



The bridge to possible

Prepare for the Enterprise Automation (ENAUTO) Certification with Real-Life Applications

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Quinn Snyder, Senior Technical Advocate

BRKCRT-2014

Cisco Webex App

Questions?

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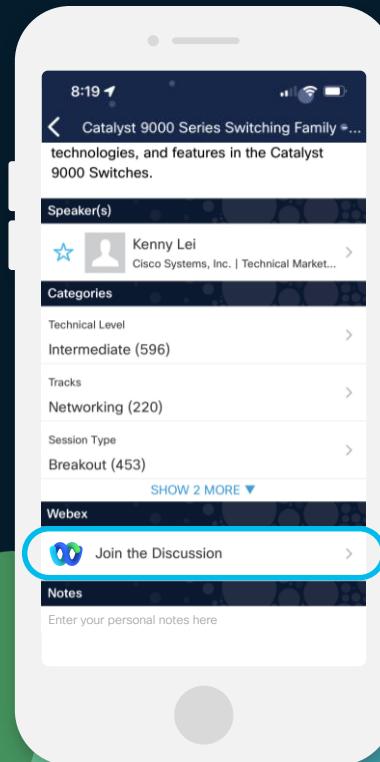
How

- 1 Find this session in the Cisco Live Mobile App
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Agenda

- Introduction to Cisco Certifications
- Roadmap changes
- What to expect on the exam
- Exam vs Real life
- How to prepare for the exam

Introduction to Cisco Certifications

“DevNet professional, ENAUTO and Automation skills Required”

ime this meeting was productive and has ht major changes on . We will visit several s of strategic interest will discuss possible orations nationally.

ssion for global warm- und terrorism issues. ng other things will discuss new measures global security. Last this meeting was very etive and has brought changes on Earth. We /visit several places of gic interest and will is possible collabora- nationally.

ng other things will has brought major changes collaborations nationally.



meeting was very produc tive and has brought majo changes on Earth. We wil visit several places of strate gic interest and will discuss possible collaborations na tionally.

Will also discuss new mea sures on global security. Last time this meeting wa very producti and ha brought maj changes on Earth. We /sit severa places of e interes and wi , possibl collabora ionally.

Disc ing global warm orism issues r things wil

Cisco Career Certifications



One Exam

CCNA



Two Exams: Core + 1 Concentration

Enterprise Core

Ent Adv Routing
Firepower

Ent Design
ISE

SD-WAN
ESA

Wireless Implement
WSA

Wireless Design
VPN

Network Assurance

Cloud Connectivity

Cloud Security



Core + Lab

Ent Infrastructure Lab

Ent Wireless Lab

Security Lab

Service Provider Lab

Collaboration Lab

Data Center Lab

Security Core

SP Adv Routing
Collab Apps

SP VPN
Call Control & Mobility

Cloud Infra
Cloud & Edge

Service Provider Core

Collab Automation

DC Design

DC TShoot

ACI

Adv ACI

Ent Automation

Security Automation

SP Automation

Collab Automation

DC Automation



One Exam

DevNet Associate



Two Exams: Core + 1 Concentration

DevNet Core

DevOps

Tech Auto in CCNP



Core + Lab

DevNet Expert



One Exam

CyberOps Associate



Two Exams: Core + 1 Concentration

CyberOps Core

DFIR

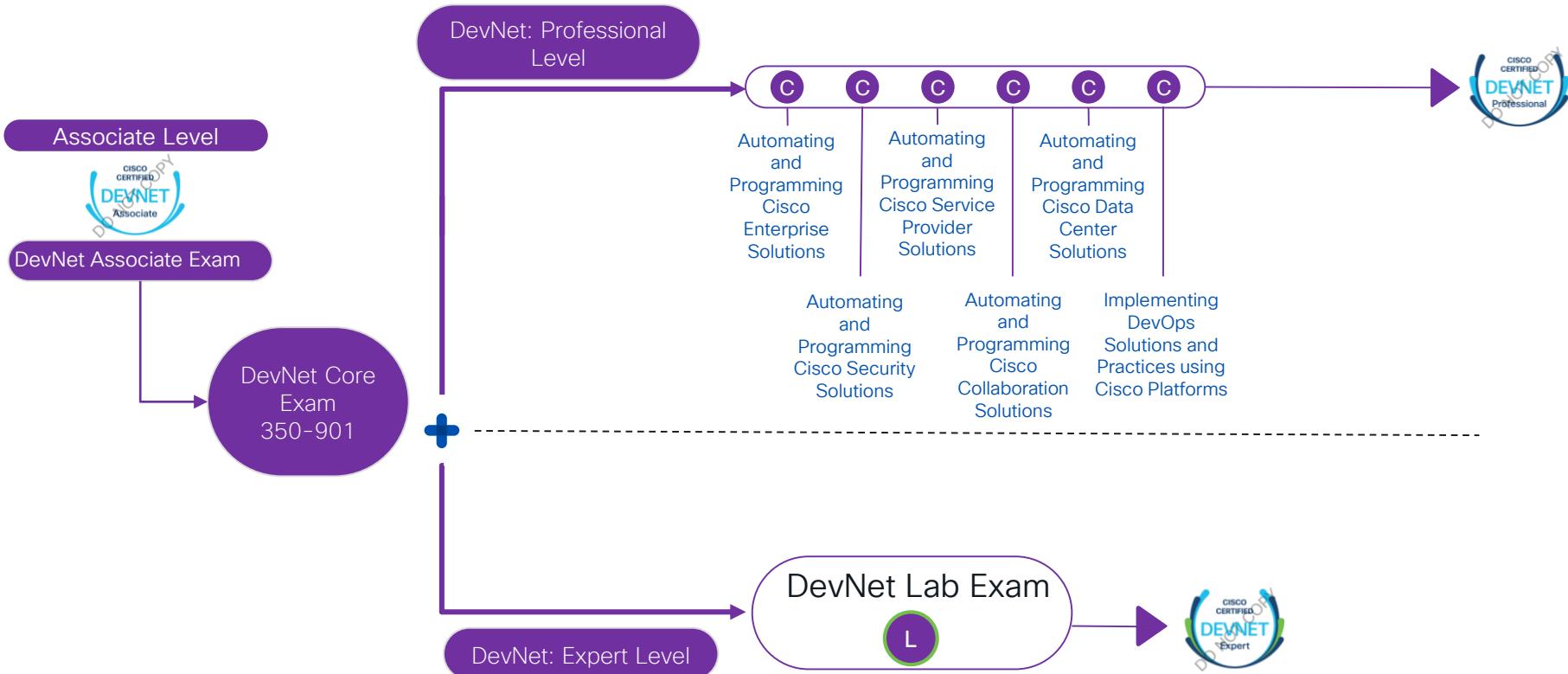
Threat Hunting



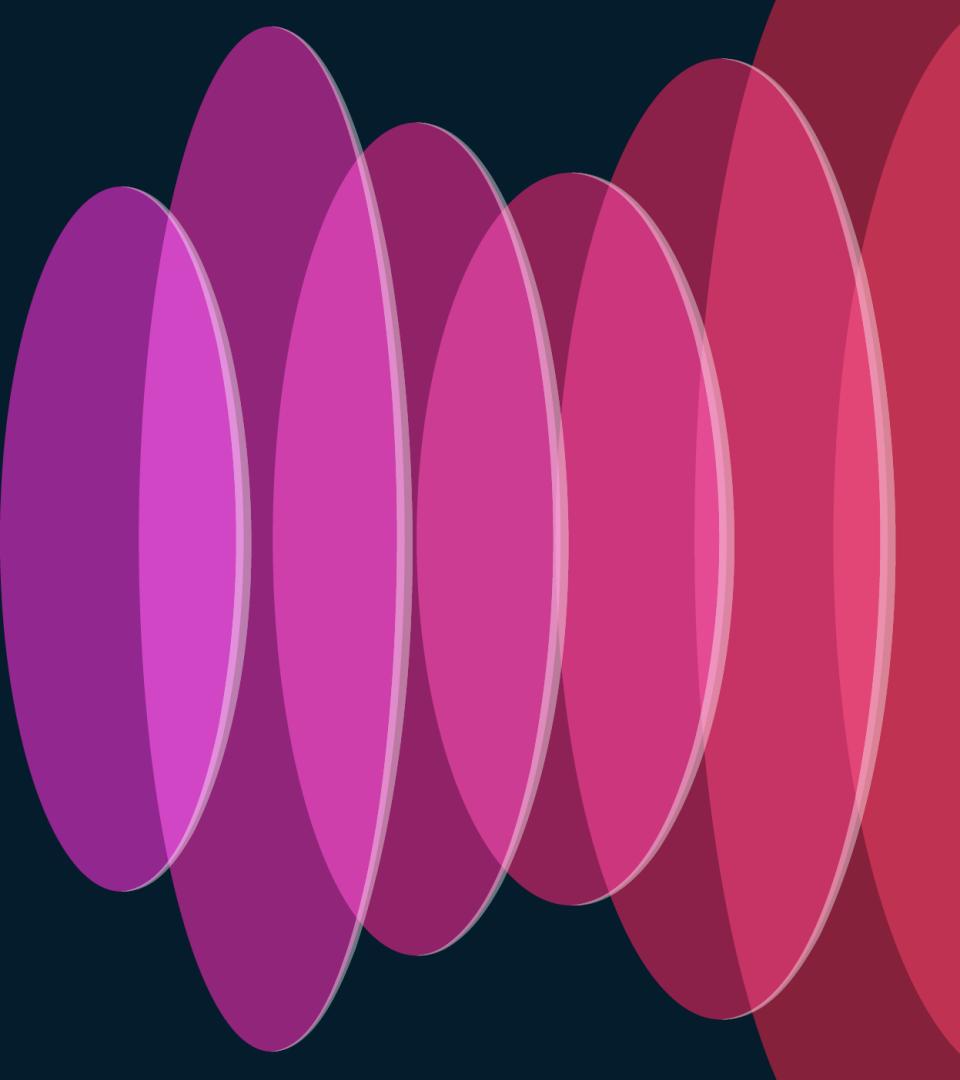
Future Offering

CyberOps Expert

Cisco DevNet-Automation certification track



Roadmap changes



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

Enterprise & DevNet

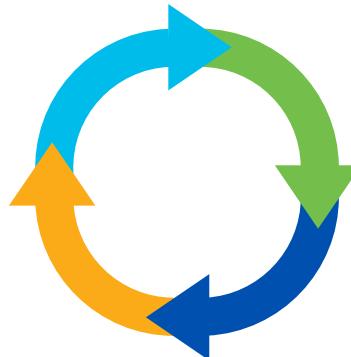
Q2: Review/Job Task analysis
Q3: New blueprints published
Q4: Updated exam go live

Security & CyberOps

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

CCNA & Service Provider

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



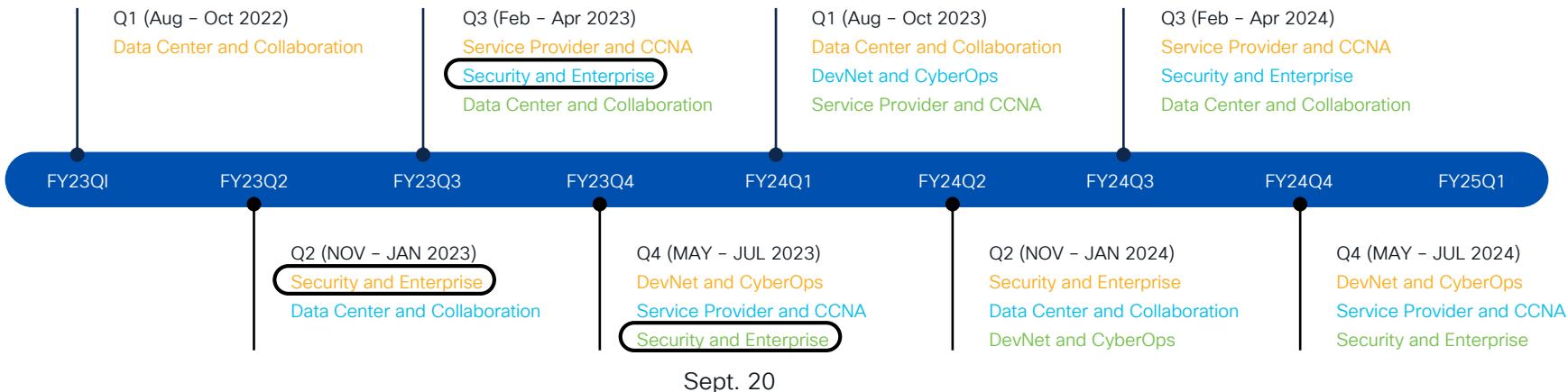
Dates shown reflect Cisco's fiscal year calendar.

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

Certification roadmap

How it works:

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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)

Blueprint version number
v2.1 → v3.0

Every 3-5 years

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)

ENAUTO v1.0 vs ENAUTO v1.1

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**

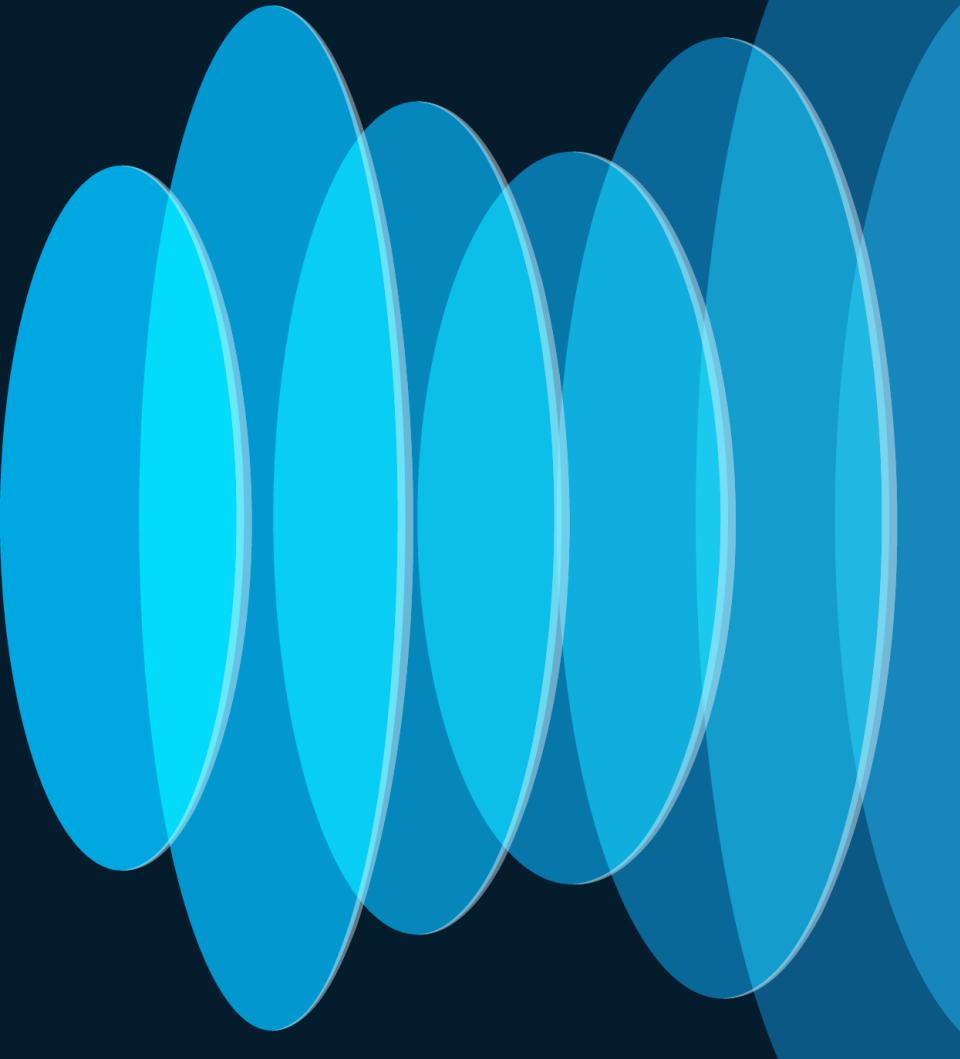
5.1 Describe features and capabilities of Cisco SD-WAN vManage ~~Certificate Management~~ APIs

Upcoming Exam Changes

Select the technology tabs below for specific exam changes:

DevNet	CyberOps	Service Provider	CCNA	Security	Enterprise	Collaboration	Data Center	FAQs
Exam Number			Release Notes			Exam Topic Blueprint	Learning Matrix	Hardware/ Software List
Cisco Enterprise Exams			CCNP Release Notes					
CCNP/CCIE Core Exam Updates								
350-401 ENCOR v1.1				Exam Topics				
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 ENWLSD 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				

What to expect on the exam



Exam Blueprint

<https://learningnetwork.cisco.com/s/enauto-exam-topics>

Certifications / DevNet Professional | CCNP Enterprise / 300-435 ENAUTO Exam Topics

300-435 ENAUTO v1.1 Exam Topics

Exam Description

Automating Cisco Enterprise Solutions v1.1 (ENAUTO 300-435) is a 90-minute exam associated with the CCNP Enterprise Certification and DevNet Professional Certification. This exam certifies a candidate's knowledge of implementing Enterprise automated solutions, including programming concepts, Python programming, APIs, controllers and automation tools. The course, Implementing Cisco Enterprise Automation Solutions, helps candidates to prepare for this exam.

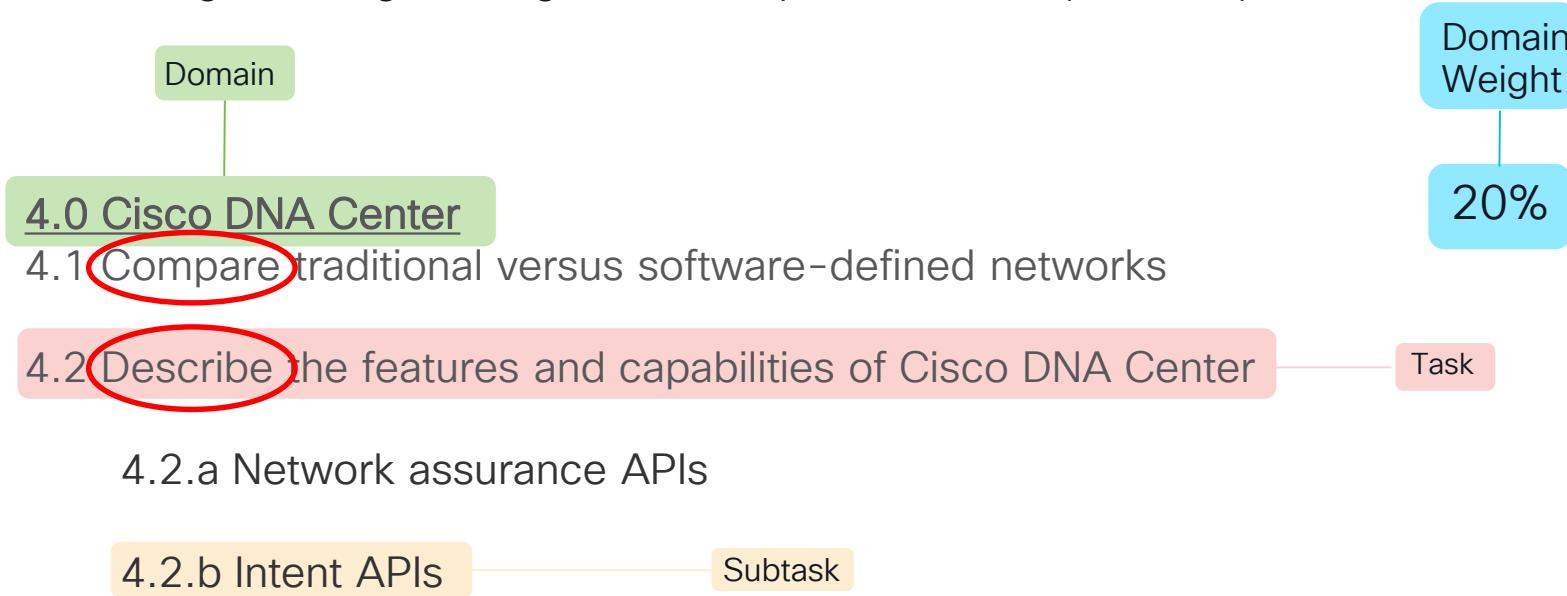
The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

[Download Complete List of Topics in PDF format](#)

1.0 Network Programmability Foundation	10%	▼
2.0 Automate APIs and Protocols	10%	▼
3.0 Network Device Programmability	20%	▼
4.0 Cisco DNA Center	20%	▼
5.0 Cisco SD-WAN	20%	▼
6.0 Cisco Meraki	20%	▼

Interpret the Blueprint:

Automating and Programming Cisco Enterprise Solutions (300-435)



Blueprint Verbs

Describe/Explain

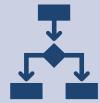
Compare

Configure/Implement/Construct/Utilize/Interpret

Troubleshoot/Identify

Depth of Knowledge

Types of questions



Multiple choice



Drag and drop



Tablets are coming...

Describe question

1.5 Describe the benefits of Python virtual environments

What is a benefit of Python virtual environments?

- A. separates project dependencies
- B. automates software upgrades
- C. enhances DDos security
- D. adds version control functionality

Describe question

1.5 Describe the benefits of Python virtual environments

What is a benefit of Python virtual environments?

- *A. separates project dependencies
- B. automates software upgrades
- C. enhances DDos security
- D. adds version control functionality

Compare question

4.1 Compare traditional versus software-defined networks

What is the difference between traditional and software-defined networks?

- *A. Traditional networks have fixed capacity, whereas software-defined networks are flexible and agile.
- B. Traditional networks are centralized controlled, whereas software-defined are hardware-centric..
- C. Traditional networks ...
- D. Traditional networks ...

Compare question

4.1 Compare traditional versus software-defined networks

OR like this

Drag and drop the characteristics from the left onto the network types on the right.

Centralized Control

Fixed Capacity

Hardware-Centric

Flexible and Agile

Traditional Networks

Hardware-Centric

Fixed Capacity

Software-Defined Networks

Centralized Control

Flexible and Agile

How to prepare

Describe/Explain

Compare

Configure/Implement/Construct/Utilize/Interpret

Troubleshoot/Identify

Depth of Knowledge

The Cisco Learning Network Store



CCNP Enterprise, DevNet Professional - Concentration

Implementing Automation for Cisco Enterprise Solutions (ENAUI) v1.2

Continuing Education Credits: 24

Labs Self-Paced Training Video Training

Access Duration: 180 days

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For You

Explore

LEARNING PATH



Implementing Automation for Cisco Enterprise Solutions | ENAUI

Learn to implement Cisco Enterprise automated solutions and prepare for the 300-435 ENAUTO certification exam.



Intermediate 21h 5m 24 Credits v1.2

Configure question

3.3 Configure device using RESTCONF API utilizing Python requests library

Drag and drop the code from the bottom onto the box where the code is missing to remove loopback100 using RESTCONF. Not all options are used.

```
import requests
import json

url = "https://ios-xe-mgmt-latest.cisco.com:9443/restconf/ \
       data/ietf-interfaces:interfaces/interface=Loopback100"

[REDACTED] = {}

headers = {
    'Content-Type': 'application/yang-data+json',
    '[REDACTED]': 'application/yang-data+json',
    'Authorization': '[REDACTED] ZGV2ZWxvcGVyOkMxc2NvMTIzNDU='
}

response = requests.request("[REDACTED]", url, headers=headers, data=payload)

print(response.text)
```

Bearer

DELETE

payload

data

Basic

GET

Accept

Configure question

3.3 Configure device using RESTCONF API utilizing Python requests library

Drag and drop the code from the bottom onto the box where the code is missing to remove loopback100 using RESTCONF. Not all options are used.

```
import requests
import json

url = "https://ios-xe-mgmt-latest.cisco.com:9443/restconf/ \
       data/ietf-interfaces:interfaces/interface=Loopback100"

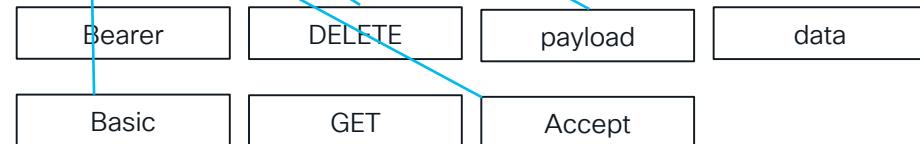
[{"code": "payload = {}"}]

headers = {
    'Content-Type': 'application/yang-data+json',
    'Accept': 'application/yang-data+json',
    'Authorization': 'Bearer ZGV2ZWxvcGVyOkMxc2NvMTIzNDU='
}

[{"code": "headers = {}"}, {"code": "'Accept': 'application/yang-data+json'"}, {"code": "'Authorization': 'Bearer ZGV2ZWxvcGVyOkMxc2NvMTIzNDU='"}]

response = requests.request("DELETE", url, headers=headers, data=payload)

print(response.text)
```



How to prepare

Describe/Explain

Compare

Configure/Implement/Construct/Utilize/Interpret

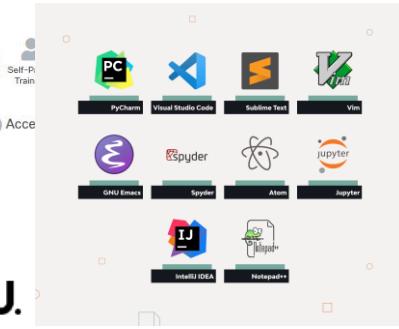
Troubleshoot/Identify

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Learn to implement Cisco Enterprise automated solutions and prepare for the 300-435 ENAUTO certification exam.



Intermediate



21h 5m



24 Credits



v1.2

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Troubleshoot question

5.6 Troubleshoot a Cisco SD-WAN deployment using vManage APIs

```
import requests

url = "https://sandbox-sdwan-2.cisco.com:443/dataservice/device/monitor"

payload = {
    'Cookie': 'JSESSIONID=V1G1zAg8MQaHRpvshPVk9hTkCRe5PLo1rx2RuK7.81ac6722-a226-4411-9d5d-45c0ca7d567b'
}
headers = {
    'X-XSRF-TOKEN': '154A22D9C79DE811BE7A2693BEE288C3',
}

response = requests.request("GET", url, headers=headers, data=payload, verify=False)

print(response.text)
```

Refer to the exhibit. A network engineer is tasked to retrieve device statuses on a SD-WAN deployment. To accomplish the requirement, the network creates a script utilizing the vManage API. When the script is run a login error appears. What must the engineer change on the script to fix the issue?

- A. move the cookie in the headers
- B. move the x-xsrf-token in the payload
- C. remove the cookie from the code
- D. remove the x-xsrf-token from the code

Troubleshoot question

5.6 Troubleshoot a Cisco SD-WAN deployment using vManage APIs

```
import requests

url = "https://sandbox-sdwan-2.cisco.com:443/dataservice/device/monitor"

payload = {
    'Cookie': 'JSESSIONID=V1GlzAg8MQaHRpvshPVk9hTkCRe5PLo1rx2RuK7.81ac6722-a226-4411-9d5d-45c0ca7d567b'
}
headers = {
    'X-XSRF-TOKEN': '154A22D9C79DE811BE7A2693BEE288C3',
}

response = requests.request("GET", url, headers=headers, data=payload, verify=False)

print(response.text)
```

Refer to the exhibit. A network engineer is tasked to retrieve device statuses on a SD-WAN deployment. To accomplish the requirement, the network creates a script utilizing the vManage API. When the script is run a login error appears. What must the engineer change on the script to fix the issue?

- *A. move the cookie in the headers
- B. move the x-xsrf-token in the payload
- C. remove the cookie from the code
- D. remove the x-xsrf-token from the code

How to prepare

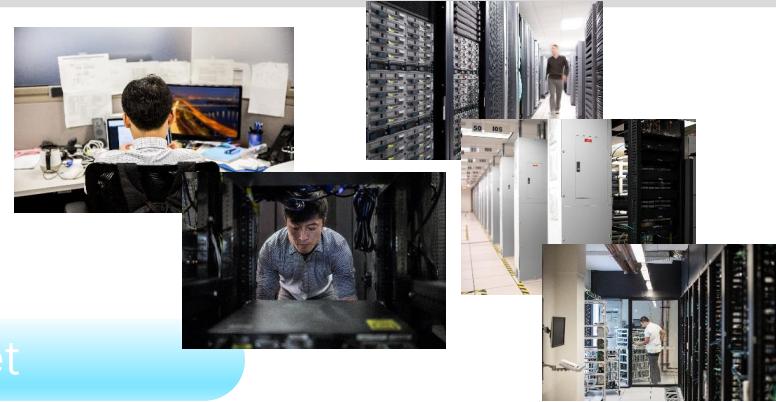
Describe/Explain

Compare

Configure/Implement/Construct/Utilize/Interpret

Troubleshoot/Identify

Depth of Knowledge



Exam vs Real life

What will be covered

2.3 Interpret a YANG module tree generated per RFC8340

3.4 Utilize Ansible to configure an IOS XE device

Implement API requests for Cisco DNA Center to accomplish network management tasks using these APIs

4.5.a Network discovery and device APIs

5.3 Construct API requests for Cisco SD-WAN vManage Administration APIs

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```
$ pyang enauto-device-module.yang -f tree
module: enauto-device-module

  +-rw device
    +-rw hostname          string
    +-rw vrfs*             string
    +-rw router-id?        inet:ipv4-address
    +-rw vlans* [id]
      +-rw id              uint16
      +-rw name?           string
```

Refer to the exhibit. Which partial YANG model is represented by the pyang tree?

A.

```
leaf router-id {
  type inet:ipv4-address;
}
list vlans {
  key id;
  leaf id {
    type uint16;
    mandatory true;
}
```

B.

```
leaf router-id {
  type ipv4-address;
}
list vlans {
  key id;
  leaf id {
    type uint16;
    mandatory true;
}
```

C.

```
leaf router-id {
  type inet:ipv4-address;
}
list vlans {
  leaf id {
    type uint16;
}
```

D.

```
leaf router-id {
  type inet:ipv4-address;
}
leaf-list vlans {
  key id;
  leaf id {
    type string;
    mandatory true;
}
```

YANG models and `pyang`

- RFC8430 defines YANG tree diagrams
 - YANG tree provides visualization of YANG module, nesting, types, and options
 - ***Does not include*** specific restrictions/validators within the types
- Can use pyang utility to generate trees
 - Installed via pip in Python
 - Called using pyang <module> -f tree

2.6. Node Representation

Each node in a YANG module is printed as:

```
<status>--<flags> <name><opts> <type> <if-features>

<status> is one of:
+ for current
x for deprecated
o for obsolete

<flags> is one of:
rw for configuration data nodes and choice nodes
ro for non-configuration data nodes and choice nodes,
      output parameters to rpcs and actions, and
      notification parameters
-w for input parameters to rpcs and actions
-u for uses of a grouping
-x for rpcs and actions
-n for notifications
mp for nodes containing a "mount-point" extension statement

Case nodes do not have any <flags>.
```

<name> is the name of the node
(<name>) means that the node is a choice node
:(<name>) means that the node is a case node

If the node is augmented into the tree from another module,
its name is printed as <prefix>:<name>, where <prefix> is the
prefix defined in the module where the node is defined.

If the node is a case node, there is no space before the
<name>.

<opts> is one of:
? for an optional leaf, choice, anydata, or anyxml
! for a presence container
* for a leaf-list or list
[<keys>] for a list's keys
/ for a top-level data node in a mounted module
@ for a top-level data node of a module identified in a
 mount point parent reference

<type> is the name of the type for leafs and leaf-lists

From <https://datatracker.ietf.org/doc/html/rfc8340>

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5.3 Construct API requests for Cisco SD-WAN vManage Administration APIs

```
---
```

```
- name: PLAY 1 - DEPLOYING SNMP CONFIGURATIONS ON IOS
  [REDACTED]
- name: TASK 1 in PLAY 1 - Modifying the SNMP configuration
  cisco.ios.ios_snmp_server:
    config:
      communities:
        - name: BRKCRT-2014-COMMUNITY
          ro: true
          contact: THE_STAFF
          location: THE_HOTEL_CONFERENCE_ROOM
          state: merged
- name: "TASK 2 in PLAY 1 - Verify the SNMP configuration exists"
  cisco.ios.ios_snmp_server:
    state: gathered
```

Refer to the exhibit. An engineer needs to configure SNMP on a CSR router with hostname csr1. Which code snippet will complete the Ansible playbook?

A.

```
hosts: "csr1"
connection: network_cli
gather_facts: no
tasks:
```

B.

```
hosts: "csr1"
connection: ssh
gather_facts: no
tasks:
```

C.

```
hosts: "CSR"
connection: RESTCONF
gather_facts: no
tasks:
```

D.

```
hosts: "csr1"
connection: HTTPS
gather_facts: no
tasks:
```

Demo Overview: Using Ansible to Configure IOS-XE

```
[iosxe]
csr1 ansible_host=10.10.20.48 ansible_network_os=cisco.ios.ios

[all:vars]
ansible_user=developer
ansible_ssh_pass=Cisco12345
ansible_connection=network_cli
```

```
---
- name: PLAY 1 - DEPLOYING SNMP CONFIGURATIONS ON IOS
  hosts: "csr1"
  connection: network_cli
  gather_facts: no
  tasks:
    - name: TASK 1 in PLAY 1 - Modifying the SNMP configuration
      cisco.ios.ios_snmp_server:
        config:
          communities:
            - name: CLUS-DEMO
              ro: true
            contact: BEARDED_GUY
            location: LAS_VEGAS
            state: merged
    - name: "TASK 2 in PLAY 1 - Verify the SNMP configuration exists"
      cisco.ios.ios_snmp_server:
        state: gathered
```

- The Ansible inventory file defines the device credentials, IP address and device type within the project
- The Ansible playbook lists a series of tasks to be executed upon the device csr1, defined in inventory
- The playbook has two tasks:
 - First, it sends three SNMP configuration lines
 - Second, it sends a verification show command to see if the change was successful

Let's Test It: Using Ansible to Configure IOS-XE

- `-v` flag indicates additional output; command output
- Orange text: change
- Green text: no change; output

```
[I] [brkcrt2014] ansible [main] » ansible-playbook pb-configure-snmp.yaml -v
Using /Users/qsnnyder/dev/BRKCRT-2014/ansible/ansible.cfg as config file

PLAY [PLAY 1 - DEPLOYING SNMP CONFIGURATIONS ON IOS]
*****
[WARNING]: ansible-pylibssh not installed, falling back to paramiko

TASK [TASK 1 in PLAY 1 - Modifying the SNMP configuration]
*****
changed: [csr1] => {"after": {"communities": [{"name": "CLUS-DEMO", "ro": true}], "contact": "BEARDED_GUY", "location": "LAS_VEGAS"}, "before": {}, "changed": true, "commands": ["snmp-server contact BEARDED_GUY", "snmp-server location LAS_VEGAS", "snmp-server community CLUS-DEMO ro"]}

TASK [TASK 2 in PLAY 1 - Verify the SNMP configuration exists]
*****
ok: [csr1] => {"changed": false, "gathered": {"communities": [{"name": "CLUS-DEMO", "ro": true}], "contact": "BEARDED_GUY", "location": "LAS_VEGAS"}}

PLAY RECAP
*****
csr1 : ok=2     changed=1     unreachable=0    failed=0     skipped=0    rescued=0    ignored=0
```

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5.3 Construct API requests for Cisco SD-WAN vManage Administration APIs

```
BASE_URL = 'https://10.10.10.100'  
DISCOVERY_URL = '/dna/intent/api/v1/discovery'
```

```
response = requests.post(BASE_URL + DISCOVERY_URL, headers=headers,  
                         json=discovery, verify=False)  
task_id = response.json()['response']['taskId']  
  
time.sleep(10)  
response = requests.get(BASE_URL + TASK_BY_ID_URL.format(task_id=task_id),  
                         headers=headers, verify=False)  
discovery_id = response['progress']
```

Refer to the exhibit. An engineer must use Cisco DNA Center to discover the connected devices based on a list of IP addresses. Which line of code needs to be added to the box where the code is missing to accomplish the requirement?

A.

```
discovery = {  
    "name": "ENAUTO-Discovery",  
    "discoveryType": "CDP",  
    "ipAddressList": "10.255.3.100-10.255.3.199",  
    "timeOut": "10s",  
    "retryCount": 3,  
    "preferredMgmtIPMethod": "LoopbackInterface"  
}
```

B.

```
discovery = {  
    "name": "ENAUTO-Discovery",  
    "discoveryType": "LLDP",  
    "ipAddressList": "10.255.3.100-10.255.3.199",  
    "timeOut": "10s",  
    "retryCount": 3,  
    "preferredMgmtIPMethod": "UseLoopBack"  
}
```

C.

```
discovery = {  
    "name": "ENAUTO-Discovery",  
    "discoveryType": "Range",  
    "ipAddressList": "10.255.3.100-10.255.3.199",  
    "timeOut": 10,  
    "retryCount": 3,  
    "preferredMgmtIPMethod": "UseLoopBack"  
}
```

D.

```
discovery = {  
    "name": "ENAUTO-Discovery",  
    "discoveryType": "Range",  
    "ipAddressList": "10.255.3.100-10.255.3.199",  
    "timeOut": 10,  
    "retryCount": 3,  
    "preferredMgmtIPMethod": "LoopbackInterface"  
}
```

Specific APIs and payloads

POST <https://sandboxdnac.cisco.com/dna/intent/api/v1/discovery>

Initiates discovery with the given parameters

[Cisco DevNet API Guide](#)

Parameters Request Body Responses Code Preview

Discovery request that holds the parameters required for discovery

Schema Sample

✓ `root` (map, optional)

`cdpLevel` (integer, optional): CDP level to which neighbor devices to be discovered
 `discoveryType` (string, required): Type of Discovery. 'SINGLE'; 'RANGE'; 'MULTI RANGE'; 'CDP'; 'LLDP'
 `enablePasswordList` (array<string>, optional): Enable Password of the devices to be discovered
 `globalCredentialIdList` (array<string>, optional): Global Credential Ids to be used for discovery
 ✓ `httpReadCredential` (map, optional): HTTP Read Credential of the devices to be discovered
 `password` (string, required): HTTP(S) password
 `port` (integer, required): HTTP(S) port

- Specific APIs on "exam topics" should be reviewed in depth
- Should understand:
 - API paths
 - Payload required
 - HTTP verbs required for action
- Resources:
 - Sample code (DevNet)
 - Off-box API documentation
 - On-box API docs/explorer

What will be covered

2.3 Interpret a YANG module tree generated per RFC8340

3.4 Utilize Ansible to configure an IOS XE device

Implement API requests for Cisco DNA Center to accomplish network management tasks using these APIs

4.5.a Network discovery and device APIs

5.3 Construct API requests for Cisco SD-WAN vManage Administration APIs

Drag and drop the code from the bottom onto the box where the code is missing to complete the script for a user to authenticate to a vManage controller. Not all options are used.

```
def get_jsessionid(vmanage_host, vmanage_port, username, password):
    api = "https://[REDACTED]:[REDACTED]"[REDACTED]
    base_url = "https://[REDACTED]:[REDACTED]"%(vmanage_host, vmanage_port)
    url = base_url + api
    payload = {'[REDACTED]': username, '[REDACTED]': password}

    response = requests.post(url=url, data=payload, verify=False)
    try:
        cookies = response.headers["Set-Cookie"]
        jsessionid = cookies.split(";" )
        return([REDACTED][0])
    except:
        if logger is not None:
            logger.error("No valid JSESSION ID returned\n")
        exit()
```

j_username	j_password	/j_security_check
jsessioncookie	j_password	/v_security_check

Using APIs requires authentication

```
def get_dnac_jwt_token():
    response = requests.post(BASE_URL + AUTH_URL,
                             auth=HTTPBasicAuth(USERNAME, PASSWORD),
                             verify=False)
    token = response.json()['Token']
    return token
```

Cisco DNA Center: Basic auth, returns Token -> add'l calls

```
from requests import Session
class NoRebuildAuthSession(Session):
    def rebuild_auth(self, prepared_request, response):
        session = NoRebuildAuthSession()
        API_KEY = '6bec40cf957de430a6f1f2baf056b99a4fac9ea0'
        response = session.get('https://api.meraki.com/api/v1/organizations/', headers={'Authorization': f'Bearer {API_KEY}'})
        print(response.json())
```

Cisco Meraki Dashboard: API key
(with or without session)

```
class Authentication:

    @staticmethod
    def get_jsessionid(vmanage_host, vmanage_port, username, password):
        api = "/j_security_check"
        base_url = "https://{}:{}{}".format(vmanage_host, vmanage_port)
        url = base_url + api
        payload = {'j_username' : username, 'j_password' : password}

        response = requests.post(url=url, data=payload, verify=False)
        try:
            cookies = response.headers["Set-Cookie"]
            jsessionid = cookies.split(";")
            return(jsessionid[0])
        except:
            print("No valid JSESSION ID returned\n")
            exit()

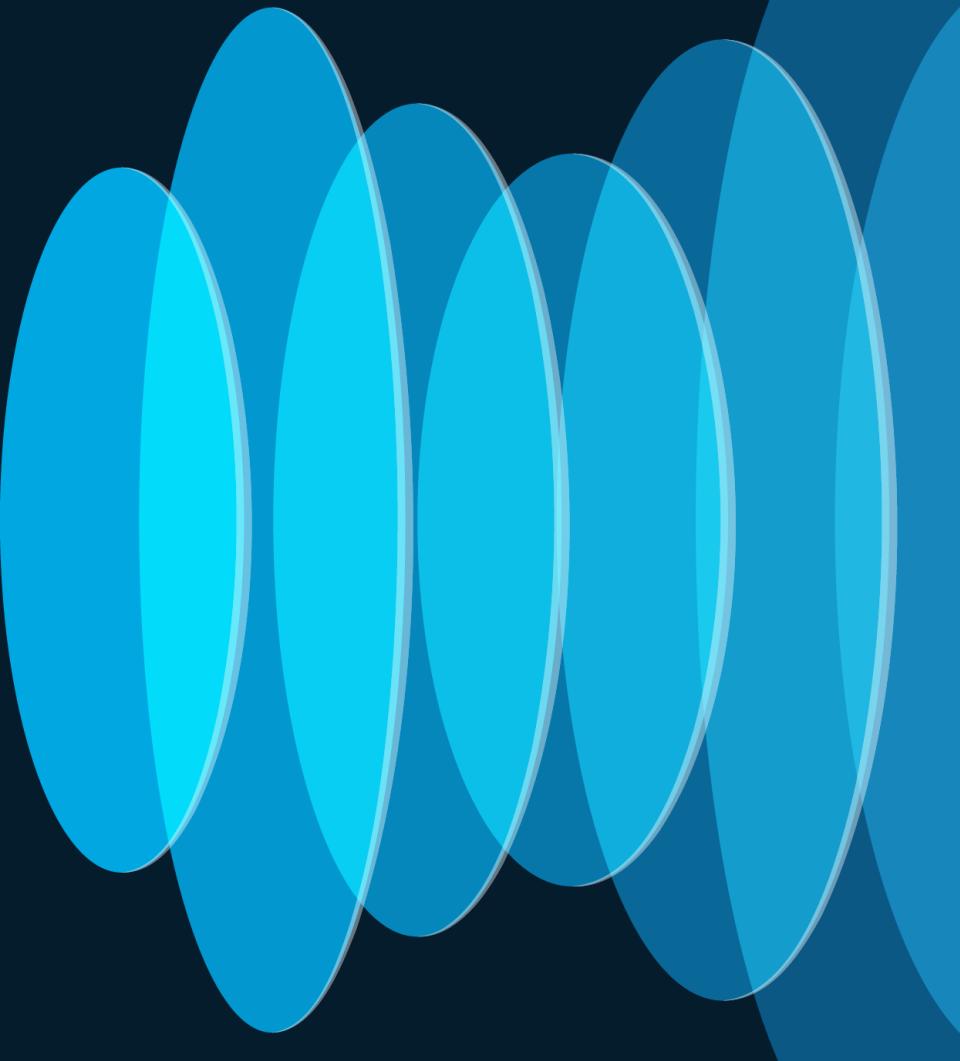
    @staticmethod
    def get_token(vmanage_host, vmanage_port, jsessionid):
        headers = {'Cookie': jsessionid}
        base_url = "https://{}:{}{}".format(vmanage_host, vmanage_port)
        api = "/dataservice/client/token"
        url = base_url + api
        response = requests.get(url=url, headers=headers, verify=False)
        if response.status_code == 200:
            return(response.text)
        else:
            return None

Auth = Authentication()
jsessionid = Auth.get_jsessionid(vmanage_host,vmanage_port,vmanage_username,vmanage_password)
token = Auth.get_token(vmanage_host,vmanage_port,jsessionid)

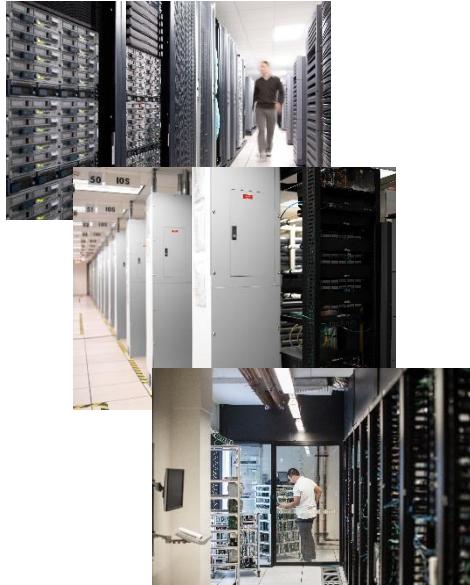
if token is not None:
    header = {'Content-Type': "application/json", 'Cookie': jsessionid, 'X-XSRF-TOKEN': token}
else:
    header = {'Content-Type': "application/json",'Cookie': jsessionid}
```

Cisco SDWAN: User auth -> ID -> token

How to prepare for the exam

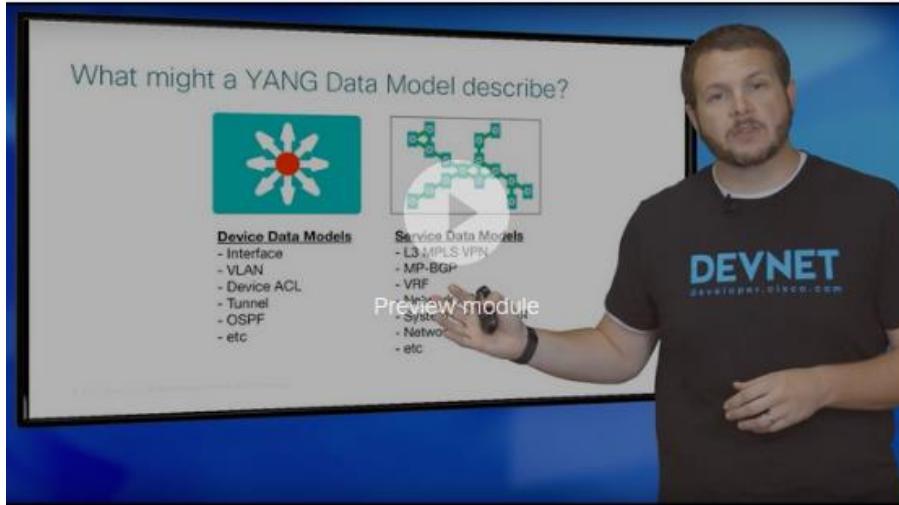


- Hands-on experience
- Study the Blueprint and training. Join CLN-DevNet (study groups)
- Lab-Sandboxes-Code !!!



DevNet Video Courses

<https://developer.cisco.com>



Network Device APIs

Network programmability is more than sending CLI with Python. Learn about the latest in programmatic device interfaces in this module.



[Play module](#)

Getting the "YANG" of it with Standard Data Models	18:41
Goodbye SNMP <hello> NETCONF!	27:00
Learn to CRUD with GET, POST and DELETE using RESTCONF	22:41

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Building Cisco SD-WAN Automation with Python



Intermediate

1h 30m

1 Lab

COURSE



Automating Cisco Meraki



Intermediate

1h 25m

1 Lab

COURSE



Implementing Automation in Enterprise Networks



Intermediate

1h 30m

1 Lab

COURSE



Building Cisco SD-WAN Automation with Ansible



Intermediate

2h 30m

3 Labs

COURSE



Automating Operations using Cisco DNA Center



Intermediate

2h

2 Labs

COURSE



Building Cisco DNA Center Automation with Python



Intermediate

1h 15m

1 Lab

COURSE



Introducing Cisco SD-WAN Programmability



Intermediate

1h 15m

1 Lab

COURSE



Implementing Meraki Integration APIs



Intermediate

2h 5m

2 Labs

COURSE



Managing Configuration with Python and Ansible



Intermediate

1h 5m

1 Lab

COURSE



Implementing On-Box Programmability and Automation with Cisco IO...



Intermediate

1h 20m

2 Labs

COURSE



Day-Zero Provisioning with Cisco IOS XE Software



Intermediate

40m

COURSE



Automating APIs and Protocols



Intermediate

1h 20m

1 Lab

COURSE



Network Programmability Foundation



Intermediate

1h 50m

1 Lab

COURSE



Implementing Model-Driven Telemetry



Intermediate

1h 20m

1 Lab

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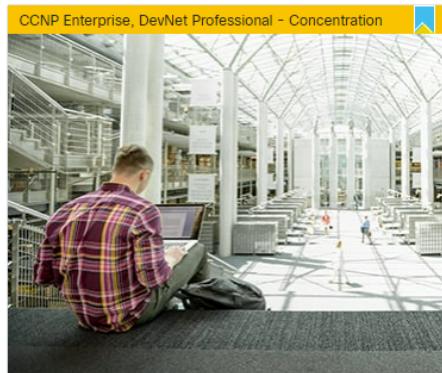
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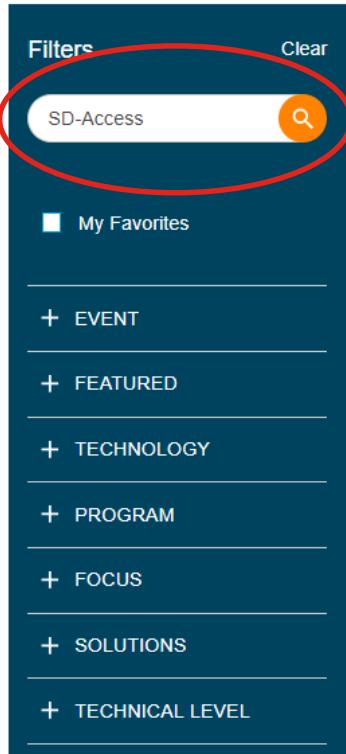
Janet Wourms

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"SD-Access" x

152 sessions

[Cisco SD-Access - A Look Under the Hood - BRKCRS-2810](#)

Event:
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Shawn Wargo, PRINCIPAL ENGINEER.TECHNICAL MARKETING - Distinguished Speaker

[Cisco SD-Access - A Look Under the Hood - BRKCRS-2810](#)

Event:
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[Cisco DNA SD-Access \(SDA\) - Introduction to SDA Fabric - BRKARC-2009](#)

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