



You make **possible**



The making of tomorrows expert: CCIE

Erik Vangrunderbeek

CCIE/CCDE Program Manager

BRKCRT-3100

CISCO *Live!*

Barcelona | January 27-31, 2020



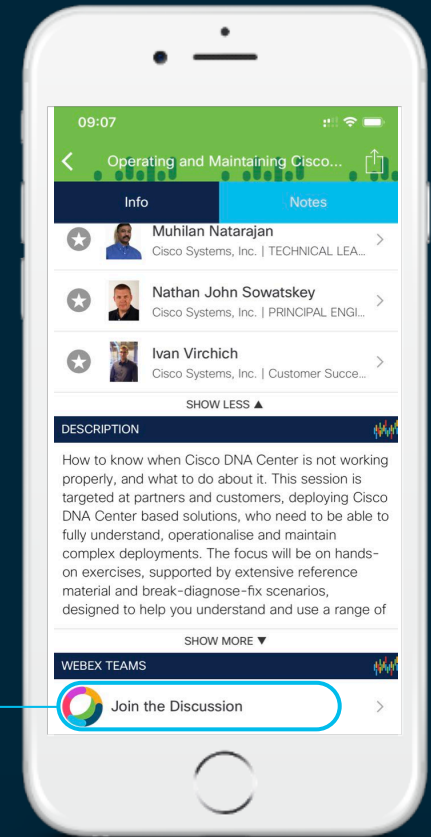
Cisco Webex Teams

Questions?

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

How

- 1 Find this session in the Cisco Events Mobile App
- 2 Click “Join the Discussion”
- 3 Install Webex Teams or go directly to the team space
- 4 Enter messages/questions in the team space



Objective

The objective of this session is to help you understand how Cisco Certifications are evolving, with a focus on CCIE.

Agenda

- Digital transformation
- The new Cisco exam portfolio
- CCIE Lab format changes
- New CCIE Policies
- Migration
- CCIE Security sample
- Resources
- Q&A

Digital transformation

The background features a complex, multi-layered architectural structure with sharp angles and a grid-like pattern, rendered in various shades of blue and cyan. A network of white lines and dots is overlaid on the scene, suggesting a digital or data-driven environment. The lighting is bright and ethereal, with a strong light source from the upper right creating a lens flare effect.

Business growth is fueled by
digital transformation...

Apps and Infrastructure

Historically managed separately



Infrastructure 



Applications 

Digital transformation at every level

Business



How people
use the network

Applications



How applications work
with the network

Infrastructure



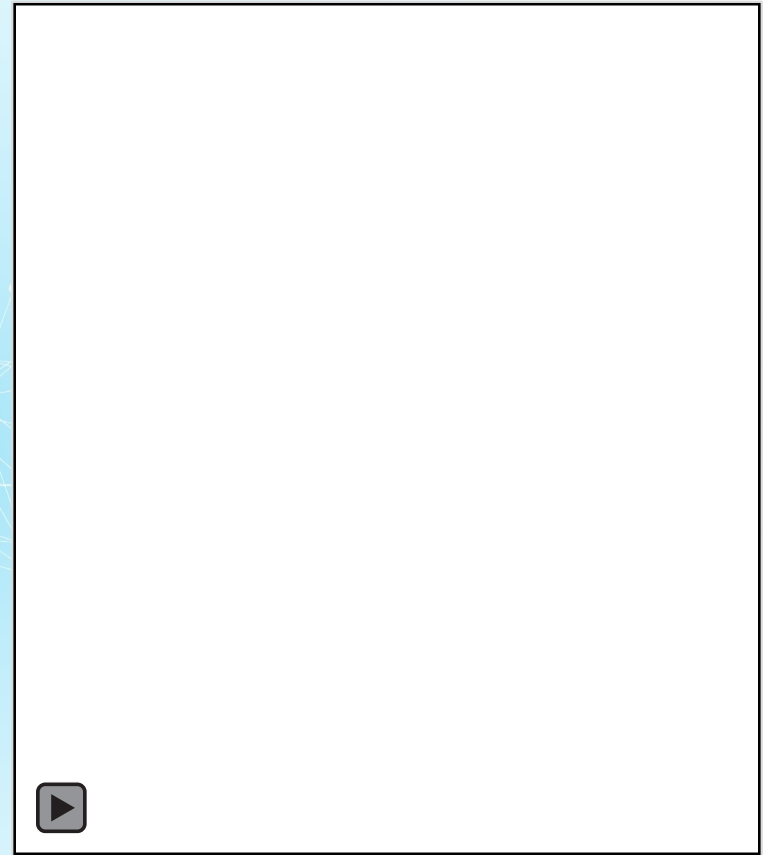
The role networks
play in business

Capabilities of the New Network

Connect *and secure*

Automate *at scale*

Gain *business insights*



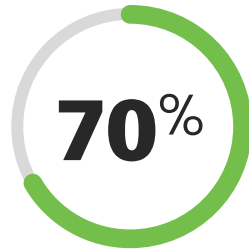


This changes how networking is done.
Software skills
are critical.

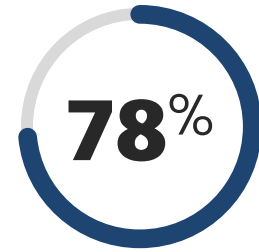
Certifications drive key skills for innovation and scale



Of CEOs say their company is facing disruptive change driven by digital technologies



Of CEOs say their company doesn't have the skills to adapt



Of technology execs/managers believe technical certifications are a critical success factor

The IT Team of the Future

World of
Infrastructure Engineers



World of
Software Developers

Cisco will help build this

The new Cisco Exam portfolio

Today's certification portfolio

	Entry	Associate	Professional	Expert
Architect				CCAr Architect
Cloud		CCNA Cloud	CCNP Cloud	
Collaboration		CCNA Collaboration	CCNP Collaboration	CCIE Collaboration
Cybersecurity Operations		CCNA CyberOps		
Data Center		CCNA Data Center	CCNP Data Center	CCIE Data Center
Design	CCENT	CCDA	CCDP	CCDE
Industrial / IoT		CCNA Industrial		
Routing & Switching	CCENT	CCNA Routing & Switching	CCNP Routing & Switching	CCIE Routing & Switching
Security	CCENT	CCNA Security	CCNP Security	CCIE Security
Service Provider		CCNA SP	CCNP SP	CCIE SP
Wireless	CCENT	CCNA Wireless	CCNP Wireless	CCIE Wireless
Other Certifications	Certified Technician			
Technical Specialists	Collaboration Operating System Software	Data Center Security	Internet of Things Service Provider	Network Programmability
Digital Transformation Specialists	Business Architecture	Customer Success		
AppDynamics	ACIP			

Cisco certification principles



Agility

putting you in the
driver's seat



Value

your path to productivity
& career advancement



Leadership

the most critical skills
for today and tomorrow

Introducing Cisco's new certification suite

Cisco Certifications – Announced June 2019

Associate Level

Specialist Level

Professional Level

Expert Level

Engineering



Software



cisco *Live!*

How our program is evolving

Associate Level



One Exam

Specialist Level



One Exam:
Every written proctored exam (except CCNA) = Cisco Certified Specialist



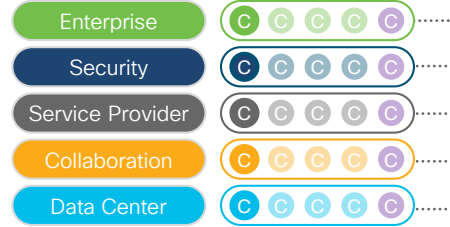
Professional Level



Two Exams:
1 concentration exam and 1 technology core in any order, but from the same track

Technology Core Exam

Concentration Exam

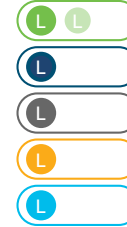


Automation and programmability cross functional course/exam option focused within technology track for CCNP certification

Expert Level



Lab Exam



1 technology core and 1 CCIE lab in same track



One Exam



One Exam:
Every DevNet written, proctored exam (except Cisco Certified DevNet Associate) = Cisco Certified DevNet Specialist



Two Exams:
1 DevNet core and 1 concentration exam in any order, but from the DevNet track

Technology Core exam

Concentration exam



Future offering

Cisco Enterprise Network Core Technologies (300-401)

350-401

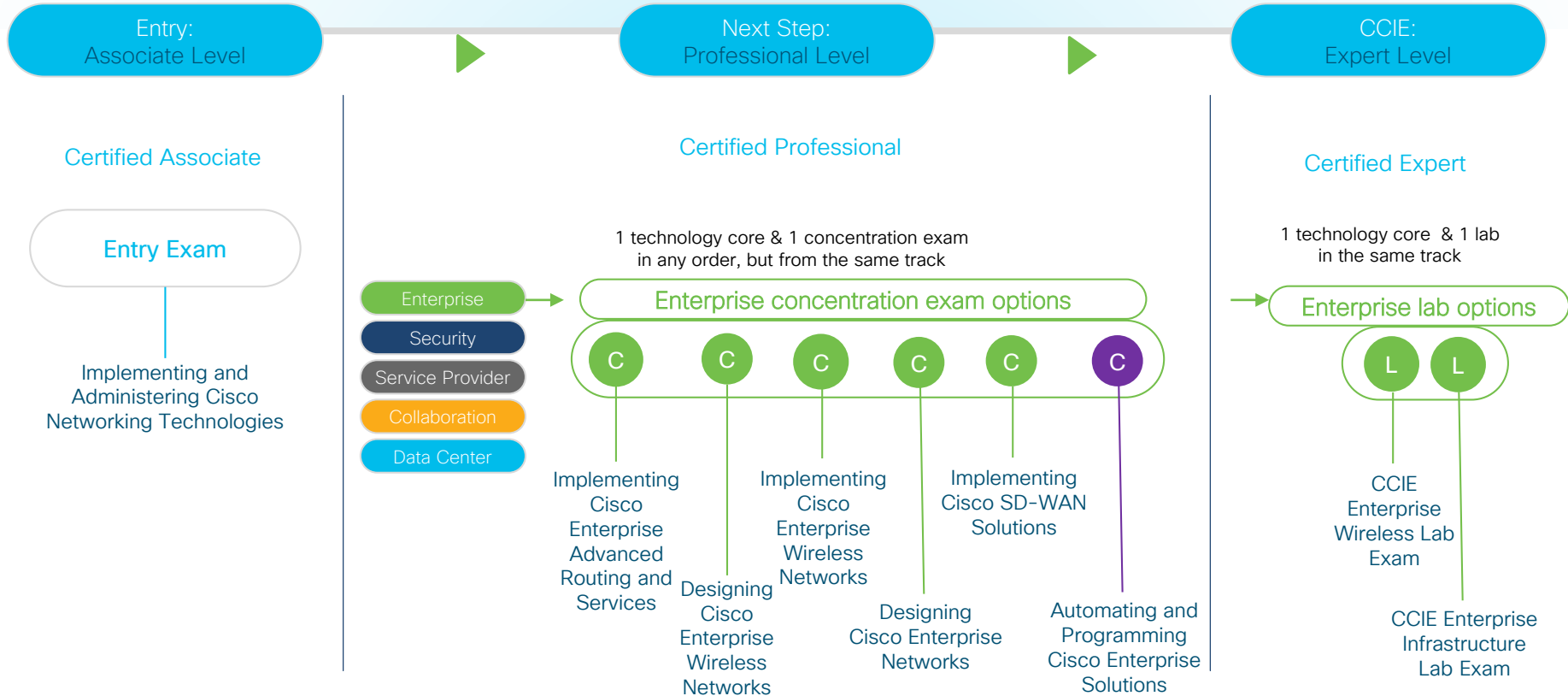
120-minute exam associated with the CCNP and CCIE Enterprise certifications. This exam tests a candidate's knowledge of implementing core enterprise technologies.

Launches 2/24/2020

Domain / Weight

- Architecture 15%
- Virtualization 10%
- Infrastructure 30%
- Network Assurance 10%
- Security 20%
- Automation 15%

Cisco Enterprise certification track



CCNP Concentration Exams

Security

Securing Networks with
Cisco Firepower

Implementing Secure
Solutions with Virtual
Private Networks

Securing Email with Cisco
Security Appliances

Securing the Web with
Cisco Web Security
Appliance

Implementing and
Configuring Cisco Identity
Services Engine

Automating and
Programming Cisco
Security Solutions

Service Provider

Implementing Cisco
Service Provider Advanced
Routing Solutions

Implementing Cisco
Service Provider VPN
Services

Automating and
Programming Cisco Service
Provider Solutions

Collaboration

Implementing Cisco
Collaboration
Applications

Implementing Cisco
Advanced Call Control
and Mobility Services

Implementing Cisco
Collaboration Cloud
and
Edge Solutions

Automating and
Programming Cisco
Collaboration Solutions

Data Center

Implementing Cisco
Storage Area Networking

Implementing Cisco
Application Centric
Infrastructure

Designing Cisco Data
Center Infrastructure

Troubleshooting Cisco Data
Center Infrastructure

Automating and
Programming Cisco Data
Center Solutions

Cisco DevNet certification track

Entry:
Associate Level

Next Step:
Professional Level

Future Goal:
Expert

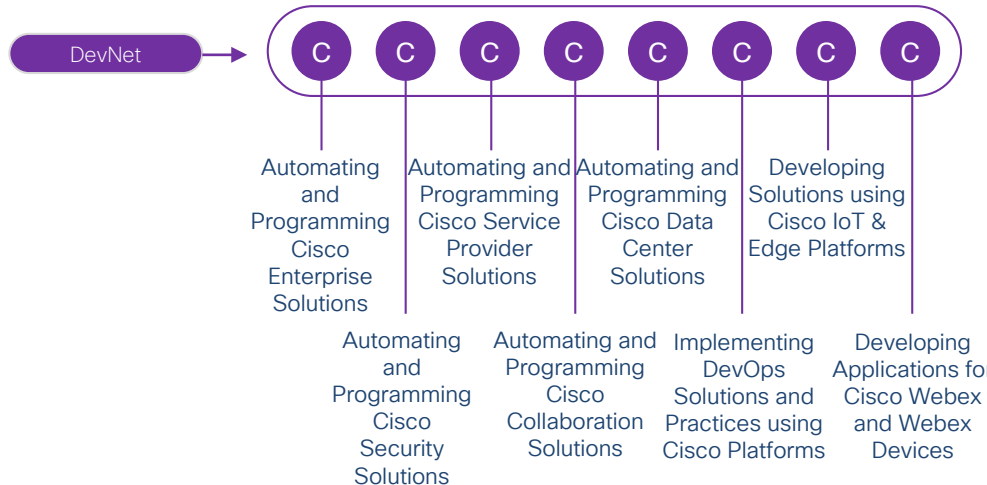
Certified Associate

DevNet Entry Exam

DevNet Associate Exam

Certified Professional

The DevNet core and 1 concentration exam in any order, but from the DevNet track



Certified Expert

1 technology core and 1 lab in same track

DevNet lab options

L L L

CCIE Lab format changes

How our program is evolving



Single Exam

Network foundation exam. Covers Key components like IP fundamentals, Network access, IP Connectivity, Automation, Security.



Every written, proctored exam will merit a Specialist certification with the exception of CCNA.

CISCO *Live!*

Technology Core
Exam 1



Concentration or Lab
Exam 2



Enterprise

Choose your concentration

CCNP

Choose between 2 labs

CCIE



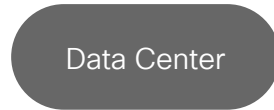
Service
Provider

Choose your concentration

CCNP

Take the lab

CCIE



Data Center

Choose your concentration

CCNP

Take the lab

CCIE



Collaboration

Choose your concentration

CCNP

Take the lab

CCIE



Security

Choose your concentration

CCNP

Take the lab

CCIE



Concentration Exam

Choose one concentration exam in your technology. Concentration covers products, solutions, and/or roles.



Lab

Choose one, 8hr lab focusing on full lifecycle. Lab exam covers design, deploy, automate, operate, and optimize.

Lab exam changes

Now



Diagnose

Analyze symptoms of networking issues, identify and describe root cause.

Troubleshoot

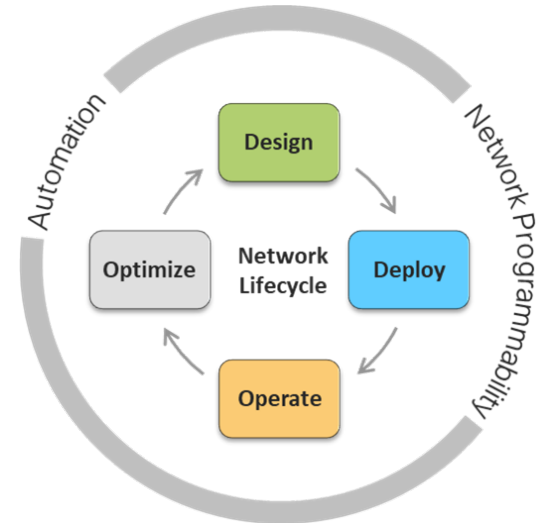
Resolve networking problems.

Configuration

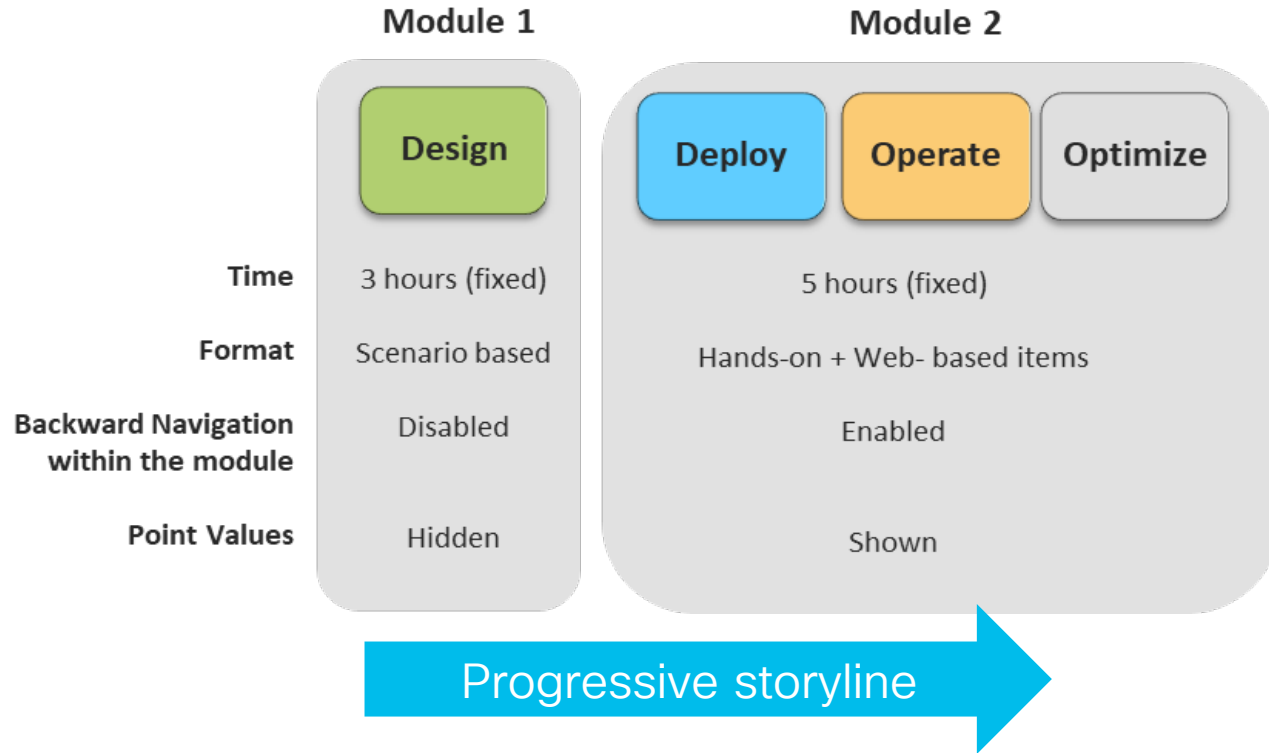
Implement solutions given a set of constraints and requirements.

cisco Live!

New



Lab exam format summary



CCIE practical exam format – module 1

Design

What?

To measure a candidate's ability to **create, analyze, validate and optimize network designs**, which is the base for all deployment activities. Candidates will need to understand capabilities of different technologies, solutions and services, **translate customer requirements** into solutions and **assess the network readiness** to support proposed solutions.

Environment?

- Scenario based. Web based items.
- Backward navigation is disabled.
- Point values are hidden.

Time?

3 hours

CCIE practical exam format – module 1

Design

How?

The design module itself runs as a progressive storyline, that will evolve as the candidate progresses through the module.

At the start of the module, you are presented generic information, that is expected to be used across the entire module.

- General storyline introduction
- overarching requirements and restrictions,
- the current state of the network
- main topology drawings

Throughout the course of the module, the candidate is presented with resources, which can be simulated to be coming in as documents, emails, or any other meaningful way.

Item types?

MCxA - Hotspot - Drag and Drop - Dropdown - Matrix

Done? Up to Module 2!

Progressive storyline

CCIE practical exam format – module 2

Start Module 2

Progressive storyline

Deploy

Operate

Optimize

What?

Candidates will build the network according to the design specifications, customer requirements and restrictions AND will operate and optimize given network technologies and solutions.

Environment?

- Hybrid: Hands-on (focus)+ Web-based items.
- Virtual environment (where possible)
- Backward navigation is enabled.
- Point values are shown.

Time?

5 hours

CCIE practical exam format – module 2

Start Module 2

Progressive storyline

Deploy

Operate

Optimize

How?

The DOO module is a hands-on module focusing on deploying the network.

The network you will be deploying, operating and optimizing in this module will be similar, but not necessarily identical, to the network designed in the previous module. All relevant information needed to successfully complete this module can be found in this module itself and overrides any information that was provided in the previous module.

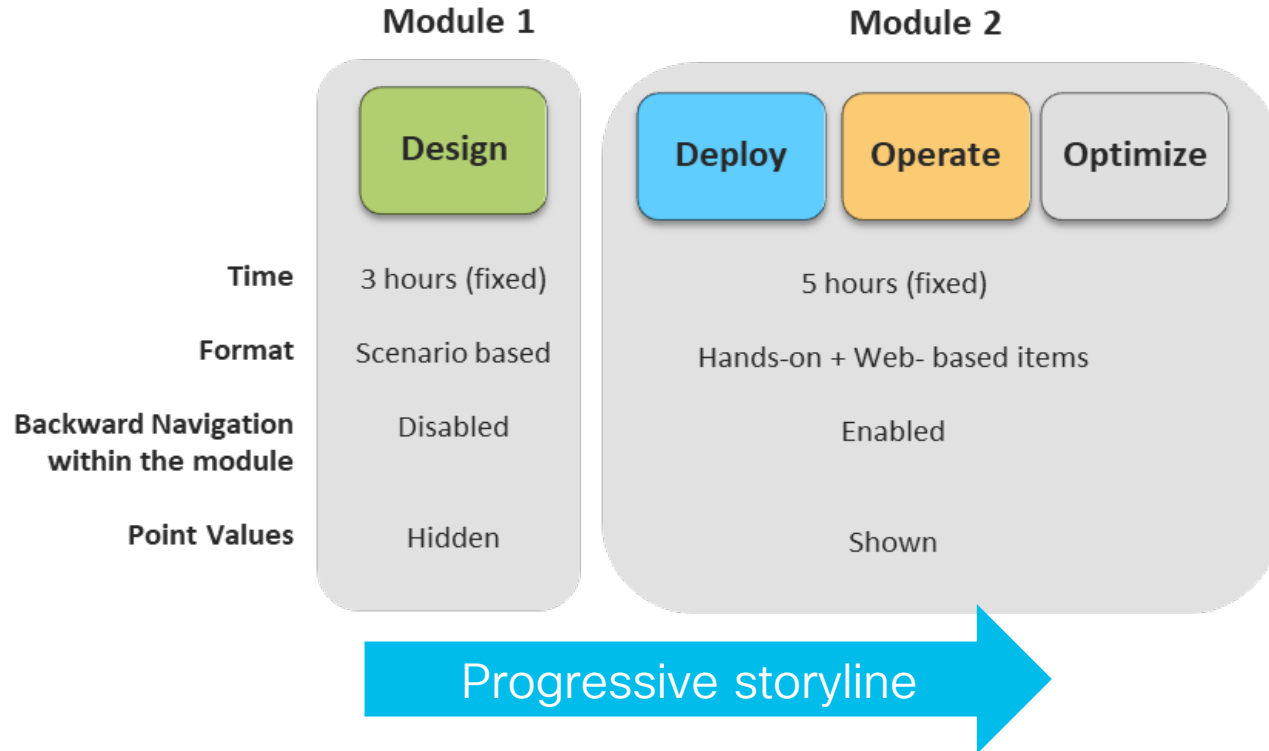
- Same main topology, diagram, IP addressing
- Same set of devices,
- Build upon the same high level design solutions: i.e. choice of RP, etc.

Item types?

Hands-on and web-based.

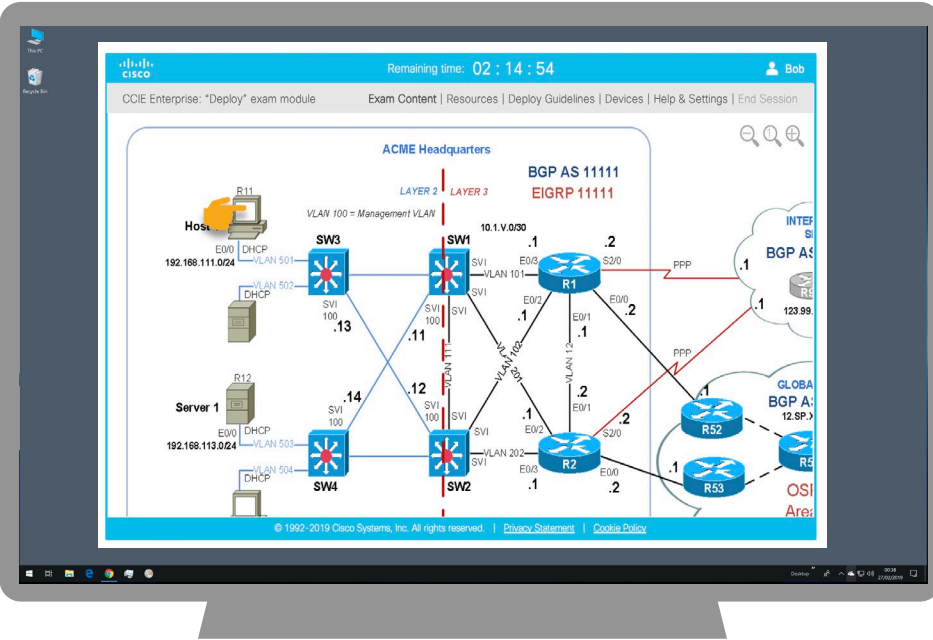
The End

Lab exam format summary



CCIE lab delivery system

Monitor 1



Content popup

Resources popup

Devices popup

Monitor 2

The screenshot on Monitor 2 shows a network configuration interface. It features a 'Table of Content' popup with a list of chapters (Introduction, Network Infrastructure, Network Troubleshooting, etc.). A 'Resources' popup is open, displaying a list of requirements for the network configuration. A 'New Demand' popup is also visible, showing a text area for entering a new demand. The remaining time is 02:14:54.

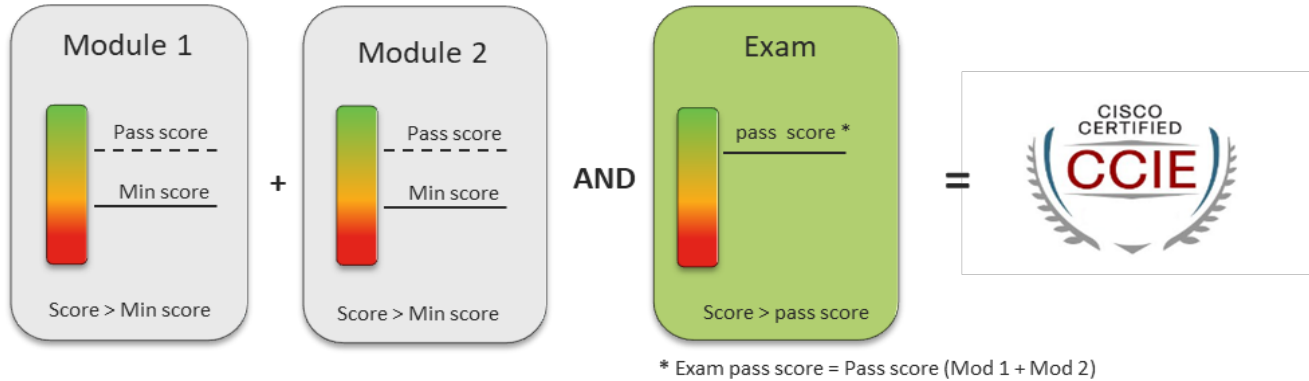
Configure your network as per the following requirements:

- None of your sites may ever be used as a transit site.
- Traffic destined to the Internet must be routed locally.
- All routers must use the "passive default" command.
- The ISP facing interfaces must not be included into your IGP.

New Demand

The Network architect at BeeBog Inc. is asking you to recommend the best approach to deploy a new Video on-demand application in the network. The application itself will have to be hosted on premises in both datacenters, while offering the optimal performances to all users. The application must be available 24/7, 365 days a year, while not causing any performance degradation to existing services. Yearly multi-sites ed.

Exam score evaluation

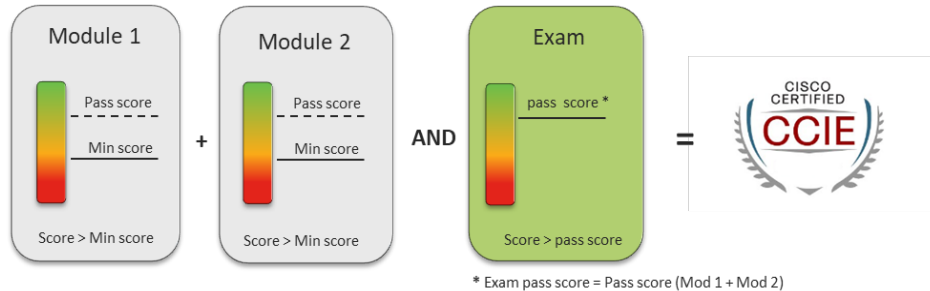


To **pass** the exam, candidates need to score higher than the aggregated pass score of both modules and score higher than the minimum score set on each of the modules individually.

If candidates score less than the overall aggregated pass score of both modules OR score less than the minimum score set on 1 (or more) of the individual modules, they will **fail** the exam.

Exam score reports

Candidates that fail the exam will be given a score report, indicating what module(s) they passed or failed. Additionally, candidates will be provided cumulative scoring percentages on a per domain level, across both modules.



Score report

Module 1: Pass
Module 2: Fail

Domain 1: 75%
Domain 2: 20%
Domain 3: 40%
Domain 4: 19%
Domain 5: 90%

New CCIE Policies

CCIE policy changes



Certification

www.cisco.com/nextlevel

- Technology core is the new pre-requisite
- All certifications will be valid for 3 years.



Recertification through continuing education credits

Visit ce.cisco.com

- 120 credits needed to recert (compared to 100 today)
- Credits can be earned through exams, trainings, item authoring, Cisco Live
- Removed CE credit cap for CL and item authoring
- No more administrative fee!



Take an exam



Attend Cisco Live training sessions



Author content



Complete online training courses



Complete instructor-led training



Three-year recertification requirement

CISCO *Live!*



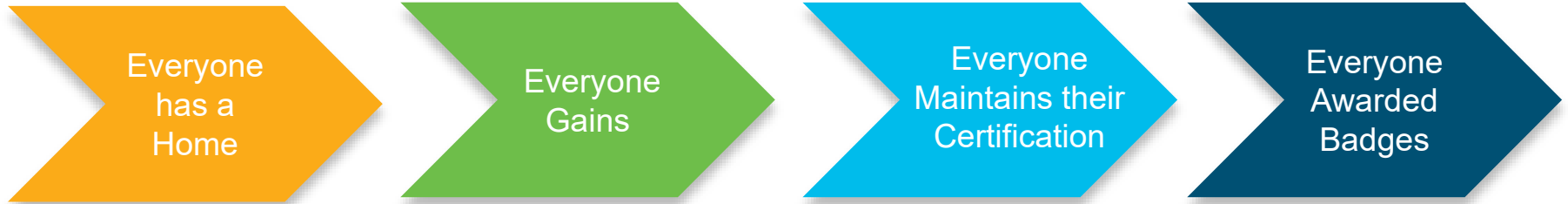
NEW

Lifetime tenure for CCIE Emeritus

- ✓ Maintain an active or Emeritus CCIE for 20 consecutive years
- ✓ Option to retain Emeritus status for life
- ✓ No renewal fees
- ✓ Recertifying your CCIE reactivates active status

Migration

Guiding Principles



CCIE's in flight (only passed written)



Active (and suspended) CCIE's



Eligible to take the lab?

CCNP's

- If you currently have an active CCNP, you will have three years from the date you obtained that CCNP or the date you last recertified (whichever is more recent) to take the CCIE lab within that same technology track.
- After the three years has lapsed, you must pass the technology core exam again in a given track to be able to take the CCIE lab in that track.
- CCIE lab exams for current CCNPs or those with technology core equivalency can begin to be scheduled on February 24, 2020.

Passed CCIE Written?

- You will have three years from the date you last passed your CCIE written to take the CCIE lab within that same technology track, afterwards you need to take the technology core.

Other



FAQ

- https://www.cisco.com/c/dam/en_us/training-events/training-certification-faqs.pdf



CCNP Migration Tool

- <https://www.cisco.com/c/en/us/training-events/training-certifications/certifications/professional/ccnp-migration-tools.html>



Sample Questions – CCIE Security

CCIE SECU – Design Module

Global Resources:

- 1) Design Task
- 2) Current Network Information
- 3) Current Network High Level Topology
- 4) Email

Progressive Resources:

- 1) Chapter 1 Outcome: Diagram
- 2) Chapter 2 Outcome: Diagram
- 3) Chapter 3 Resources

Chapter 3

Type: MCMA (Matrix)

Partial Scoring: Yes

Partial Scoring Logic (Not disclosed in the exam):

- If any 4 correctly answered assign 1 marks.
- If all correctly answered assign 4 marks.

Points: 4 (Not disclosed in the exam)

CCIE SECU – Design Module.

Question:

In order to develop the LLD document, which of the configuration components would apply to the their respective devices to meet the design requirements?

Row Header	Column Header								
	ASA1v	ASA11v	ASA1-C1	ASA1-C2	ASA2-C1	ASA2-C2	ISE	SW1	Active Directory
VPN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ASA HA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EIGRP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DNS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Multiple Context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SXP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Identity Source Integration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DAACL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CCIE SECU – DOO Module

Access-Policy deployment

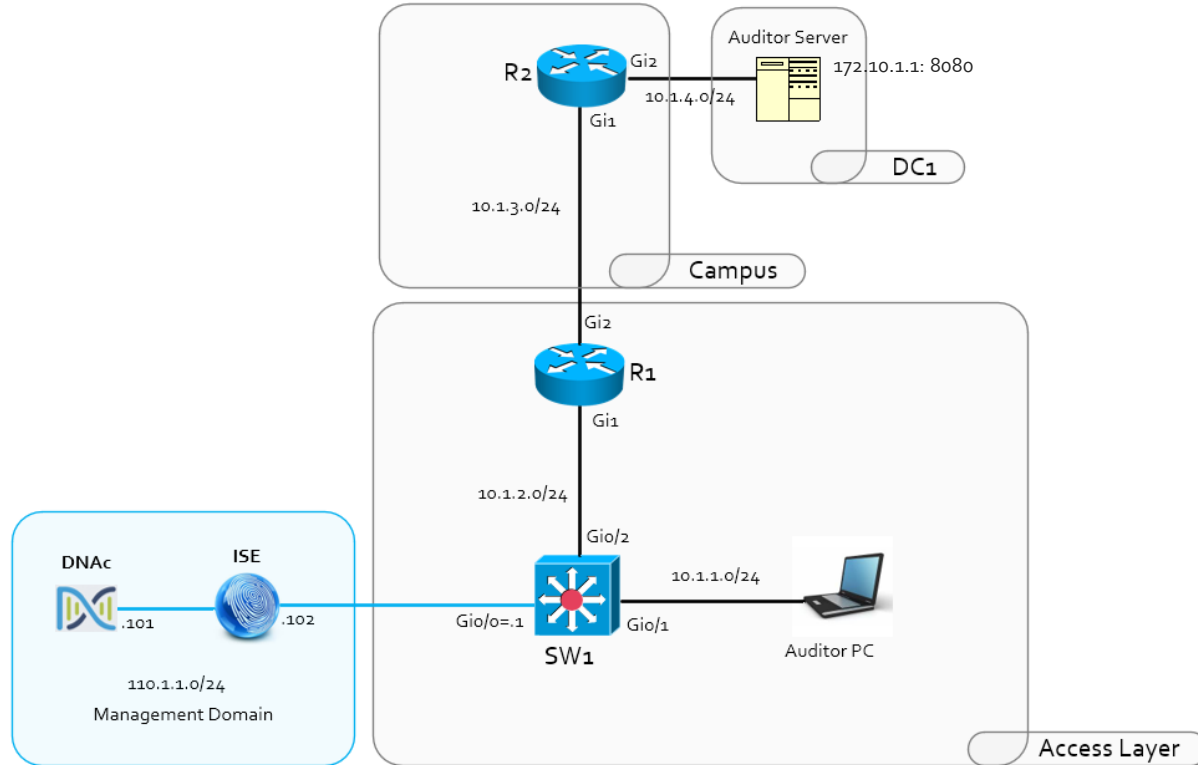
You have been asked to deploy role-based access control for the traffic originated from the Auditor-PC on-boarded via SW1. The PC should be authenticated based on its MAC address with ISE acting as an identity engine but the role-based access control should be enforced by DNAC. The access-policy should only permit HTTP traffic at a non-standard port. Refer to the task diagram for any further requirements.

Any deployment specifics not explicitly mentioned in the requirements or in the diagram can be assumed to complete the task.

Points: 3

CCIE SECU – DOO Module

Diagram



Resources

Home ▾ **Certifications ▾** Community ▾ Learning Center ▾ IT Careers ▾ Store

Exam and Recommended Training

Step 1: Take the qualifying exam

350-401 ENCOR

[Overview](#) **[Exam Topics](#)** [Study Material](#) [Practice](#)

Step 2: Take the lab exam

Lab Exam

[Overview](#) **[Exam Topics](#)** [Study Material](#) [Practice](#)

[Join the CCIE Enterprise Infrastructure Study Group](#)

Prerequisites

Recertification

Resources

Resources

- [CCIE Enterprise Infrastructure At-a-glance](#)
- [New Cisco certification and training program](#)
- [Frequently asked questions](#)

- [CCIE Enterprise Infrastructure Equipment and Software List](#)**
- [CCIE Enterprise Infrastructure \(v1.0\) Learning Matrix](#)**



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

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%	Show Details 
2.0 Virtualization	10%	Hide Details 
2.1 Describe device virtualization technologies		
<ul style="list-style-type: none">• 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		
<ul style="list-style-type: none">• 2.2.a VRF• 2.2.b GRE and IPsec tunneling		
2.3 Describe network virtualization concepts		
<ul style="list-style-type: none">• 2.3.a LISP• 2.3.b VXLAN		

Verbs indicate the level of knowledge required

CCIE Enterprise Infrastructure Exam Topics – Practical Exam






Exam Description

The Cisco CCIE Enterprise Infrastructure (v1.0) Practical Exam is an eight-hour, hands-on exam that requires a candidate to plan, design, deploy, operate, and optimize dual stack solutions (IPv4 and IPv6) for complex enterprise networks.

Candidates are expected to program and automate the network within their exam, as per exam topics below.

The following topics are general guidelines for the content likely to be included on the exam. Your knowledge, skills and abilities on these topics will be tested throughout the entire network lifecycle, unless explicitly specified otherwise within this document.

Download Complete List of Topics in PDF format

1.0 Network Infrastructure	30%	Show Details 
2.0 Software Defined Infrastructure	25%	Show Details 
3.0 Transport Technologies and Solutions	15%	Show Details 
4.0 Infrastructure Security and Services	15%	Show Details 
5.0 Infrastructure Automation and Programmability	15%	Show Details 

CCIE Enterprise Infrastructure Equipment and Software List

Created by [Madhukar: Cisco Team](#) on Jun 3, 2019 4:11 PM. Last modified by [Madhukar: Cisco Team](#) on Nov 25, 2019 11:15 AM.

The practical exam tests candidates on solutions that can be configured using the below Equipment and software versions. Candidates may see more recent software versions during their attempt but will only be tested on features that are supported in the list below.

Passing the exam requires a depth of understanding difficult to obtain without hands-on experience. Early in your preparation you should arrange access to equipment and software similar to that used on the exam.

Virtual machines

- Cisco CSR 1000v Series Cloud Services Routers with Cisco IOS XE SD-WAN Release 16.12
- Cisco IOSv with Cisco IOS Software Release 15.8
- Cisco IOSv-L2 with Cisco IOS Software Release 15.2
- Cisco SD-WAN (vManage, vBond, vSmart, vEdge) Software Release 18.4
- Cisco DNA Center Release 1.3.1

Physical Equipment

- Cisco Catalyst 9300 Series Switches Release 16.12

Supporting virtual machines

- Cisco Identity Services Engine 2.6
- Microsoft Windows 10 Professional
- Ubuntu Desktop 18.04 LTS

developer.cisco.com
devnetsandbox.cisco.com

Learning Matrix

CCIE Enterprise Infrastructure		Cisco docs	IOS-XE 16	IOS-15.2E	Ciscolive	DevNet
4	2.1.b iii	Host onboarding (wired endpoints only)				
4	2.1.b iv	Fabric border handoff				
3	2.1.c	Segmentation				
4	2.1.c i	Macro-level segmentation using VNs				
4	2.1.c ii	Micro-level segmentation using SGTs (using Cisco ISE)				
3	2.1.d	Assurance	Cisco DNA Assurance User Guide			
4	2.1.d i	Network and client health (360)				
4	2.1.d ii	Monitoring and troubleshooting				
			vManage How-Tos		Cisco Live SDWAN	Develop with SDWAN
2	2.2	Cisco SD-WAN	Should be available soon			
3	2.2.a	Design a Cisco SD-WAN solution				
4	2.2.a i	Orchestration plane (vBond, NAT)				
4	2.2.a ii	Management plane (vManage)				
4	2.2.a iii	Control plane (vSmart, OMP)				
4	2.2.a iv	Data plane (vEdge/cEdge)				
3	2.2.b	WAN edge deployment				
4	2.2.b i	Onboarding new edge routers				
4	2.2.b ii	Orchestration with zero-touch provisioning/Plug-And-Play				
4	2.2.b iii	OMP				
4	2.2.b iv	TLOC				
3	2.2.c	Configuration templates	Create a Device Configuration Template			
3	2.2.d	Localized policies (only QoS)	Configure Policies			
3	2.2.e	Centralized policies	Configure Policies			
4	2.2.e i	Application Aware Routing				
4	2.2.e ii	Topologies				
1	3	Transport Technologies and Solutions				
2	3.1	MPLS				
3	3.1.a	Operations	MPLS Label Distribution Protocol Configuration Guide			
4	3.1.a i	Label stack, LSR, LSP				
4	3.1.a ii	LDP				
4	3.1.a iii	MPLS ping, MPLS traceroute				
			MPLS: Layer 3 VPNs Configuration			

Reference books with specific chapters

Cisco® Validated Design documents

Cisco Live! 365 presentations

Webinars - VoDs

SRNDs

White papers

Case studies, design guides, Design TechNotes, reference guides, etc.

livelessons™

CCNP Enterprise
Wireless Design
ENWLSL 300-425



**CCNP
Enterprise**
Core/Advanced
Routing and Services
Official Cert Guide Library

KBRADLEY EDGEWORTH, CCIE® NO. 31574
RAMIRO GARZA RIOS, CCIE® NO. 15469
DAVID HUCABY, CCIE® NO. 4594
JASON GOOLEY, CCIE® NO. 38759

ciscopress.com



Official Cert Guide

Advance your IT career with hands-on learning

CCNP and CCIE Enterprise Core

ENCOR 350-401



BRADLEY EDGEWORTH, CCIE® No. 31574
RAMIRO GARZA RIOS, CCIE® No. 15469
JASON GOOLEY, CCIE® No. 38759
DAVID HUCABY, CCIE® No. 4594

ciscopress.com

livelessons™

CCNP and CCIE
Enterprise Core
ENCOR 350-401
Video Course and Practice Test

Kevin Wallace



Official Cert Guide
Advance your IT career with hands-on learning

CCNP Enterprise Advanced Routing and Services

ENARSI 300-410














RAYMOND LACOSTE
BRADLEY EDGEWORTH, CCIE® NO. 31574

ciscopress.com

Cisco Learning Library

Certification Training

 <p>Cloud</p> <p>5 Courses</p> <ul style="list-style-type: none">CCNA CloudCCNP Cloud	 <p>Collaboration</p> <p>7 Courses</p> <ul style="list-style-type: none">CCNA CollaborationCCNP Collaboration	 <p>Cyber Ops</p> <p>2 Courses</p> <ul style="list-style-type: none">CCNA Cyber Ops
 <p>Data Center</p> <p>7 Courses</p> <ul style="list-style-type: none">CCNA Data CenterCCNP Data Center	 <p>Design</p> <p>2 Courses</p> <ul style="list-style-type: none">CCDPCCDA	 <p>Digital Transformation Specialist</p> <p>2 Courses</p> <ul style="list-style-type: none">Customer Success Manager SpecialistCisco Business Architecture Analyst
 <p>Industrial</p> <p>1 Courses</p> <ul style="list-style-type: none">CCNA Industrial	 <p>Network Programmability</p> <p>2 Courses</p> <ul style="list-style-type: none">Network Programmability Specialist	 <p>Routing & Switching</p> <p>5 Courses</p> <ul style="list-style-type: none">CCNA Routing & SwitchingCCNP Routing & Switching
 <p>Security</p> <p>5 Courses</p> <ul style="list-style-type: none">CCNA SecurityCCNP Security	 <p>Wireless</p> <p>5 Courses</p> <ul style="list-style-type: none">CCNA WirelessCCNP Wireless	


Cisco Live On-Demand Library

(www.ciscolive.com)



On-Demand Library

Filters Clear

SD-Access 

My Favorites

+ EVENT

+ FEATURED

+ TECHNOLOGY

+ PROGRAM

+ FOCUS

+ SOLUTIONS

+ TECHNICAL LEVEL

"SD-Access" x

152 sessions

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

Event:
2019 Barcelona

Shawn Wargo, PRINCIPAL ENGINEER.TECHNICAL MARKETING - **Distinguished Speaker**

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

Event:
2018 Barcelona

Shawn Wargo, PRINCIPAL ENGINEER.TECHNICAL MARKETING - **Distinguished Speaker**

Cisco DNA SD-Access (SDA) - Introduction to SDA Fabric - BRKARC-2009

Event:
2019 San Diego

Prabhjit Bagga, SR ENGINEER.IT ENGINEERING

DevNet Learning Labs

<https://developer.cisco.com>

- individual labs for coders of all skill levels

The screenshot shows the DevNet Learning Labs website. At the top, there is a navigation bar with 'DEVNET' and 'Learning Labs' on the left, and 'DevNet Express', 'Tracks', 'Modules', 'Labs', 'Challenges', 'Help', and 'Feedback' on the right. The main header area has a dark background with the text 'DevNet Tracks' and 'A Guided Learning Platform for Cisco Technology'. Below this, a sub-header says 'Get Started by Selecting a Track Below'. The main content area features four track cards, each with a title, description, and statistics (Modules, Labs, Hours). The tracks are: 1. Cisco SD-WAN Programmability (4 Modules, 11 Labs, 6 Hours), 2. Programming the Digital Network Architecture (Cisco DNA) (5 Modules, 25 Labs, 10 Hours), 3. Network Programmability for Network Engineers (9 Modules, 39 Labs, 15 Hours), and 4. Introduction to DevNet (4 Modules, 18 Labs, 6 Hours). A 'Beta' badge is visible on the right side of the Introduction to DevNet track card.



Hands-On devnetsandbox.cisco.com

The screenshot displays the Cisco DevNet Sandbox Labs interface. At the top, the navigation bar includes the Cisco DevNet logo, 'SANDBOX LABS', 'RESERVATIONS', and user options 'JAWOURMS', 'DEVNET', and 'HELP'. A search bar is located on the left. The main content area is titled 'NETWORKING (25)' and features a grid of lab cards. Each card includes a title, version information, a description, and a reservation status button (e.g., 'ALWAYS-ON', 'RESERVE'). A sidebar on the left provides navigation and filtering options, including 'Sandbox Labs', 'Reservations', and 'Sandbox Lab Status'. A right sidebar shows a category overview for 'Networking' and a list of 'ALL CATEGORIES' such as 'Open Source', 'IoT', and 'Security'.

DEVNET SANDBOX LABS RESERVATIONS JAWOURMS DEVNET HELP

Search Sandbox Labs

VIEW

Sandbox Labs

Reservations
0 New, 0 Total

FILTER BY:

Sandbox Lab Status

Available

Unavailable

View only

Back to Sandbox Lab Catalog

TYPE All

Available2 (25)

Catalyst 9800 Wireless LAN Controller
Version 1.2.10
Always On Lab

Cisco DNA Center
Always On Lab

Model Driven Telemetry
Version 1.2.10

Catalyst 9800 Wireless LAN Controller
Test out streaming wireless telemetry

Cisco DNA Center 1.2.10
Always-On: Cisco DNA Center Version 1.2.10

Model Driven Telemetry
Model Driven Telemetry

ALWAYS-ON

ALWAYS-ON

RESERVE

Cisco DNA Center
Hardware Lab 2

Multi-IOS Cisco Test Network
Version 1.0

Cisco SD-WAN
Version 18.3

Cisco DNA Center Lab 2
Cisco DNA Center Release 1.2.10

Multi-IOS Cisco Test Net...
Multi Cisco network node topology using VIRL

Cisco SD-WAN
Cisco SD-WAN Version 18.3

RESERVE

RESERVE

RESERVE

Networking

ALL CATEGORIES

Networking

Open Source

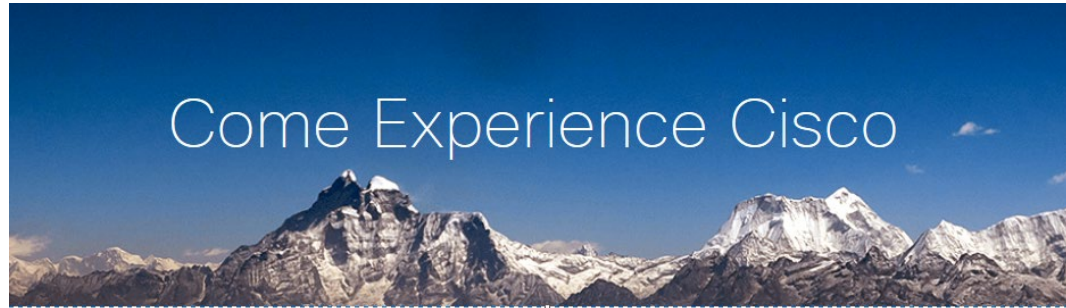
IoT

Analytics and Automation SW

Security

Hands-on labs and sandboxes - dCloud

<https://dCloud.cisco.com>



Come Experience Cisco

Cisco Datacenter Automation with Ansible v1

ID: 522679 Published Date: 20-Feb-2019 23:06 Sandbox Lab Demonstration Service Provider English

This document provides a step-by-step guide to learning how to automate Cisco NXOS and Cisco ACI infrastructure using the Open Source Ansible automation technology (<http://ansible.com>).

★ Favorite [Related Documents](#)

Schedule

Cisco Data Center Network Manager 11.1 For Brownfield Deployments Lab v1

ID: 512260 Published Date: 18-Feb-2019 13:34 Lab Data Center Data Center Management and Automation

English

This hands on lab shows how to create a fabric, discover devices and manage brownfield VXLAN-EVPN fabric using the DCNM Fabric Builder, as well as learning on DCNM APIs.

★ Favorite [Related Documents](#)

Schedule

CISCO *Live!*

Cisco Platinum Learning Library


Cisco Learning Library

[Log In](#)

Cisco Account ID needed to Log In

By using Cisco Learning Library you accept the [Terms of Service](#) and [Privacy Statement](#).

Learn more about [Cisco Learning Library](#).
Cisco SEs request access to Cisco Learning Library.

[Don't have an account?](#)

[Free 3-Day Trial](#)

[Attend Orientation](#)

Timeline

Timing



Announcement

CL San Diego, 2019



Go live

February 24, 2020

Training
introductions
(ongoing)



Questions?



Complete your online session survey



- Please complete your session survey after each session. Your feedback is very important.
- Complete a minimum of 4 session surveys and the Overall Conference survey (starting on Thursday) to receive your Cisco Live t-shirt.
- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Content Catalog on ciscolive.com/emea.

Cisco Live sessions will be available for viewing on demand after the event at ciscolive.com.

Continue your education



Demos in the
Cisco Showcase



Walk-In Labs



Meet the Engineer
1:1 meetings



Related sessions



Thank you





You make **possible**



Web-based item types (For reference only)

Item types: MCxA simple

MCxA with plain text options

Remaining time: 02 : 14 : 54

Item 2 of 50 Resources 4 Next Item

Considering the available resources, which WAN deployment option meets all customer requirements?

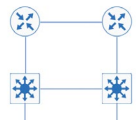
- o DMVPN with PSK & IKEv2
- o FlexVPN with PSK & IKEv2
- SD-WAN
- o P2P IPsec

MCxA with plain text options

Remaining time: 02 : 14 : 54

Table of Content Previous Item Resources Next Item

- ▼ Network Infrastructure
 - Switched Campus
 - Routing Concepts
 - IGP #1
 - IGP #2
 - BGP #1
 - BGP #2
 - Multicast
- ▶ Tunneling Technologies & Solutions
- ▶ Infrastructure Security & Services
- ▶ Infrastructure Automation & Programmability



Refer to the exhibit.

Considering the available resources, which two options will meet the customer requirements? Choose two.

- DMVPN with PSK & IKEv2
- FlexVPN with PSK & IKEv2
- SD-WAN
- P2P IPsec

Item types: MCxA HTML

MCxA with multi-line options

Remaining time: 02 : 14 : 54

Item 2 of 50 Resources 4 Next Item

Considering the available resources, which command option meets all customer requirements?

- o `conf t`
 `int e0/0`
 `no shut`
 `end`
- o `conf t`
 `int e0/1`
 `no shut`
 `end`
- o `conf t`
 `int e0/2`
 `no shut`
 `end`

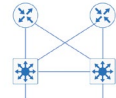
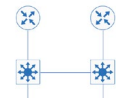
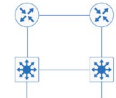
MCxA with picture as options

Remaining time: 02 : 14 : 54

Table of Content Previous Item Resources Next Item

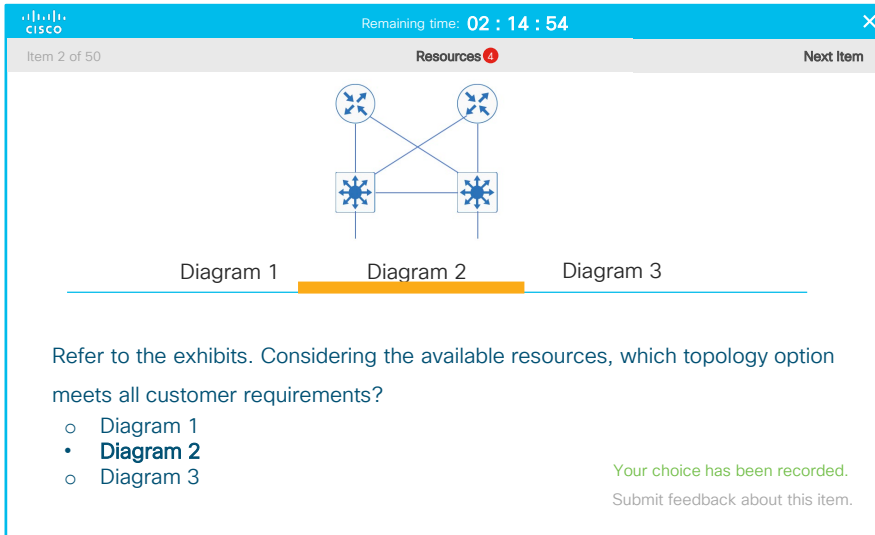
- ▼ Network Infrastructure
 - Switched Campus
 - Routing Concepts
 - IGP #1
 - IGP #2
 - BGP #1
 - BGP #2
 - Multicast
- Tunneling Technologies & Solutions
- Infrastructure Security & Services
- Infrastructure Automation & Programmability

Considering the available resources, which WAN deployment option meets all customer requirements?

- o 
- o 
- o 

Item types: MCxA tabbed

MCSA with Tabbed options



Remaining time: 02 : 14 : 54

Item 2 of 50 Resources 4 Next Item

Diagram 1 **Diagram 2** Diagram 3

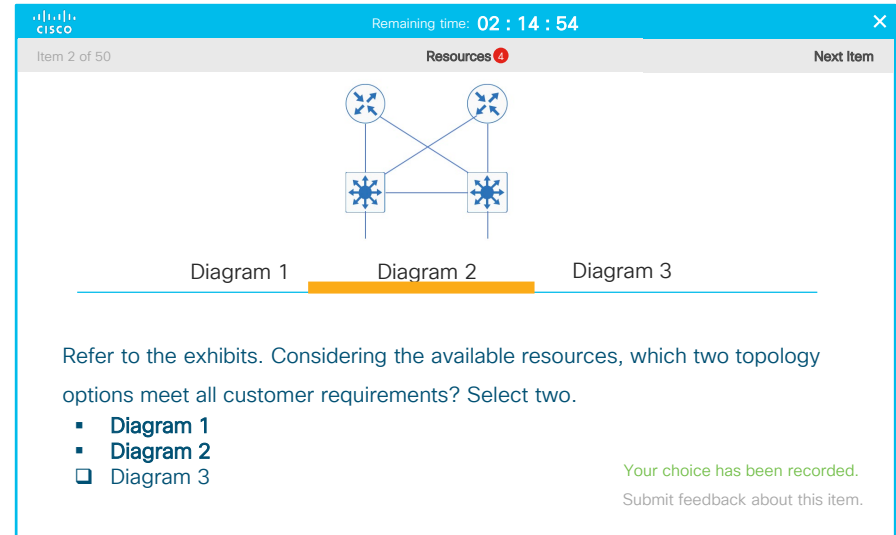
Refer to the exhibits. Considering the available resources, which topology option meets all customer requirements?

- Diagram 1
- Diagram 2**
- Diagram 3

Your choice has been recorded.
Submit feedback about this item.

- Each option refers to a separate exhibit
- Selecting an option will activate the corresponding tab
- Tabs can also be activated by selecting/clicking on their tab name
- MCSA = Can select only one option (i.e. selecting another option will unselect any previously selected option)

MCMA with Tabbed options



Remaining time: 02 : 14 : 54

Item 2 of 50 Resources 4 Next Item

Diagram 1 **Diagram 2** Diagram 3

Refer to the exhibits. Considering the available resources, which two topology options meet all customer requirements? Select two.

- Diagram 1**
- Diagram 2**
- Diagram 3


Your choice has been recorded.
Submit feedback about this item.

- Each option refers to a separate exhibit
- Selecting an option will activate the corresponding tab
- Tabs can also be activated by selecting/clicking on their tab name
- MCMA = Can select multiple options

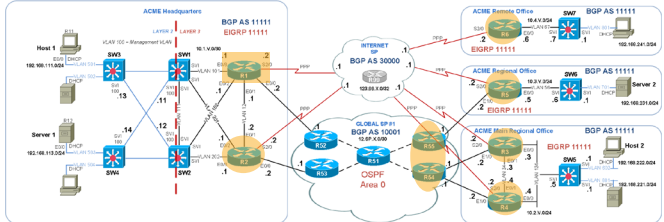
Item types: hotspot

Hotspot

Remaining time: 02 : 14 : 54

Item 4 of 50 Resources  Next Item

Referring to the new resources then point and click on the diagram on which gateway must be selected as the primary path.



Legend: X = Router ID, BP = BP = Router ID, V = VLAN ID

- Layer 2
- Layer 3
- Host
- Server
- Switch
- Router
- Firewall
- Internet

Submit feedback about this item.

- Clickable area may be identified on the picture (of poly, circle and rect shapes)
- Only one possible selection
- Fixed min-width of popup (avoid resizing picture and clickable map)

Item types: drag'n drop simple

Ordered targets

The screenshot shows a Cisco training window with a blue header. The header contains the Cisco logo, the text 'Remaining time: 02 : 14 : 54', and a close button. Below the header, the text 'Item 3 of 50' is on the left, 'Resources 2' is in the center, and 'Next Item' is on the right. The main content area contains the instruction: 'Refer to the new resources then identify and prioritize the relevant requirements for the new video on-demand service.' Below this instruction are two columns of four buttons each. The left column has blue buttons labeled 'High availability', 'Low latency', 'Throughput', and 'Low packet drop'. The right column has yellow buttons labeled 'Priority 1', 'Priority 2', 'Priority 3', and an empty space. At the bottom right, there is a link: 'Submit feedback about this item.'

Unordered targets

The screenshot shows a Cisco training window with a blue header. The header contains the Cisco logo, the text 'Remaining time: 02 : 14 : 54', and a close button. Below the header, the text 'Item 3 of 50' is on the left, 'Resources 2' is in the center, and 'Next Item' is on the right. The main content area contains the instruction: 'Refer to the new resources then identify the relevant requirements for the new video on-demand service.' Below this instruction are two columns of four buttons each. The left column has blue buttons labeled 'High availability', 'Low latency', 'Throughput', and 'Low packet drop'. The right column has yellow buttons labeled 'Priority', 'Priority', 'Priority', and an empty space. At the bottom right, there is a link: 'Submit feedback about this item.'

Item types: drag'n drop

Category_DnD

Remaining time: 02 : 14 : 54

Item 3 of 50 Resources 2 Next Item

Refer to the new resources then distribute all measures on the left to the applicable category on the right.

Resources	Network	Application
High availability	Measure 1	Measure
Low latency	Measure 2	Measure
Throughput	Measure 3	Measure
Low packet drop	Measure 4	Measure

- Drag options on the left to one category on the right
- Can have more options than targets, and vice-versa (each category can have between one and the total options)
- Options on left can be randomized
- Each category can be ordered or unordered

Graphical_DnD

Remaining time: 02 : 14 : 54

Item 3 of 50 Resources 2 Next Item

Refer to the new resources then drag and drop a component on the left to the applicable spot on the canvas.

Resources	Drop Spot
Router	ACME Headquarters (R11)
L2 Switch	Host 1 (S20)
L3 Switch	Server 1 (S20)
Voice gateway	Host 1 (S20)

- Drag icon/options on the left to one drop_spot on the picture/canvas
- Each option can be dragged any number of times to any drop_zone
- Each drop_zone can receive only one icon/option

Item types: dropdown

Dropdown Simple

Refer to the new resources then indicate which devices should advertise the aggregate prefix.

must advertise an aggregate prefix upstream.

- The gateways
- The core switches
- The distribution switches
- The access switches

- Very similar to a MCSA, "just" presented as a dropdown
- Might be more appropriate in some case vs MCSA (e.g. when completing a sentence)

Dropdown Row (single)

Refer to the new resources then indicate which information is missing in order to progress in the investigations.

are missing in their

- The gateways
 - a
 - an
 - the
- default route
 - specific prefix
 - aggregate prefix
- overlay
 - underlay
 - primary path
 - secondary path

- Any number of dropdown, sequenced in a row.

Item types: dropdown

Dropdown rows

Remaining time: 02 : 14 : 54

Item 4 of 50 Resources 3 Next Item

Refer to the new resources then indicate which console output provided the most important information that led to the root cause of the issue:

<input type="text" value="R1"/>	<input type="text" value="sh cdp neighbors"/>
<input type="text" value="R2"/>	<input type="text" value="sh ip int brief"/>
<input type="text" value="SW1"/>	<input type="text" value="sh ip route"/>
<input type="text" value="SW2"/>	<input type="text" value="sh ip ospf int brief"/>

Indicate which information is required in order to resolve this issue:

<input type="text" value="HQ"/>	<input type="text" value="BGP AS number"/>
<input type="text" value="DC1"/>	<input type="text" value="OSPF process number"/>
<input type="text" value="BR1"/>	<input type="text" value="Primary transport path"/>

- Any number of dropdown, sequenced in a row.

Dropdown range

Remaining time: 02 : 14 : 54

Item 4 of 50 Resources 3 Next Item

Refer to the new resources then select which line number in the automate.py script is causing the exception reported by the Python interpreter:

Line number:

- 1
- 2
- 3
- 4
- 5
- 6
- ...

- Large number of options in the dropdown, as a sequence of integer with min/max

Item types: MCxA matrix

MCSA Matrix

Remaining time: 02 : 14 : 54

Item 4 of 50 Resources 3 Next Item

Refer to the new resources then select the correct class of service for each application traffic.

	Class of service		
Application traffic	EF	AF22	AF31
Voice	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Video	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routing protocols	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Payments	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public Web apps	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Biz Web apps	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

- Multiple MCSA, one per row (i.e. only one column may be selected per row)
- Great for compare/contrast

MCMA Matrix

Remaining time: 02 : 14 : 54

Item 4 of 50 Resources 3 Next Item

Refer to the new resources then indicate which requirement(s) are met by each solution.

	Requirements		
Measures	High Availability	Ease of support	High ROI
SD-WAN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMVPN with single hub	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DMVPN with dual hub	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FlexVPN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
IPsec VPN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
MPLS L3VPN	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Multiple MCMA, one per row (i.e. multiple columns may be selected per row)
- Great for compare/contrast

Item types: multiple question per Item

Multiple dropdown rows

Remaining time: 02 : 14 : 54

Item 4 of 50 Resources 3 Next Item

Refer to the new resources then indicate which console output provided the most important information that led to the root cause of the issue:

<input type="text" value="R1"/>	<input type="text" value="sh cdp neighbors"/>
<input type="text" value="R2"/>	<input type="text" value="sh ip int brief"/>
<input type="text" value="SW1"/>	<input type="text" value="sh ip route"/>
<input type="text" value="SW2"/>	<input type="text" value="sh ip ospf int brief"/>

Indicate which information is required in order to resolve this issue:

<input type="text" value="HQ"/>	<input type="text" value="BGP AS number"/>
<input type="text" value="DC1"/>	<input type="text" value="OSPF process number"/>
<input type="text" value="BR1"/>	<input type="text" value="Primary transport path"/>

Various question types

Remaining time: 02 : 14 : 54

Item 3 of 50 Resources 2 Next Item

Refer to the new resources then select and order the implementation steps?

<input type="button" value="Deploy vManage in DC#1"/>	<input type="button" value="Step 1"/>
<input type="button" value="Deploy vEdge in all sites"/>	<input type="button" value="Step 2"/>
<input type="button" value="Increase BGP LOCAL_PREF"/>	<input type="button" value="Step 3"/>

Select the rationale that explains why you selected the first step above:

- vManage must be operational before vEdge
- vEdge must be operational before vManage
- Traffic should be routed via vEdge in order for it to register to vManage