** > **Region Information** > **Region**.

Show Me

Step 3

Click **Find** and notice that there is currently only one region named **Default**.

Show Me

Step 4

Click **Add New**.

Show Me

Step 5

Enter **HQ** as the name for your new region and click **Save**.

Show Me

Step 6

Show Me

Cisco Unified CM Publisher 10.1.5.5

HQ-Switch 10.1.5.253

Supportive Servers

DNS 10.1.5.100

IM&P 10.1.5.7

PC-1 10.1.5.200

PC-2 10.1.5.201

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PC-1

PC-2

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2023 Amsterdam

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Event: 2023 Amsterdam

Dan Quinlan, Systems Architect, Cisco Systems, Inc. - Distinguished Speaker

Stacy Stevens, Exam Program Manager, Cisco Systems, Inc. - Distinguished Speaker

Are you a Collaboration professional and considering or already pursuing CCNP Collaboration certification? Do you want to develop your skills and increase career opportunity for advancement? If you answered "Yes" this session is for you! Join...

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Get Prepared for Your CCNP Collaboration Certification - BRKCR-2011

Event: 2022 Las Vegas

Dan Quinlan, Systems Architect, Cisco Systems, Inc. - Distinguished Speaker

Stacy Stevens, Exam Program Manager, Cisco Systems, Inc. - Distinguished Speaker



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**Karlo Bobiles**  
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# Continuing Education Credits

# Continuing Education Credits

- Earn Credits for Recertification
  - Authorized Classes
  - Cisco Live
  - Exam Item Authoring

<https://www.cisco.com/c/en/us/training-events/training-certifications/training/continuing-education-program.html>

# Continuing Education Credits con't

## Continuing Education requirements

All requirements for recertification must be met by your certification expiration date. If your certification has already expired, you must recertify by examination to earn your active certification status. You can recertify at any time during your active certification period by advancing to the next level of certification, earning continuing education credits, or a combination of both.

Certification level & duration	Continuing Education only	Combination of Continuing Education & Exam
Associate – 3 years	Earn 30 CE credits	
Specialist – 3 years	Earn 40 CE credits	
Professional – 3 years	Earn 80 CE credits	<ul style="list-style-type: none"><li>• Earn 40 credits AND pass one professional level exam</li></ul>
CCIE – 3 years	Earn 120 CE credits	<ul style="list-style-type: none"><li>• Earn 40 credits AND pass one technology core exam</li><li>• Earn 40 credits AND pass any two professional level exams</li><li>• Earn 80 credits AND pass any one professional exam</li></ul>
CCDE – 3 years	Earn 120 CE credits	<ul style="list-style-type: none"><li>• Earn 40 credits AND pass one technology core exam</li><li>• Earn 40 credits AND pass any two professional level exams</li><li>• Earn 80 credits AND pass any one professional exam</li></ul>

# Continuing Education Credits – Item authoring

## Item authoring



A candidate can earn Continuing Education (CE) credits by participating as an Item Author for the development of Cisco Certification exams. This includes all Associate, Professional, and Expert level tracks. Credits will be granted for each item that is accepted according to the schedule below.

CE Credit for Item Writing/Exam Development Credits granted per accepted item	Credits per accepted item
CCIE Labs Performance items (all items)	12
Tech Core/ Specialist Exams Performance items	6
Associate Performance items	4
Specialist Exams items	3
Technology Core items	3
Associate items	1

# Certification Lifecycle Management –

<https://learningnetwork.cisco.com/s/cisco-certification-roadmaps>



# Cisco Certifications 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.
2. We **announce** blueprint changes 3 months in advance along with revised exam topics and release notes.
3. We **publish** the updated exam 3 months after the exam blueprint publication.



● = Review certification exams   ● = Announce blueprint changes   ● = Publish updated exam

Dates shown reflect Cisco's fiscal year calendar.

- Annual, iterative, agile model
- Cadence-based systemic approach
- Align with rapid technology evolution
- Ensure relevancy for today
- Prepare for the future
- Add new technologies
- Remove obsolete technologies
- Predictable cadence for planning

[www.cisco.com/go/CertRoadmap](https://www.cisco.com/go/CertRoadmap)

# Questions?





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Attendees who fill out a minimum of four session surveys and the overall event survey will get **Cisco Live-branded socks** (while supplies last)!



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The bridge to possible

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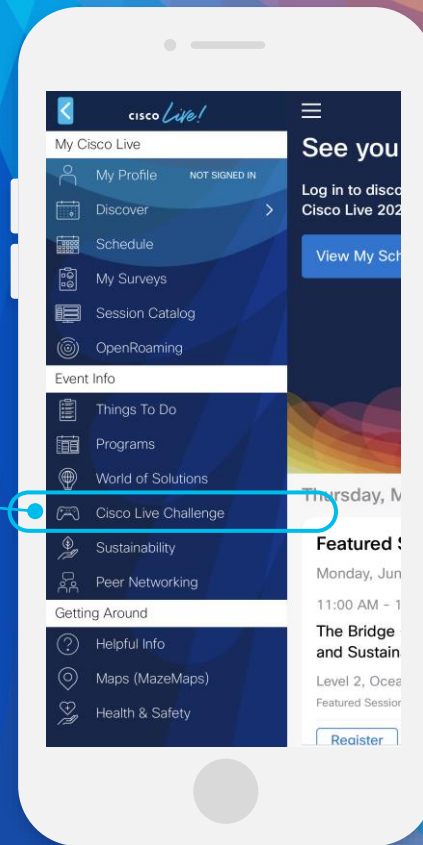
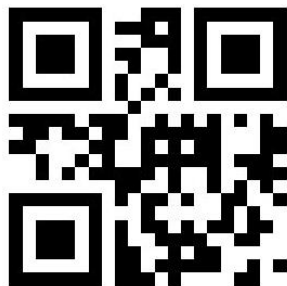
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Gamify your Cisco Live experience!  
Get points for attending this session!

## How:

- 1 Open the Cisco Events App.
- 2 Click on 'Cisco Live Challenge' in the side menu.
- 3 Click on View Your Badges at the top.
- 4 Click the + at the bottom of the screen and scan the QR code:



The background features a vibrant, multi-colored abstract design. On the left, there are overlapping, wavy, organic shapes in shades of red, orange, and yellow. On the right, a bright white light source emits a series of sharp, radiating lines in various colors, including blue, green, and yellow, creating a sunburst or starburst effect. The overall color palette is a spectrum of rainbow colors.

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Let's go

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