

# DevNet Associate (200-901) Certification Practice Exam Answers

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February 4, 2021

## DevNet Associate (Version 1.0) – DevNet Associate (200-901) Certification Practice Exam

**1. A user is developing an application to remotely manage a network device through the API. The features of the API should support the client-server model, JSON or XML data format, and stateless operation. What is an API architecture style that the developer could use?**

- webhook
- RPC
- SOAP
- **REST**

**Explanation:** RPC, SOAP, and REST are the three most popular types of API architectural styles. They all support the client-server model. RPC and REST can use XML or JSON. SOAP uses XML. REST requires that the communication between the client and the server remains stateless.

**2. A user sends a request to add a loopback interface on a Cisco router through the REST API. Which response status code will the user expect to receive that indicates the request is fulfilled?**

- 200
- **201**
- 202
- 203

**Explanation:** With REST APIs, the response code 201 is with the status message of “Created”. It indicates that the request was fulfilled, and the requested resource was created.

**3. Refer to the exhibit. Match the items needed in the Python script. (Not all options are used.)**

```
import requests
"Item A"
api_url = "http://localhost:58000/api/v1/ticket"

headers = {
    "content-type": "application/json"
}

Body = {
    "Item B"
}

resp = requests.post(api_url, json.dumps(body),
headers=headers, verify=False)

print("Ticket request status: ", "Item C")
response1 = "Item D"

serviceTicket = response1["response"]["Item E"]
print("The service ticket number is: ", serviceTicket)
```

import xml

import json

Item A

Item B

"username": "cisco",  
"password": "cisco123!"

import ncclient

Item C

resp.status\_code

Item D

resp.json()

Item E

serviceTicket

4. Refer to the exhibit. A student is learning Python in the interpret mode. The student enters Python statements and after a while, an error message returns. What is a possible cause for the error?

```
>>> import requests
>>> url =
"https://sandboxnac123.cisco.com/dna/intent/api/v1/network-device"
>>> resp = requests.get(url, verify = False)

<output omitted>

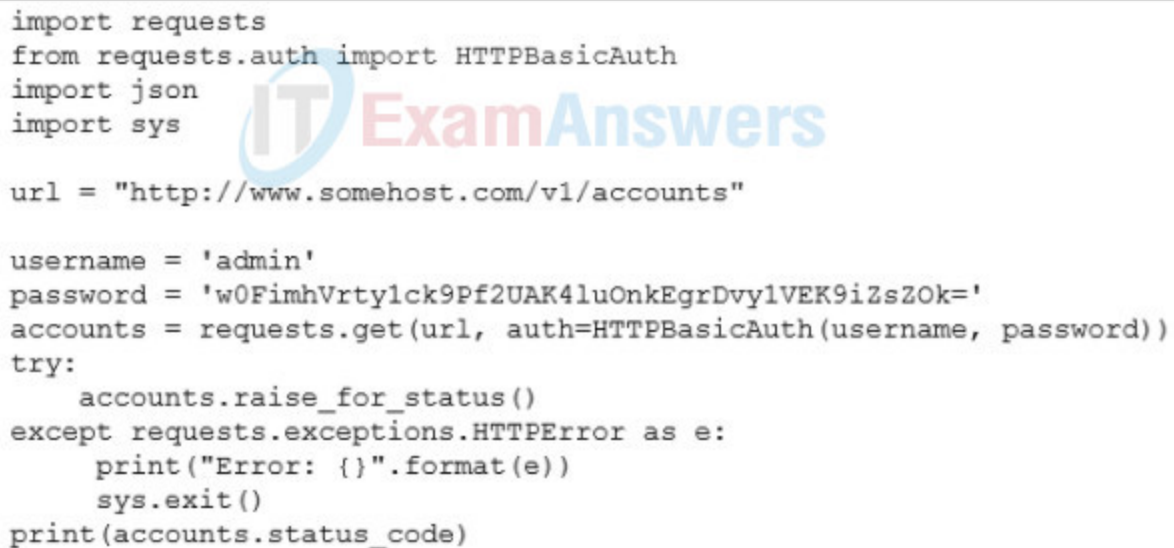
requests.exceptions.ConnectionError:
HTTPSConnectionPool(host='sandboxnac123.cisco.com', port=443): Max
retries exceeded with url: /dna/intent/api/v1/network-device
(Caused by
NewConnectionError('<urllib3.connection.VerifiedHTTPSConnection
object at 0x7fc0681bf280>: Failed to establish a new connection:
[Errno 110] Connection timed out'))
```

- The student did not provide the authentication credentials.

- **The host domain name cannot be resolved.**
- The parameter of “verify = False” should be replaced with “verify = True”.
- The resource on the host is not available.

**Explanation:** The error message indicates that the connection to the host cannot be established. The causes could be an internet connection issue, or the domain name of the host cannot be resolved by DNS servers because it is wrong.

**5. Refer to the exhibit. A developer is constructing a Python script to check the link with a host at <http://www.somehost.com/>. Which function is performed by the script?**



```
import requests
from requests.auth import HTTPBasicAuth
import json
import sys

url = "http://www.somehost.com/v1/accounts"

username = 'admin'
password = 'w0FimhVrtylck9Pf2UAK4luOnkEgrDvy1VEK9iZsZ0k='
accounts = requests.get(url, auth=HTTPBasicAuth(username, password))
try:
    accounts.raise_for_status()
except requests.exceptions.HTTPError as e:
    print("Error: {}".format(e))
    sys.exit()
print(accounts.status_code)
```

- to obtain an API key to access the host
- to obtain a token for the bearer authentication
- to verify the private API key that is used to access the host
- **to verify the basic authentication credentials with the host**

**Explanation:** Common types of REST API authentication mechanisms include Basic, Bearer, and API Key. Basic authentication uses the standard Basic HTTP authentication scheme by specifying credentials such as username/password pairs. The username is in plain text and the password is encoded using Base64.

**6. Which situation illustrates the use of a webhook application?**

- A user sends a REST API call to a webhook server to poll a predefined data set.
- Triggered by the operation of a user, a mobile application sends a REST API request to get information from a webhook server.
- A network automation application queries a router to get CPU and memory usage over a period of time.

- **A developer subscribes to a webhook server for an application so that the application will receive a notification when an event occurs.**

**Explanation:** A webhook is an HTTP callback, or an HTTP POST, to a specified URL that notifies a registered application when an activity or event has occurred in one of the resources on the platform. Webhooks enable applications to get real-time data. With webhooks, applications are more efficient because they no longer need to have a polling mechanism.

**7. Refer to the exhibit. A student is learning Python in the interpret mode. The student enters Python statements and an error message returns. What causes the error?**

```
>>> import requests
>>> url = "https://www.host1.com/service/intent/api/v1/network-
device"
>>> resp = requests.get(url)

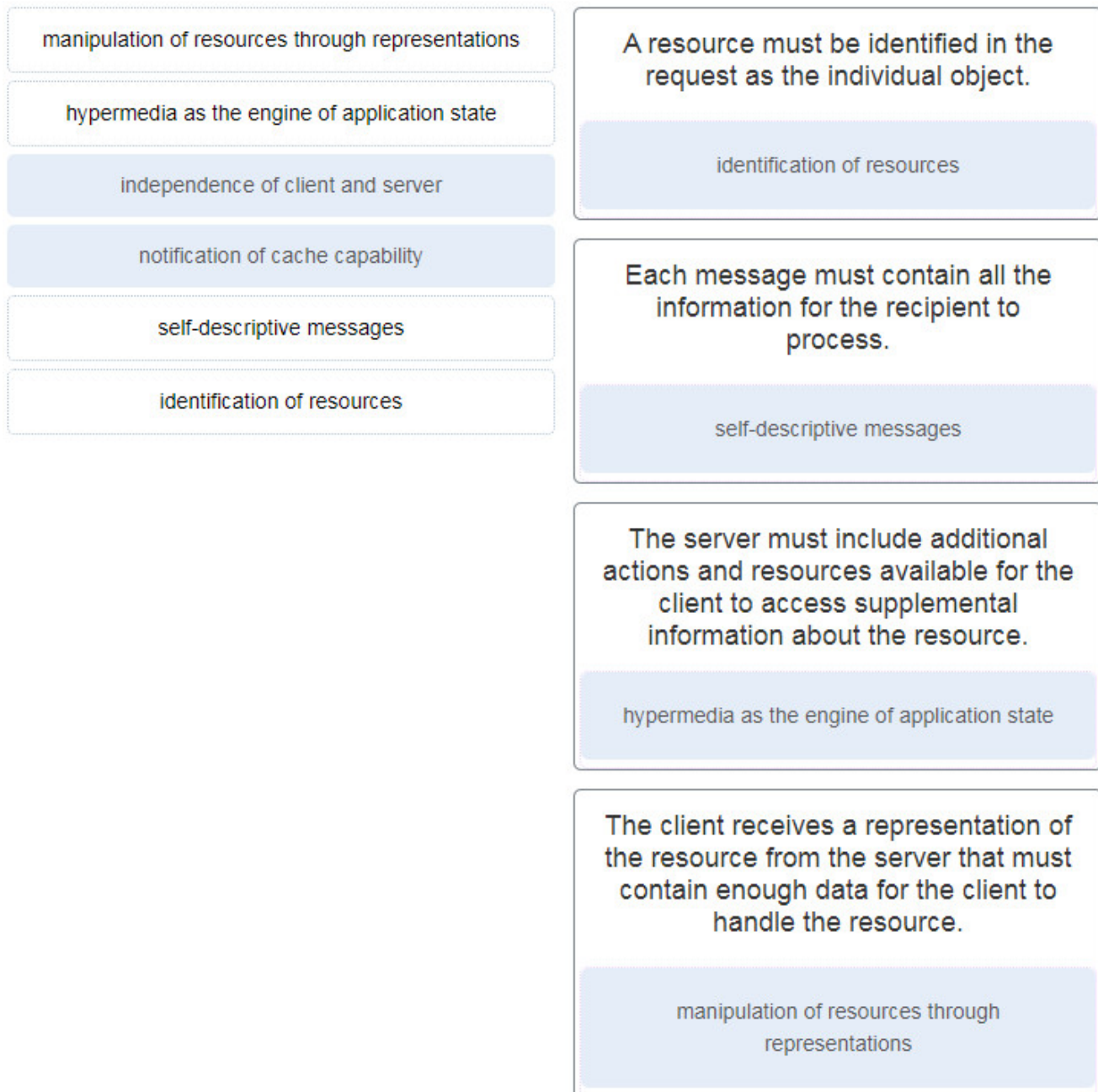
<output omitted>

requests.exceptions.SSLError: HTTPSConnectionPool(host='xxxx',
port=443): Max retries exceeded with url:
/service/intent/api/v1/network-device (Caused by
SSLError(SSLCertVerificationError(1, '[SSL:
CERTIFICATE_VERIFY_FAILED] certificate verify failed: self
signed certificate (_ssl.c:1108)')))
```

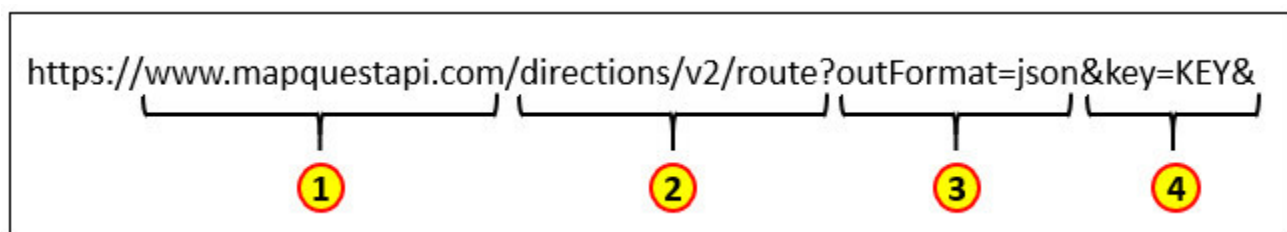
- The host domain name cannot be resolved.
- The parameter of “verify = True” is missing in the requests.get() method.
- **The certificate cannot be verified with a CA.**
- The resource on the host is not available.

**Explanation:** When the scheme of the REST API call URL is HTTPS, the connection will perform an SSL handshake between the client and the server with a Certificate Authority (CA). This handshake needs to be successful before the REST API request is even sent to the API server. The SSL handshake could fail if the certificate is invalid or it is self-signed. A user can specify if the SSL verification should be avoided by specifying “verify = False” as a parameter to the Python requests module, requests.get() method. The default is “verify = True”.

**8. Match the principles in the uniform interface constraint of the REST to the description. (Not all options are used.)**



9. Refer to the exhibit. Which portion of the RESTful request specifies the API that is being requested.



- 1
- 2
- 3



- 4

**10. A user is testing an application by sending requests to gather information from a network device through a REST API. The user reviews the API responses and notices an HTTP header string of “Cache-Control: max-age=3600, public”. Which two statements describe the HTTP directive? (Choose two.)**

- The response can be saved in cache and the cached content is open to public access.
- **The client web browser can save the response in the cache and it will expire in an hour.**
- Only responses to requests with the HTTP protocol can be cached.
- **The response may be stored by any cache, even if the response is normally noncacheable.**
- The response can be saved in cache and the information must be refreshed after 60 minutes

**Explanation:** The HTTP header string is a cache control directive that indicates that (1) the response content can be saved by any cache and (2) the cached content will expire in 3600 seconds unless it gets refreshed before it expires.

**11. Refer to the exhibit. Which parameter is needed in the Python code (in place of the question mark) to test for an invalid URI condition?**

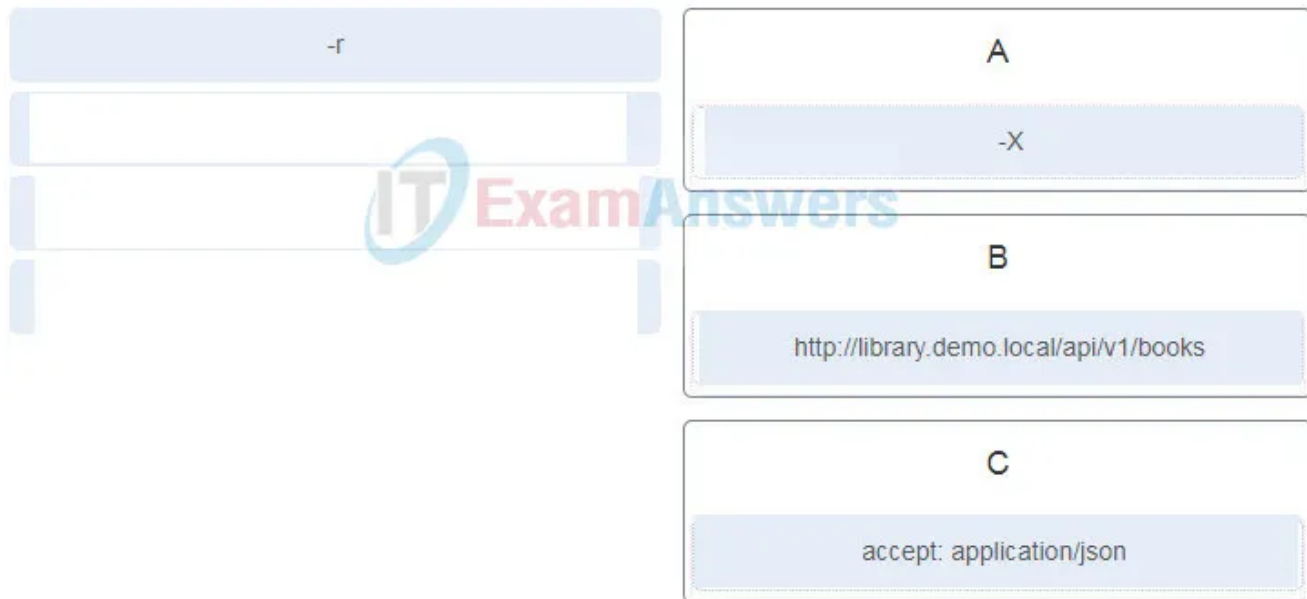
```
import requests
uri = "sandboxdnac.cisco.com/dna/intent/api/v1/network-device"
resp = requests.get(uri, verify = ?)
```

- **False**
- True
- Yes
- No

**Explanation:** The script will test for an invalid URI condition if the verify parameter is set to False.

**12. Refer to the exhibit. A student is learning the REST API call to a local host. Match the items needed in the curl command. (Not all options are used.)**

```
curl A GET "B" -H "C"
```



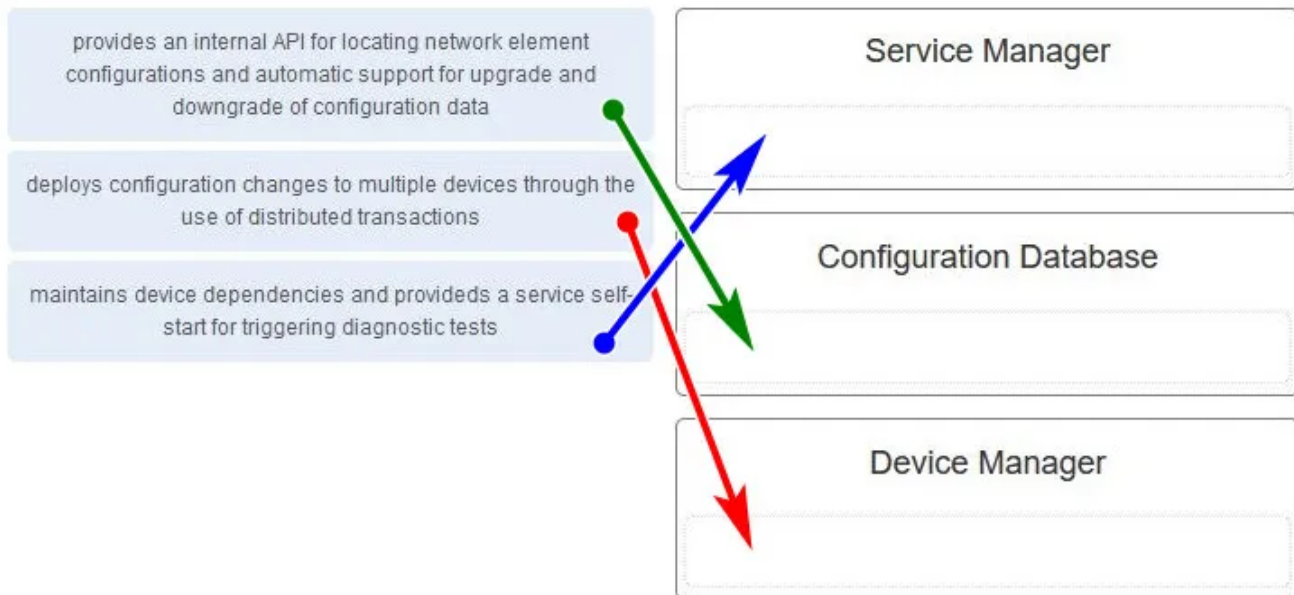
**13. A network engineer has been asked to automate some of the network management and configuration management. The engineer is going to use NETCONF. Why should the engineer consider also using YANG as part of this project?**

- YANG is a documented set of URIs that could be used as part of the deployment.
- YANG is a set of software development tools that is integrated with vendor-specific configuration libraries.
- **YANG provides a hierarchy of data that can be used for device configuration and operational status retrieval.**
- YANG is used to provide the transport to and from a network device such as a Cisco switch.

**Explanation:** Yet Another Next Generation (YANG) is a standards-based data modeling language. NETCONF is a standards-based protocol designed to retrieve the information of network devices and to manage devices. Extensible Markup Language (XML) is an encoding protocol that provides the transport for NETCONF to communicate with devices using the YANG formatted configuration or operational data. An application that runs on a centralized management platform or laptop/desktop can use NETCONF to send requests to a network device for information or to make configuration changes.

**14. Match the Cisco NSO component to the description.**





- **Service Manager:** maintains device dependencies and provides a service self start for triggering diagnostic tests
- **Device Manager:** deploys configuration changes to multiple devices through the use of distributed transactions
- **Configuration Database:** provides an internal API for locating network element configurations and automatic support for upgrade and downgrade of configuration data

15. Refer to the exhibit. A user is working on Ansible on the local NMS to manage remote network devices. The user issues the `ansible webserver -m ping` command to test the communication. However, an error message returns. What are two possible causes for the error? (Choose two.)

```
devasc@labvm:~/labs/ansible/ansible-apache$ ansible webserver -m ping
192.0.2.3 | UNREACHABLE! => {
  "changed": false,
  "msg": "Failed to connect to the host via ssh: ssh: connect to host
192.0.2.3 port 22: Connection refused",
  "unreachable": true
}
devasc@labvm:~/labs/ansible/ansible-apache$
```

- The SSH credential is wrong.
- **The destination host IP address is wrong.**
- The switch `-m` should be `-M`
- The SSH client is not installed.
- The destination host alias is wrong.
- **The SSH service does not start on the host.**

**Explanation:** Ansible uses an inventory file called hosts that contains device information used by Ansible playbooks. The hosts file begins with an alias for the remote. After the alias, the hosts file specifies three variables that will be used by the Ansible playbook to access the device. These are the SSH credentials Ansible needs to securely access the remote host. The error message indicates that the SSH server on the destination host cannot be reached. The possible issue is either the SSH server is not running or the IP address configured in the hosts file is wrong.

**16. The development team in the IT department has decided to implement CI/CD. What are three characteristics of this strategy? (Choose three.)**

- **Strategies are used to limit the impact of a possible bad build to users.**
- CI/CD places a higher priority on satisfying the customer needs than does the development plan.
- The integration and development process goes in one direction and can never go backwards.
- It is modeled after the software development life cycle and is a more traditional implementation method.
- **The development process attempts to eliminate the problem of application merge conflicts.**
- **Automation is part of the creation, verification, and deployment of software.**

**Explanation:** Continuous Integration/Continuous Deployment (CI/CD) is a philosophy for software development that includes automation as part of the process. Continuous integration attempts to eliminate the problem of conflicts that occur when new or updated code is applied to the main application. Even though there is a potential of a bad build being deployed to the users, companies can limit that impact by using a deployment strategy such as a rolling upgrade, canary pipeline, or blue-green deployment.

**17. What are two features of the formal code review? (Choose two.)**

- For a quicker turnaround, it involves only one reviewer
- It involves the developer going through code with the reviewer line-by-line.
- **It promotes discussion among all of the reviewers.**
- It allows the developer to make changes on the spot.
- **It involves a review of the entire code base in a series of meetings.**

**Explanation:** In a formal code review, developers have a series of meetings to review the whole codebase and go over the code line by line, discussing each one in detail. The formal code review process promotes discussion among all of the reviewers.

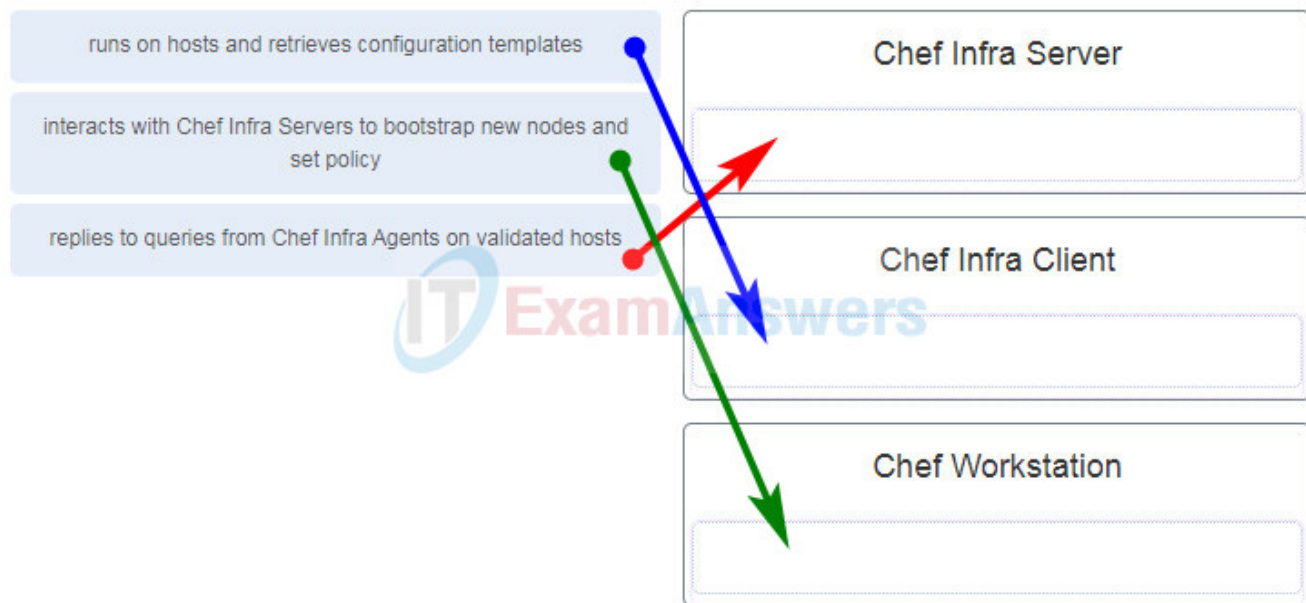
**18. What are two benefits of model-driven programmability in infrastructure automation? (Choose two.)**

- **uses human-readable configuration language**
- **leverages open-source technology**
- leverages code that is coupled with transport, protocol, and encoding
- relies on the use of device-specific scripts
- uses device-specific CLIs

**Explanation:** In summary, model-driven programmability does the following:

- Provides configuration language that is human-readable
- Is model-based, structured, and computer-friendly
- Includes support for multiple model types, including native, OpenConfig, and IETF
- Uses a specification that is decoupled from transport, protocol and encoding
- Uses model-driven APIs for abstraction and simplification
- Leverages open-source and enjoys wide support

**19. Match the component of Chef to the description.**



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**20. A credit union has been growing very rapidly in the past 3 years and the IT department has been struggling to keep up. The department has always been criticized for the time it takes to program and implement change requests. The new CIO has decided to implement CI/CD. What are three benefits of this strategy? (Choose three.)**

- **integrates well with Agile software development methods**
- delivers a lot of code in a small amount of time
- **improves quality**
- **is less disruptive to future releases**

- is easier to market
- requires the use of multiple communication tools, thus improving development

**Explanation:** Continuous Integration/Continuous Deployment (CI/CD) is a philosophy for software development that includes automation as part of the process and integrates with Agile development strategies. Application development occurs in small chunks and allows users to receive incremental changes, making it easier for adaptation to new software and reducing disruption.

**21. Refer to the exhibit. A user is working on Ansible on the local NMS to manage remote network devices. Which file is the user creating?**

```
# Enter the devices for Ansible playbooks
Main-RT ansible_user=classuser ansible_password=class123! ansible_host=172.20.20.250
```

- service
- playbook
- variable
- **hosts**

**Explanation:** Ansible uses an inventory file called hosts that contains device information used by Ansible playbooks. The hosts file begins with an alias for the remote. After the alias, the hosts file specifies three variables that will be used by the Ansible playbook to access the device. These are the SSH credentials Ansible needs to securely access the remote host.

**22. What two components form the Python-based network device test and validation solution of pyATS?**

- Python and VIRT
- **Python and Genie**
- Python and Puppet
- Python and Ansible

**Explanation:** PyATS uses Python for low-level code, but relies on Genie, a higher-level library system, in order to interact with network devices and perform testing.

**23. What is immutable infrastructure in DevOps?**

- infrastructure that is deployed with all component versions locked except for the ability to perform manual configuration changes
- infrastructure that is only deployed and maintained in containers
- **infrastructure that is entirely maintained and deployed in code and never subjected to manual changes**
- virtualized infrastructure that is deployed as golden images

**24. Match the OWASP threat to the description.**



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**25. Which security device is used to make requests from multiple computers look like they all come from the same client?**

- stateful firewall
- **forward proxy**
- reverse proxy
- jump box

**Explanation:** The job of a forward proxy is to make requests from multiple computers look like they all come from the same client. This is the opposite of a reverse proxy, which makes sure responses look like they all come from the same server.

**26. Which term is used to describe an automated process of testing and deploying code?**

- **CI/CD**
- OWASP
- Agile
- SOAP

**Explanation:** The CI/CD (Continuous Integration and Continuous Delivery) pipeline is a software deployment philosophy that provides for a process of automated testing and deployment.

**27. What is a benefit of using a bare metal deployment solution?**

- increased processor and memory resource flexibility
- **direct access to hardware resources for increased efficiency**
- enhanced security
- addition of an extra layer of abstraction

**28. Refer to the exhibit. Which network service is being tested?**

```
devasc@labvm:~$ nslookup www.cisco.com 8.8.8.8
Server: 8.8.8.8

<output omitted>
Address: 96.17.131.151
Name: e2867.dsca.akamaiedge.net
Address: 2600:1408:8400:59c::b33
Name: e2867.dsca.akamaiedge.net
Address: 2600:1408:8400:5ab::b33
```

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- DHCP
- **DNS**
- SNMP
- NTP

**Explanation:** The nslookup command is available on nearly all operating systems. It is used for querying the Domain Name System (DNS) in order to obtain domain name to IP address mapping.

**29. What are two benefits of using bare metal software deployment for a large enterprise deploying virtualized servers? (Choose two.)**

- enhanced resource flexibility
- allocation of separate hardware resources to each application
- **direct access to specialized hardware resources**
- **increased application performance**
- isolation of application workloads

**Explanation:** Bare metal deployment installs software directly on host hardware and provides applications with direct access to host hardware resources. This is more efficient and increases performance.

**30. Match the CI/CD software development philosophy with a description.**

continuous delivery	<p>The application development process is performed in short sprints so that enough code is always in a deployable state.</p> <p>continuous delivery</p>
continuous deployment	
continuous integration	
	<p>The changes from all developers are continually merged with the main branch of the existing application.</p> <p>continuous integration</p>
	<p>Once changes are tested and integrated with the main branch they are tested again and then deployed to production.</p> <p>continuous deployment</p>

**31. An engineer is implementing an edge computing solution where a number of sensors are streaming a large amount data. Where should the computing capability be placed?**

- as close to the WAN edge as possible
- as close to the internet as possible
- as close to the network edge as possible
- **as close to the sources of data possible**

**Explanation:** The term edge computing refers to the practice of placing computing resources as close the actual sources of data as possible.

**32. What type of attack is being attempted if code similar to this is entered in the login field on a web site?**

**SELECT REPLACE (User\_Name, 'administrator', 'hacker') Userlist FROM Credentials;**

- DoS



- zero day
- brute force
- **SQL injection**

**Explanation:** This item is based on information contained in the presentation.

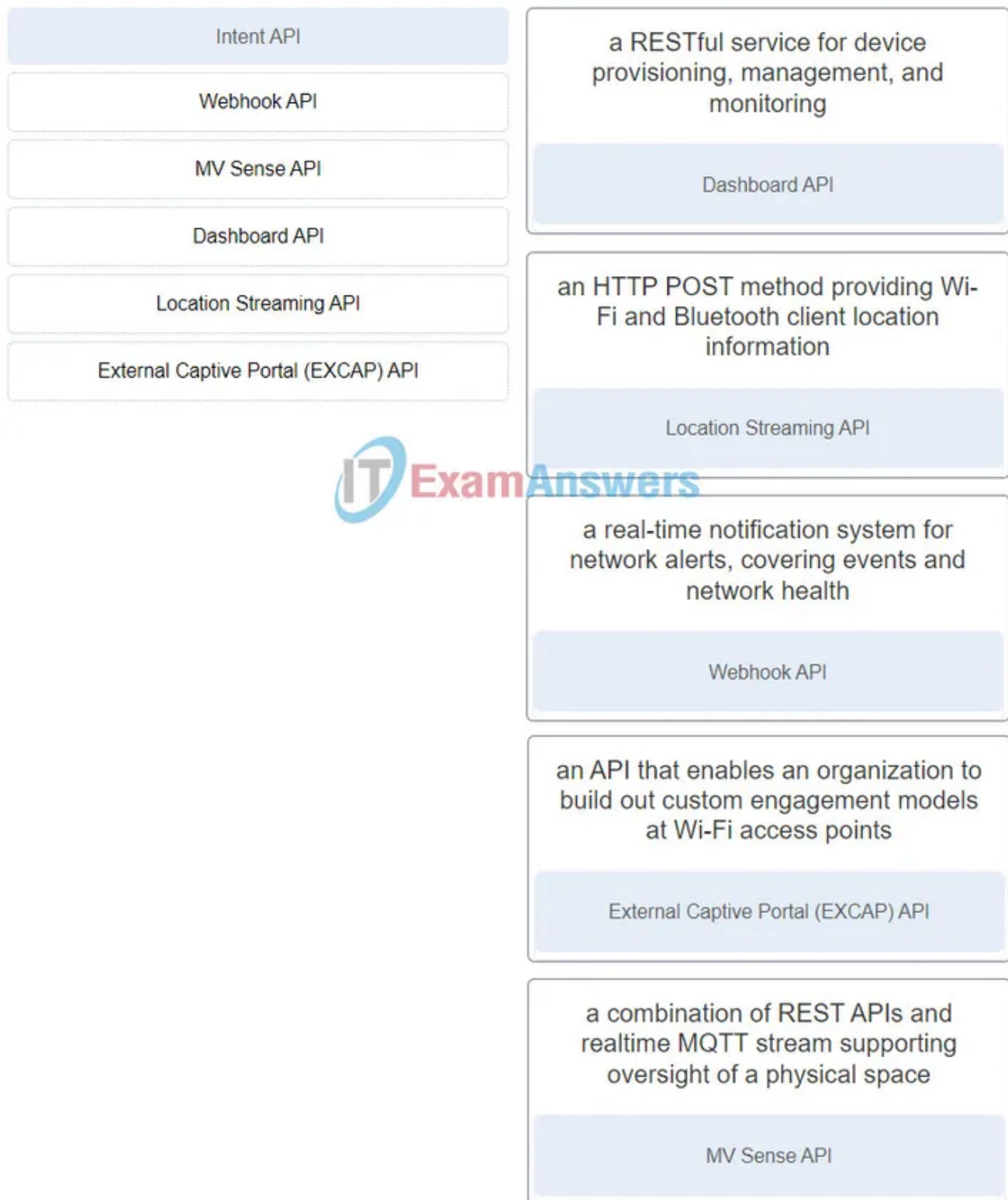
A DoS (denial of service) attack prevents users from accessing network resources. A brute force attack attempts to guess the password of an account. A zero day attack is the first occurrence of a previously unknown virus or other malware.

**33. A student is learning network automation using the DevNet site. Which DevNet resource allows users to search and share their programming skills and experiences?**

- **Code Exchange**
- Sandbox
- Learning Labs
- Automation Exchange

**Explanation:** DevNet provides ways for community members to share with each other. These are called Exchanges. In the Code Exchange site, users can submit a repository that they have found useful for any technology area. Users can search for any keyword in the repository and get a list of results.

**34. Match the Meraki APIs for integration to the description. (Not all options are used.)**



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**Explanation:** The Meraki enterprise cloud-managed networking infrastructure service has five different APIs for integration:

- **Dashboard API:** This a RESTful service for device provisioning, management, and monitoring.
- **Webhook API:** This is a real-time notification system for network alerts, covering events and network health.
- **Location Streaming API:** This is an HTTP POST method providing Wi-Fi and Bluetooth client location information (GPS, X/Y coordinates) based on Meraki Access Point (AP) map placement and client signal strength.
- **External Captive Portal (EXCAP) API:** This enables an organization to build out custom engagement models at Wi-Fi access points.
- **MV Sense API:** This is a combination of REST APIs and real-time MQTT stream supporting oversight of a physical space.

**35. Match the node type in YANG to the description. (Not all options are used.)**

	It defines a set of uniquely identifiable nodes.
	leaf-list
grouping	It is a data node that exists in at most one instance in the data tree. It has a value but no child nodes.
	leaf
data model	It is an interior data node that exists in at most one instance in the data tree. It has no value, but does have a set of child nodes.
	container
	It is an interior data node that may exist in multiple instances in the data tree. It has no value, but does have a set of child nodes.
	list

**36. A network administrator is evaluating Cisco UCS Manager products to deploy centralized management for the data center. The data center has about 500 physical servers. Which product should the administrator choose?**

- **UCS Central (UCSC)**
- Unified Communications Manager (CUCM)
- UCS Manager (UCSM)
- Integrated Management Controller (CIMC)

**Explanation:** The Cisco UCS Manager products provide scalability by integrating many components of a data center. The different management products directly relate to the number of servers being managed:

- Cisco Integrated Management Controller (CIMC) can manage a single physical server.
- Cisco UCS Manager (UCSM) can manage up to 160 physical servers.
- Cisco UCS Central (UCSC) can manage up to 10,000 physical servers.

**37. Refer to the exhibit. Match the Python coding components to the location. (Not all options are used.)**

```
import requests

access_token = 'valid_token'

url = 'https://webexapis.com/v1/rooms'
headers = {
    'A': 'Bearer {}'.format(access_token),
    'B': 'C'
}
params = {'D': 'E'}

res = requests.get(F, G, params=params)
print(res.json())
```

**Answers:**

url
100
max
import json
Authorization
Content-Type
application/json
headers=headers

A

Authorization

B

Content-Type

C

application/json

D

max

E

100

F

url

G

headers=headers

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**38. Match Cisco Advanced Malware Protection (AMP) solution components and product integration options to the description. (Not all options are used.)**

Finesse	an antivirus engine in AMP Connector for Windows TETRA
Intersight	an antivirus engine in AMP Connector for macOS and Linux ClamAV
	a Cisco product that uses DNS to enforce security with AMP integration capability Umbrella
	a Cisco product that is a malware analysis platform combining static and dynamic malware analysis with AMP integration capability Threat Grid
	a Cisco product that enables a single source of management for infrastructure, locations, and devices with AMP integration capability Meraki MX

**39. Which two statements describe the characteristics of the model-driven programmability implemented on Cisco IOS XE? (Choose two.)**

- **The configuration command `ip http secure-server` is required to enable RESTCONF over port 443.**
- Both NETCONF and RESTCONF support running and candidate data stores.
- RESTCONF is enabled by the configuration command `restconf enable`.
- **NETCONF connections should be authenticated using AAA credentials.**
- NETCONF connections require that a VPN link be established first.

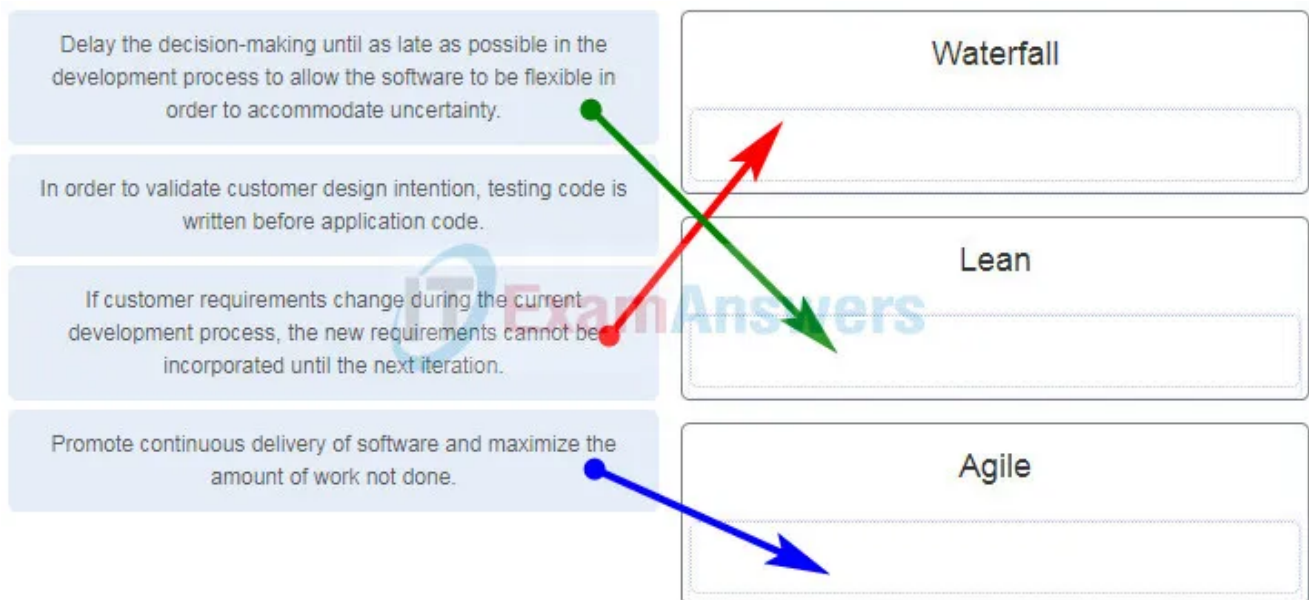
**Explanation:** Cisco IOS XE is the next-generation programmable platform. Both NETCONF and RESTCONF are supported. Their connections should be authenticated using AAA credentials. RESTCONF runs over HTTPS which is enabled by the command **ip http secure-server**. The CLI command to enable RESTCONF is simply **restconf**. NETCONF uses SSH as a transport. NETCONF supports both running and candidate data stores, whereas RESTCONF supports only a running datastore.

**40. Which REST API supported by Cisco Unified Communications Manager is designed to enable end users to update and configure personal settings.?**

- UDS API
- UC Manager Serviceability API
- Telephony API
- AXL API

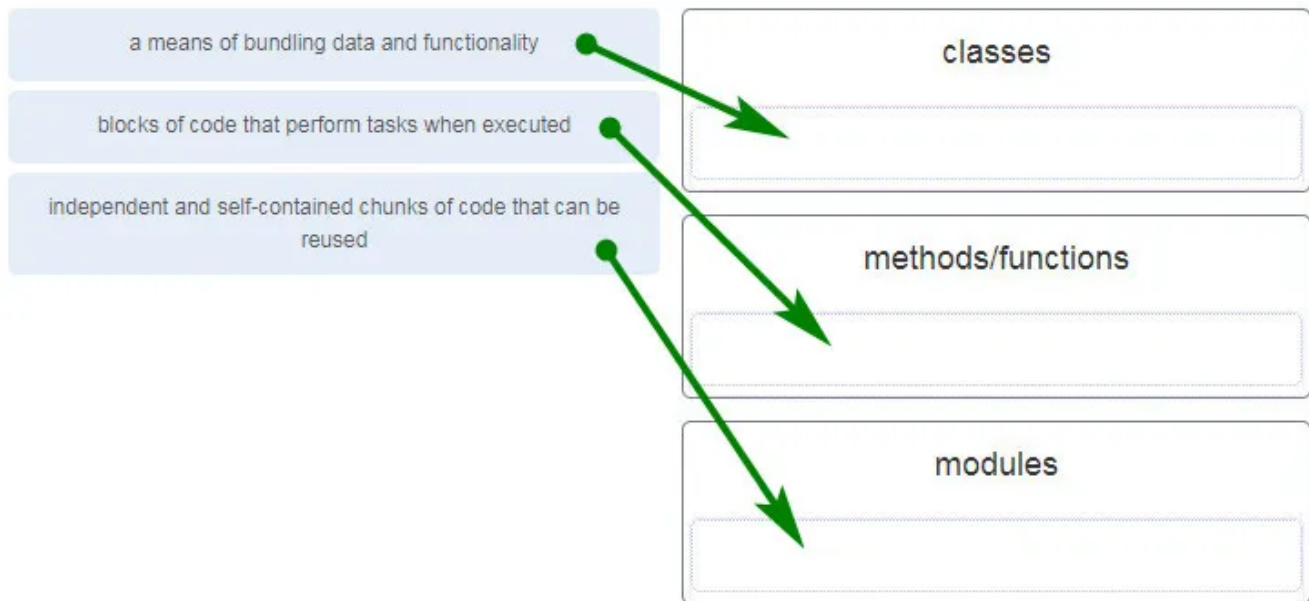
**Explanation:** User Data Services (UDS) is a REST-based API that provides a mechanism for inserting, retrieving, updating, and removing data from the Unified Communication configuration database. The UDS API is designed to enable end users to update and configure personal settings.

**41. Match the principle to the software development method. (Not all options are used.)**



**42. Match the method of organizing code with the description.**





**43. What is the outcome of performing a Git merge between two branches?**

- The changes/commits located within both the source branch and target branch are modified to cause the branches to converge.
- The changes/commits located within the source branch are modified to mirror the changes/commits stored within the target branch.
- **The changes/commits located within the target branch are modified to mirror the changes/commits stored within the source branch.**
- The changes/commits of files within the target branch are analyzed against the changes/commits located within the source branch using a generic comparison tool.

**Explanation:** When a Git merge is performed, the source branch is untouched and only the target branch is modified.

**44. What is a philosophy associated with the test-driven development process?**

- More than enough code is written to support the application.
- **Failures are expected to occur in order to limit the application code to only what is needed to pass the test.**
- Application code is developed at a slower pace to allow for repetitive testing.
- Application code should be written before validating system design and tested for functionality as needed.

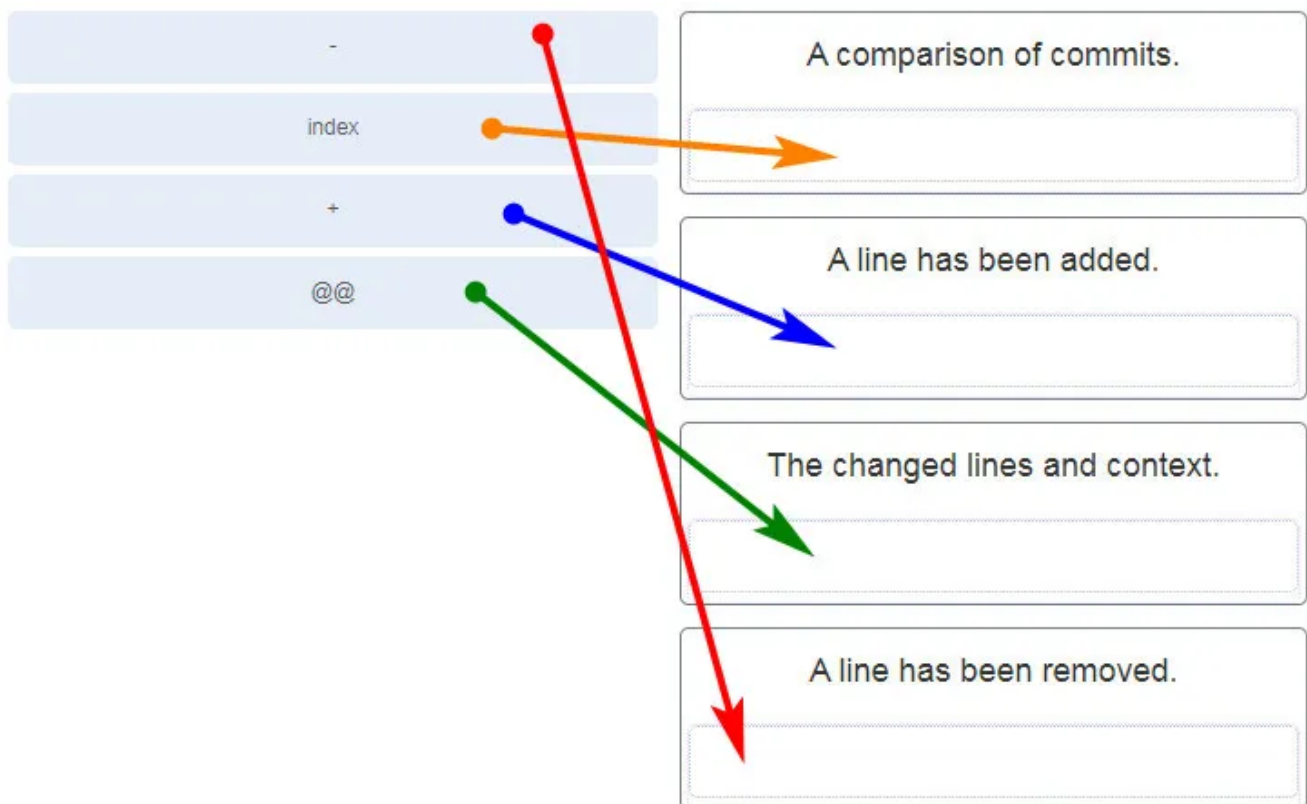
**Explanation:** With the Test-Driven Development process, testing code is written before application code. The application code is then created with the single purpose of being able to barely pass the testing code.

**45. What are two benefits of using a distributed version control system compared to other version control systems? (Choose two.)**

- A corrupt repository can be restored from any client system.
- Every user has the ability to work on any file at any time.
- An offline user is not required to make a copy of an important file before editing it further.
- A simple database is used to store the delta between the versions of a single file.
- A single user can lock a file to prevent other users from modifying it until the single user is done editing it.

**Explanation:** The distributed version control system is a peer-to-peer model that clones the full repository to client systems and allows every individual to work on any file, even at the same time.

**46. Match the symbols in a .diff file to the appropriate meaning.**



**47. Match each stage of the Git distributed version control system with the decription.**



**48. Which two components of XML code are contained within the XML prologue? (Choose two.)**

- **the character encoding**
- the XML namespaces
- **the tag name xml**
- the URNs
- the instance objects

**Explanation:** The XML prologue is placed as the first line in an XML file and contains the tag name xml and attributes that provide the version and the character encoding.

**49. What process would need to be taken to extract information from XML and convert it into a form that Python could access conveniently?**

- serializing
- encoding
- **parsing**
- decoding

**Explanation:** Parsing is the process of analyzing a message, separating it into component parts, and understanding the purpose of it in context.

**50. What is the purpose of the subnet mask in conjunction with an IP address?**

- **to determine the subnet to which the host belongs**

- to identify whether the address is public or private
- to uniquely identify a host on a network
- to mask the IP address to outsiders

**Explanation:** With the IPv4 address, a subnet mask is also necessary. A subnet mask is a special type of IPv4 address that coupled with the IP address determines the subnet of which the device is a member.

**51. A network app developer has configured an app to use a particular DNS server in order to test the application against a test database. The developer suspects a DNS issue. Which command could be used to verify a particular domain name?**

- ifconfig
- **nslookup**
- sudo puppet agent -t
- ssh -p 53

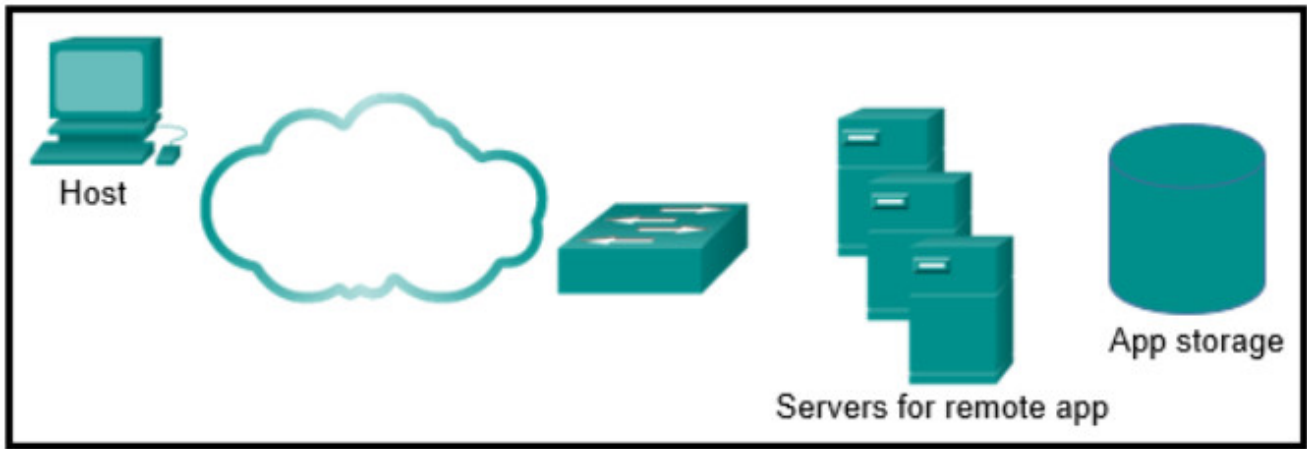
**Explanation:** The nslookup command is used to obtain an IP address for a specific domain name by querying a DNS server. The desired domain name follows the command and optionally the IP address of a particular DNS server.

**52. A developer is using Cisco AnyConnect to connect through a VPN to the DevNet Sandbox. Which AnyConnect preference would cause the connection to fail?**

- Certificate Store Override
- Use Start Before Login
- Local Lan Access
- **Block Untrusted Connections**

**Explanation:** If the connection fails when using Cisco AnyConnect to connect to the DevNet Sandbox, check login credentials for any typing errors, the VPN URL of the DevNet Sandbox, and clear the Block Untrusted Connections option in the AnyConnect preferences.

**53. Refer to the exhibit. A company uses three servers to support a new network app. The network administrator is looking to include a load balancer as part of the network design to improve the performance of the application response. Where should the load balancer be installed?**



- **attached to the same switch as the servers**
- between the host and the cloud
- between the servers and storage
- within the cloud

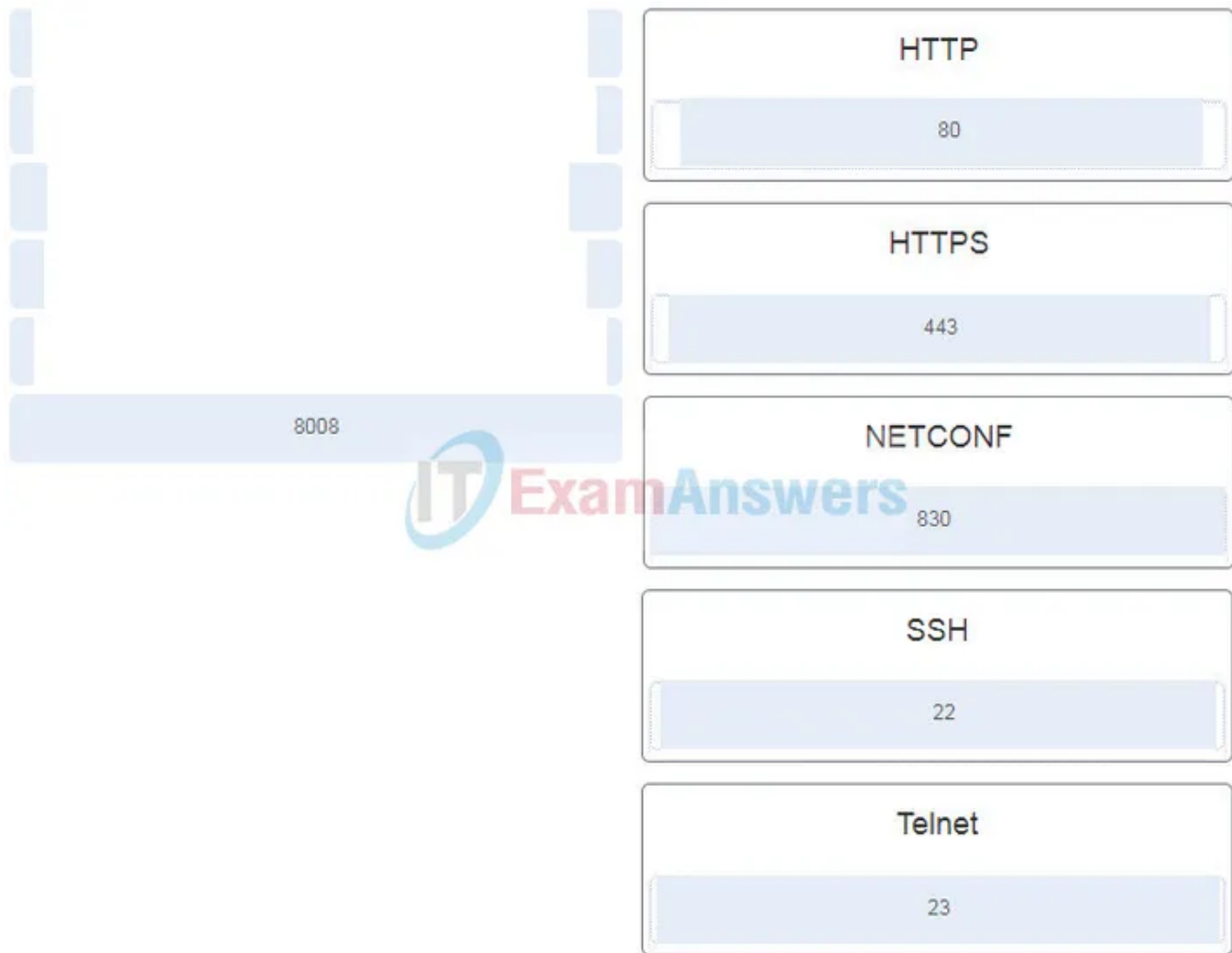
**Explanation:** Because server load balancing distributes server requests across multiple servers, the load balancer should be attached to the same switch that the servers are on.

**54. What are two reasons a VLAN would be used on a Layer 2 switch? (Choose two.)**

- **to create separate broadcast domains on a switch**
- to filter network traffic based on protocol port numbers
- to allow a router to broadcast traffic between two networks
- **to allow multiple networks to be created at Layer 2**
- to allow traffic to be sent between two networks

**Explanation:** A virtual local-area network (VLAN) is a separate Layer 2 network that has its own broadcast domain. A Layer 3 device such as a router or multilayer switch is required to communicate between VLANs.

**55. . Match the default port number to the network protocol. (Not all options are used.)**



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**56. What are two symptoms that DNS is an issue when developing and testing network scripts? (Choose two.)**

- **no connection between the app and a remote server**
- 403 error code
- **authentication failure**
- 1XX status code
- host IP address showing 169.x.x.x

**Explanation:** Name resolution issues often manifest as lost network connectivity and authentication failures between a network app and a remote server. Common problems include defining the correct DNS server, a missing or incorrect DNS entry, an incorrect hostname, or a configuration issue on the DNS server being used.

**57. What are two functions of MAC addresses in a LAN? (Choose two.)**

- to indicate the best path between separate networks
- **to uniquely identify a node on a network**

- **to allow the transfer of frames from source to destination**
- to associate with a specific network IP address

**Explanation:** All Ethernet network devices have a unique Media Access Control (MAC) address that is burned into the network interface card (NIC). The MAC address is used to direct data from a particular device to a specific network destination.

**58. Which two port numbers are commonly used for Telnet? (Choose two.)**

- 22
- **23**
- 8008
- 830
- **992**
- 53

**Explanation:** Telnet commonly uses 23 or 992 whereas the secure protocol SSH uses port 22. DNS uses port 53. HTTP uses port 80 and HTTPS uses 443. NETCONF uses port 830. RESTCONF can use ports 8008, 8080, or 8888.

**59. What are three characteristics of containers on a host server? (Choose three.)**

- **They are isolated from each other.**
- They virtualize a physical server.
- **They all share the same OS.**
- **They leverage the kernel of the host OS for a quick start.**
- They are resource intensive and require several minutes to start.
- They include a guest OS.

**Explanation:** A container is an isolated environment where containerized applications run. It contains the application and all dependencies needed for the application to run. The containers on a physical server all share the same OS, are isolated from each other, and leverage the kernel of the host operating system to allow for quick starts.

**60. What are two characteristics of containers that are running on the same host server? (Choose two.)**

- **They all share the same host operating system.**
- **They are isolated from each other.**
- They each include a guest operating system.
- They each virtualize a different physical server.
- They are resource intensive and require several minutes to start.

**61. What is a benefit to an organization of implementing edge computing?**



- provides low latency and increased bandwidth for remote IoT devices
- **minimizes high levels of data transfer across the network**
- allows all compute resources to be centralized in the data center
- consolidates compute resources into a single cloud

**Explanation:** The term edge computing refers to the practice of placing computing resources as close to the actual sources of data as possible. Deploying computer resources at the edge, can help to avoid high levels of data transfer across the network for performance or security purposes.

## 62. What is Bash?

- a web application framework written in Python
- a code injection technique used to attack data-driven applications
- **a Linux script engine that allows commands to be entered on the command line**
- a philosophy for software deployment that figures prominently in the field of DevOps

**Explanation:** Bash is the name of the default script engine that lets you do things from the command line. It is the default shell for most Linux distributions.

## 63. In which situation would a router be used?

- when performing a formal code review
- **when testing an app on a cloud-based server**
- when developing an app on a private server located on the same network as the development team
- when authenticating to a REST API service on the local host

## 64. Which two statements accurately describe an advantage or a disadvantage when deploying NAT for IPv4 in a network? (Choose two.)

- NAT adds authentication capability to IPv4.
- NAT causes routing tables to include more information.
- **NAT introduces problems for some applications that require end-to-end connectivity.**
- NAT improves packet handling.
- NAT will impact negatively on switch performance.
- **NAT provides a solution to slow down the IPv4 address depletion.**

**Explanation:** Network Address Translation (NAT) is a technology that is implemented within IPv4 networks. One application of NAT is to use private IP addresses inside a network and use NAT to share a few public IP addresses for many internal hosts. In this way it

provides a solution to slow down the IPv4 address depletion. However, since NAT hides the actual IP addresses that are used by end devices, it may cause problems for some applications that require end-to-end connectivity.

**65. A user makes some REST API calls to a server and the responses from the server include third-party executable code. The user notices that the responses do not work. Which network device may prevent the third-party code from execution?**

- proxy server
- reverse proxy server
- Layer 3 switch
- **firewall**

**66. What is one function of a Layer 2 switch?**

- duplicates the electrical signal of each frame to every port
- **determines which interface is used to forward a frame based on the destination MAC address**
- learns the port assigned to a host by examining the destination MAC address
- forwards data based on logical addressing

**Explanation:** A switch builds a MAC address table of MAC addresses and associated port numbers by examining the source MAC address found in inbound frames. To forward a frame onward, the switch examines the destination MAC address, looks in the MAC address for a port number associated with that destination MAC address, and sends it to the specific port. If the destination MAC address is not in the table, the switch forwards the frame out all ports except the inbound port that originated the frame.

**67. A user is testing an application by sending requests to gather information from a network device through a REST API. The user expects a very large amount of data to be returned. The user requests that the network device sends the data back with the compression algorithm of gzip. What response header string would indicate that the return data is compressed as requested?**

- Accept-Encoding: compress
- Accept-Encoding: gzip
- Content-Encoding: compress; gzip
- **Content-Encoding: gzip**

**Explanation:** If a large amount of return data is expected, the client can request that the return data be compressed with a specific compression algorithm. To request a data compression, the request must add the Accept-Encoding field to the API request header. For example, a header string of “Accept-Encoding: gzip” tells the server to compress the return

data using the gzip algorithm. If the server fulfills the compression, it will send the response back with the compressed data and add the Content-Encoding field to the response header. The value of the Content-Encoding is the type of compression that was used.

### **68. Which type of threat defense is provided by Cisco Umbrella?**

- monitoring and analyzing network traffic for potential network intrusion attacks
- identifying and blocking zero-day threats that manage to infiltrate the network
- **blocking requests to malicious Internet destinations**
- blocking hidden malware from both suspicious and legitimate websites

**Explanation:** Cisco Umbrella serves as a first line of defense for an organization by blocking requests to malicious internet destinations.

### **69. How does Cisco VIRL benefit the testing and development of code and automation?**

- Cisco VIRL can duplicate network simulations using a .virl file, which is a JSON file.
- Cisco VIRL can duplicate the performance of SDN software components in optimal production conditions.
- **Cisco VIRL can duplicate the same code that runs inside actual Cisco products.**
- Cisco VIRL can duplicate the performance of elite hardware components in optimal production conditions.

**Explanation:** Cisco VIRL is used to build network simulations and it can duplicate the same code that runs inside actual Cisco products. The native configuration format is called a.virl file, which is a human-readable YAML file.

### **70. What CI/CD software development philosophy ensures code is always in a deployable state through the implementation of short development sprints.**

- continuous implementation
- continuous deployment
- continuous integration
- **continuous delivery**

**Explanation:** Continuous Delivery is the process of developing in sprints that are short enough so that the code is always in a deployable state. With Continuous Integration, small change sets are continuously integrated into the main code branch. Continuous Delivery means that those changes are engineered to be self-contained to the point where at any given time, you could deploy a working application.

### **71. For what purpose are IPv4 addresses utilized?**

- **An IPv4 address is used to uniquely identify a device on an IP network.**
- An IPv4 address is burned into the network card to uniquely identify a device.
- An IPv4 address is used to uniquely identify the application that requested the information from a remote device.
- An IPv4 address is used to identify the number of IP networks available.

**72. What is the purpose of a default gateway?**

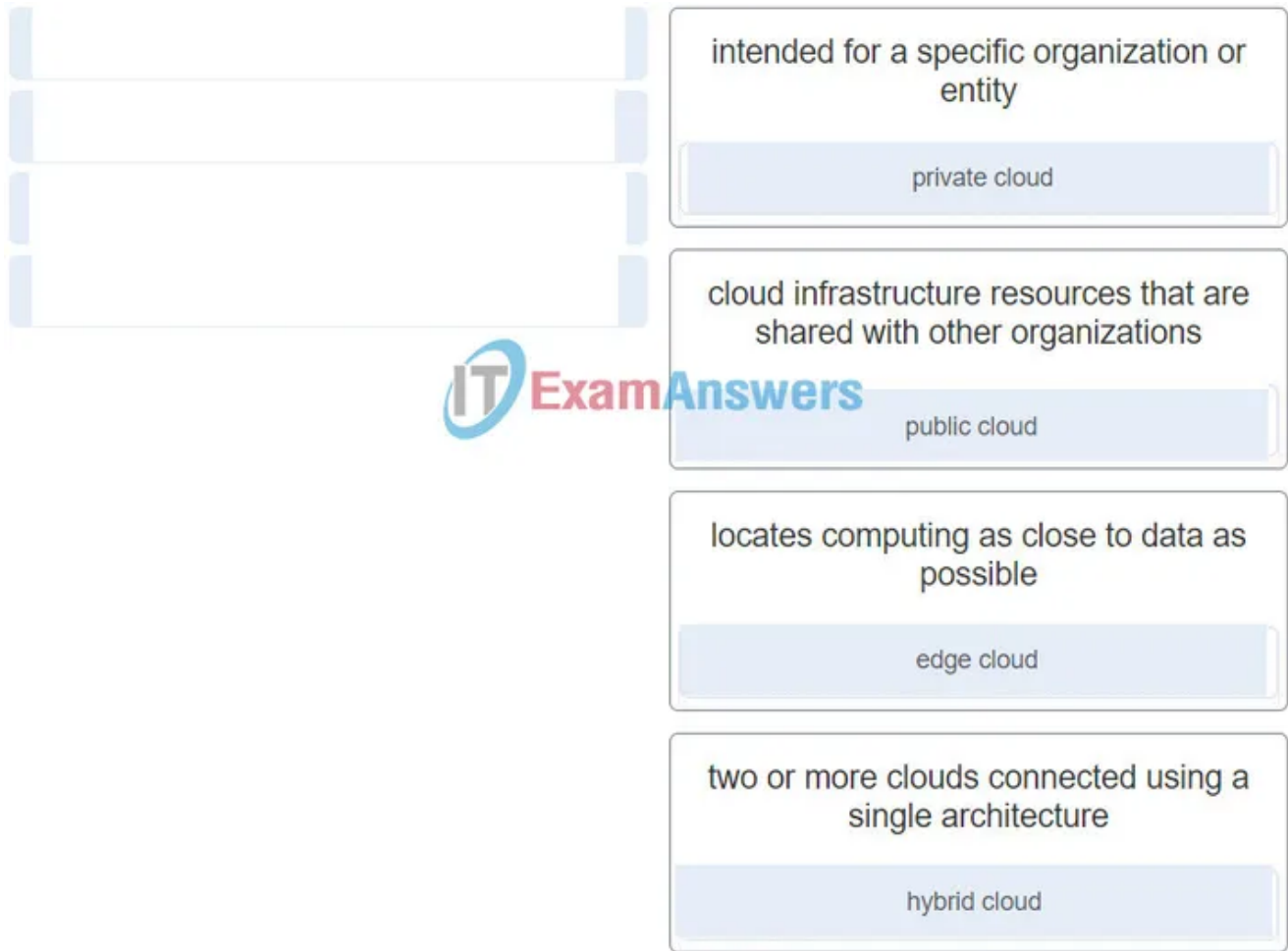
- to physically connect a computer to a network
- to provide a permanent address to a computer
- to identify the network to which a computer is connected
- to identify the logical address of a networked computer and uniquely identify it to the rest of the network
- **to identify the device that allows local network computers to communicate with devices on other networks**

**73. Refer to the exhibit. A student is learning network automation by using an API. The student constructs a Python file to communicate with a Webex Teams server. Which two statements describe characteristics of the script? (Choose two.)**

```
from webex teams sdk import WebexTeamsAPI, ApiError
access_token = 'get-your-token'
api = WebexTeamsAPI(access_token=access_token)
try:
    me = api.people.me()
    print(me.emails)
except ApiError as e:
    print(e)
```

- It loads two modules from a Cisco SDK.
- **The term people in the script is a class object.**
- It is used to obtain an access token from the server.
- **It is used to retrieve the email addresses associated with the student.**
- The access token is set with a WEBEX\_TEAMS\_ACCESS\_TOKEN environment variable.

**74. Match the cloud model with a description.**



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**75. Which software is used to create, run, and manage containers in a virtual environment?**

- **Docker**
- VMware
- vSphere
- Fusion

**Explanation:** Containers provide many of the same benefits as VMs, such as workload isolation and the ability to run multiple workloads on a single machine, but a container shares the operating system of the host machine and uses container-specific binaries and libraries. Docker is a popular container engine.

**76. A developer in a company receives feedback that an app is experiencing poor responses from an application on a server. The network engineer is looking for a solution that scales to multiple servers. Which technology should the engineer consider?**

- forward proxy

- Docker
- server virtualization
- **load balancer**

**Explanation:** Load balancing distributes server requests across multiple servers. The load balancer selects which server receives the client request and provides connectivity to device redundancy, high availability, and scalability.