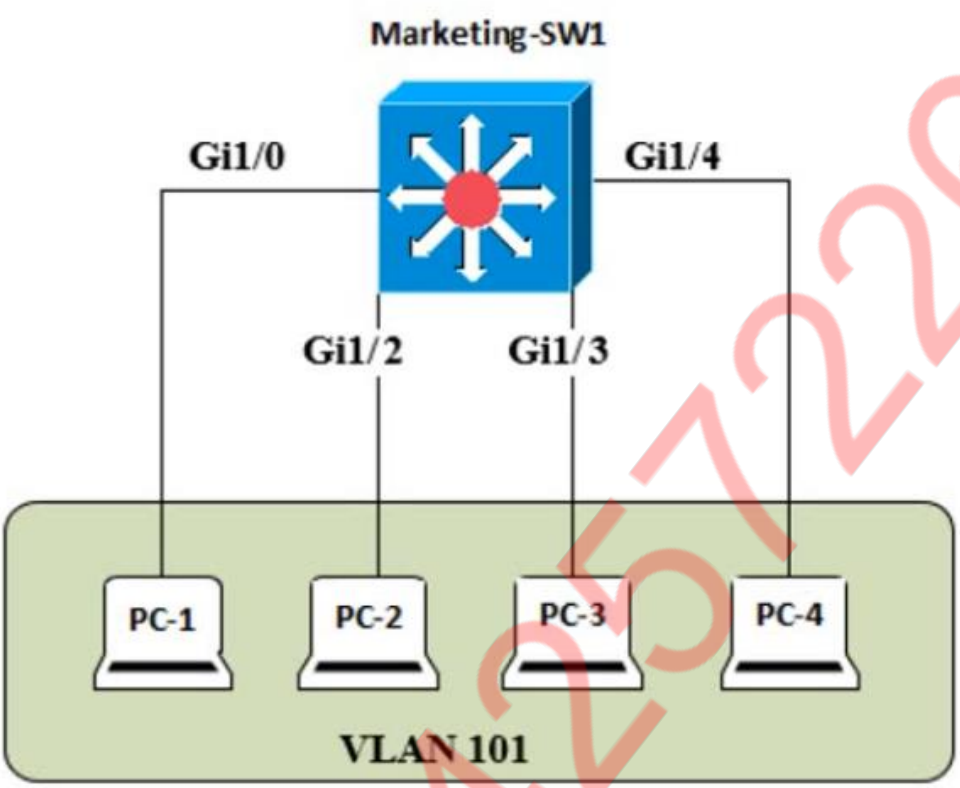


Refer to the exhibit. The entire Marketing-SW1 MAC address table is shown here:

```
Marketing-SW1#show mac-address-table
Mac Address Table
-------------------------------------------------------------------
VLAN    MAC Address       Type        Ports
101     000a.8462.cc8d    DYNAMIC     Gi1/0
101     4065.2630.7cb5    DYNAMIC     Gi1/2
101     00d0.c3b6.986d    DYNAMIC     Gi1/3
```

What does the switch do when PC-4 sends a frame to PC-1?

- It performs a lookup in the MAC address table and discards the frame due to a missing entry.
- It inserts the source MAC address and port into the table and forwards the frame to PC-1.
- It floods the frame out of all ports except on the port where PC-1 is connected.
- It maps the Layer 2 MAC address to the Layer 3 IP address and forwards the frame.

Which benefit does controller-based networking provide versus traditional networking?

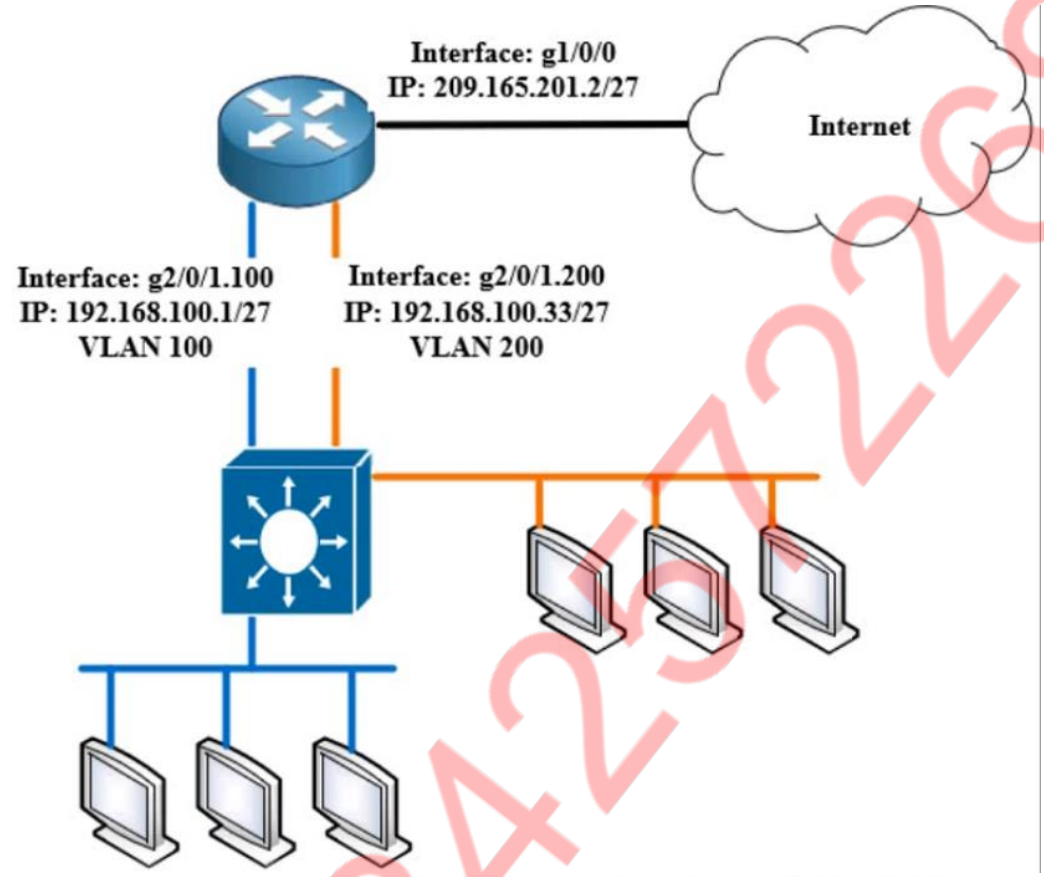
- [x] allows configuration and monitoring of the network from one centralized point
- [ ] provides an added layer of security to protect from DDoS attacks
- [ ] moves from a two-tier to a three-tier network architecture to provide maximum redundancy
- [ ] combines control and data plane functionality on a single device to minimize latency

Which configuration is needed to generate an RSA key for SSH on a router?

- [x] Assign a DNS domain name.
- [ ] Configure the version of SSH.
- [ ] Create a user with a password.
- [ ] Configure VTY access.

What is a function of TFTP in network operations?

- [ ] transfers files between file systems on a router
- [ ] transfers a backup configuration file from a server to a switch using a username and password
- [x] transfers IOS images from a server to a router for firmware upgrades
- [ ] transfers a configuration files from a server to a router on a congested link



Refer to the exhibit. Which configuration must be applied to the router that configures PAT to translate all addresses in VLAN 200 while allowing devices on VLAN 100 to use their own IP addresses?

- Router1(config)#access-list 99 permit 192.168.100.0 0.0.0.255
  Router1(config)#ip nat inside source list 99 interface gi1/0/0 overload
  Router1(config)#interface gi2/0/1.200
  Router1(config-if)#ip nat inside
  Router1(config)#interface gi1/0/0
  Router1(config-if)#ip nat outside

- Router1(config)#access-list 99 permit 192.168.100.32 0.0.0.31
  Router1(config)#ip nat inside source list 99 interface gi1/0/0 overload
  Router1(config)#interface gi2/0/1.200
  Router1(config-if)#ip nat inside
  Router1(config)#interface gi1/0/0
  Router1(config-if)#ip nat outside

- Router1(config)#access-list 99 permit 209.165.201.2 255.255.255.255
  Router1(config)#ip nat inside source list 99 interface gi1/0/0 overload
  Router1(config)#interface gi2/0/1.200
  Router1(config-if)#ip nat inside
  Router1(config)#interface gi1/0/0
  Router1(config-if)#ip nat outside

- Router1(config)#access-list 99 permit 209.165.201.2 0.0.0.0
  Router1(config)#ip nat inside source list 99 interface gi1/0/0 overload
  Router1(config)#interface gi2/0/1.200
  Router1(config-if)#ip nat inside
  Router1(config)#interface gi1/0/0
  Router1(config-if)#ip nat outside

Which mode must be set for APs to communicate to a Wireless LAN Controller using the Control and Provisioning of Wireless Access Points (CAPWAP) protocol?

- autonomous
- bridge
- route
- [x] lightweight

A user configured OSPF and advertised the Gigabit Ethernet interface in OSPF. By default, to which type of OSPF network does this interface belong?

- [x] point-to-point
- broadcast
- nonbroadcast
- point-to-multipoint

Which port type supports the **spanning-tree portfast** command without additional configuration?

- [x] access ports
- Layer 3 subinterfaces
- Layer 3 main interfaces
- trunk ports

What is the function of a server?

- It transmits packets between hosts in the same broadcast domain.
- It creates security zones between trusted and untrusted networks.
- It routes traffic between Layer 3 devices.
- [x] It provides shared applications to end users.

```
ip arp inspection vlan 5-10
interface fastethernet 0/1
   switchport mode access
   switchport access vlan 5
```

Refer to the exhibit. What is the effect of this configuration?

- All ARP packets are dropped by the switch.
- Egress traffic is passed only if the destination is a DHCP server.
- The switch discards all ingress ARP traffic with invalid MAC-to-IP address bindings.
- [x] All ingress and egress traffic is dropped because the interface is untrusted.

```
R1# show ip route | begin gateway
Gateway of last resort is 209.165.200.246 to network 0.0.0.0
S* 0.0.0.0/0 [1/0] via 209.165.200.246, Serial0/1/0
      is directly connected, Serial0/1/0
      172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
S     172.16.3.0/24 [1/0] via 207.165.200.250, Serial0/0/0
O     172.16.3.0/28 [110/84437] via 207.165.200.254, 00:00:28, Serial0/0/1
      207.165.200.0/24 is variably subnetted, 6 subnets, 2 masks
C     207.165.200.244/30 is directly connected, Serial0/1/0
L     207.165.200.245/32 is directly connected, Serial0/1/0
C     207.165.200.248/30 is directly connected, Serial0/0/0
L     207.165.200.249/32 is directly connected, Serial0/0/0
C     207.165.200.252/30 is directly connected, Serial0/0/1
L     207.165.200.253/32 is directly connected, Serial0/0/1
```

Refer to the exhibit. A packet is being sent across router R1 to host 172.16.3.14. To which destination does the router send the packet?

- 207.165.200.250 via Serial0/0/0
- [x] 207.165.200.254 via Serial0/0/1
- 207.165.200.246 via Serial0/1/0
- 207.165.200.254 via Serial0/0/0

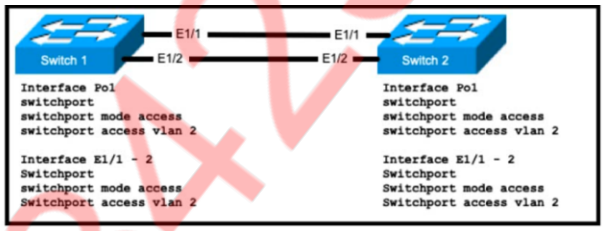
Which two outcomes are predictable behaviors for HSRP? (Choose two.)

- [x] The two routers share a virtual IP address that is used as the default gateway for devices on the LAN.
- [ ] Each router has a different IP address, both routers act as the default gateway on the LAN, and traffic is load-balanced between them.
- [ ] The two routers share the same interface IP address, and default gateway traffic is load-balanced between them.
- [ ] The two routers synchronize configurations to provide consistent packet forwarding.
- [x] The two routers negotiate one router as the active router and the other as the standby router.

```
R1# show ip route
D       192.168.10.0/24    [90/2679326]    via 192.168.1.1
R       192.168.10.0/27    [120/3]     via 192.168.1.2
O       192.168.10.0/23    [110/2]     via 192.168.1.3
i  L1   192.168.10.0/13    [115/30]    via 192.168.1.4
```

Refer to the exhibit. How does router R1 handle traffic to 192.168.10.16?

- It selects the RIP route because it has the longest prefix inclusive of the destination address.
- It selects the IS-IS route because it has the shortest prefix inclusive of the destination address.
- It selects the EIGRP route because it has the lowest administrative distance.
- It selects the OSPF route because it has the lowest cost.



Refer to the exhibit. An engineer is configuring an EtherChannel using LACP between Switches 1 and 2. Which configuration must be applied so that only Switch 1 sends LACP initiation packets?

- Switch1(config-if)#**channel-group 1 mode on**
  Switch2(config-if)#**channel-group 1 mode passive**
- Switch1(config-if)#**channel-group 1 mode active**
  Switch2(config-if)#**channel-group 1 mode passive**
- Switch1(config-if)#**channel-group 1 mode passive**
  Switch2(config-if)#**channel-group 1 mode active**
- Switch1(config-if)#**channel-group 1 mode on**
  Switch2(config-if)#**channel-group 1 mode active**

A device detects two stations transmitting frames at the same time. This condition occurs after the first 64 bytes of the frame is received. Which interface counter increments?

- collision
- CRC
- late collision
- runt

Which two QoS tools provide congestion management? (Choose two.)

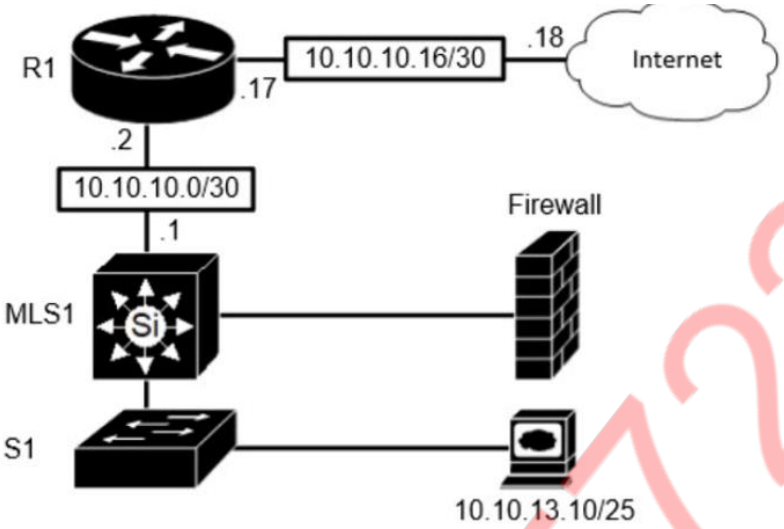
- [ ] PBR
- [x] CBWFQ
- [x] PQ
- [ ] FRTS
- [ ] CAR

Which two conditions must be met before SSH operates normally on a Cisco IOS switch? (Choose two.)

- [ ] IP routing must be enabled on the switch.
- [x] The switch must be running a k9 (crypto) IOS image.
- [ ] Telnet must be disabled on the switch.
- [ ] A console password must be configured on the switch.
- [x] The **ip domain-name** command must be configured on the switch.

Which protocol prompts the Wireless LAN Controller to generate its own local web administration SSL certificate for GUI access?

- ( ) HTTP
- ( ) RADIUS
- (•) HTTPS
- ( ) TACACS+




```
R1#sh ip ro
Gateway of last resort is 10.10.10.18 to network 0.0.0.0

     10.0.0.0/8 is variably subnetted, 4 subnets, 3 masks
C       10.10.10.0/30 is directly connected, FastEthernet0/1
O       10.10.13.0/25 [110/6576] via 10.10.10.1, 06:58:21, FastEthernet0/1
C       10.10.10.16/30 is directly connected, FastEthernet0/24
O       10.10.13.144/28 [110/110] via 10.10.10.1, 06:58:21, FastEthernet0/1
B*   0.0.0.0/0 [20/0] via 10.10.10.18, 01:17:58
```

Refer to the exhibit. Which route type is configured to reach the Internet?

- default route
- network route
- floating static route
- host route

If a switch port receives a new frame while it is actively transmitting a previous frame, how does it process the frames?

- The two frames are processed and delivered at the same time.
- The new frame is delivered first, the previous frame is dropped, and a retransmission request is sent.
- The previous frame is delivered, the new frame is dropped, and a retransmission request is sent.
- The new frame is placed in a queue for transmission after the previous frame.

```
Gig0/0 is up, line protocol is up
  Internet Address 10.201.24.8/28, Area 1, Attached via Network Statement
  Process ID 100, Router ID 192.168.1.1, Network Type BROADCAST, Cost: 1
  Topology-MTID    Cost    Disabled    Shutdown      Topology Name
        0           1         no          no           Base
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 192.168.1.1, Interface address 10.201.24.8
  No backup designated router on this network
  Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
    oob-resync timeout 40
    Hello due in 00:00:07

R2#sh ip ospf int gig0/0
gig0/0 is up, line protocol is up
  Internet Address 10.201.24.1/28, Area 1
  Process ID 100, Router ID 172.16.1.1, Network Type BROADCAST, Cost: 1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 172.16.1.1, Interface address 10.201.24.1
  No backup designated router on this network
  Timer intervals configured, Hello 20, Dead 80, Wait 80, Retransmit 5
```

Refer to the exhibit. Which action establishes the OSPF neighbor relationship without forming an adjacency?

- modify priority
- (•) modify hello interval
- modify network type
- modify process ID

What makes Cisco DNA Center different from traditional network management applications and their management of networks?

- Its modular design allows the implementation of different versions to meet the specific needs of an organization.
- It omits support for high availability of management functions when operating in cluster mode.
- (•) It abstracts policy from the actual device configuration.
- It only supports auto-discovery of network elements in a greenfield deployment.

A packet is destined for 10.10.1.22. Which static route does the router choose to forward the packet?

- ip route 10.10.1.20 255.255.255.254 10.10.255.1
- (•) ip route 10.10.1.20 255.255.255.252 10.10.255.1
- ip route 10.10.1.0 255.255.255.240 10.10.255.1
- ip route 10.10.1.16 255.255.255.252 10.10.255.1

An engineer requires a switch interface to actively attempt to establish a trunk link with a neighbor switch. What command must be configured?

- switchport mode trunk
- switchport nonegotiate
- switchport mode dynamic desirable
- switchport mode dynamic auto

Which communication interaction takes place when a southbound API is used?

- between the SDN controller and services and applications on the network
- between the SDN controller and switches and routers on the network
- between network applications and switches and routers on the network
- between the SDN controller and PCs on the network

R1 has learned route 10.10.10.0/24 via numerous routing protocols. Which route is installed?

- route with the shortest prefix length
- route with the next hop that has the highest IP
- route with the lowest cost
- route with the lowest administrative distance

What are two recommendations for protecting network ports from being exploited when located in an office space outside of an IT closet? (Choose two.)

- [ ] enable the PortFast feature on ports
- [x] shut down unused ports
- [ ] configure static ARP entries
- [ ] configure ports to a fixed speed
- [x] implement port-based authentication

```
interface GigabitEthernet3/1/4
 switchport voice vlan 50
!
```

Refer to the exhibit. An administrator is tasked with configuring a voice VLAN. What is the expected outcome when a Cisco phone is connected to the GigabitEthernet3/1/4 port on a switch?

- The phone sends and receives data in VLAN 50, but a workstation connected to the phone has no VLAN connectivity.
- The phone and a workstation that is connected to the phone do not have VLAN connectivity.
- (•) The phone sends and receives data in VLAN 50, but a workstation connected to the phone sends and receives data in VLAN 1.
- The phone and a workstation that is connected to the phone send and receive data in VLAN 50.

Which IPv6 address block forwards packets to a multicast address rather than a unicast address?

- 2000::/3
- FC00::/7
- FE80::/10
- (•) FF00::/12

Which WPA3 enhancement protects against hackers viewing traffic on the Wi-Fi network?

- (•) SAE encryption
- scrambled encryption key
- AES encryption
- TKIP encryption

Which set of actions satisfy the requirement for multifactor authentication?

- The user swipes a key fob, then clicks through an email link.
- The user enters a user name and password, and then clicks a notification in an authentication app on a mobile device.
- The user enters a PIN into an RSA token, and then enters the displayed RSA key on a login screen.
- The user enters a user name and password, and then re-enters the credentials on a second screen.

Which technology prevents client devices from arbitrarily connecting to the network without state remediation?

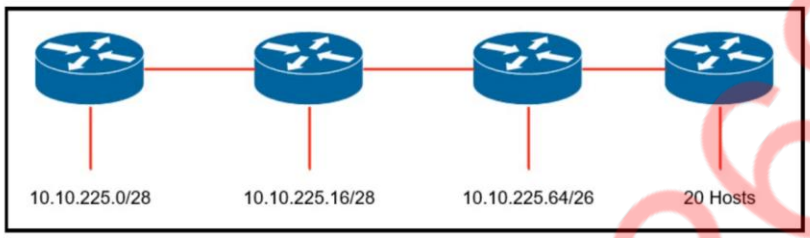
- 802.1x
- IP Source Guard
- 802.11n
- MAC Authentication Bypass

How do AAA operations compare regarding user identification, user services, and access control?

- Authorization identifies users, and authentication provides access control.
- Authentication identifies users, and accounting tracks user services.
- Accounting tracks user services, and authentication provides access control.
- Authorization provides access control, and authentication tracks user services.

An engineer must configure a WLAN using the strongest encryption type for WPA2- PSK. Which cipher fulfills the configuration requirement?

- WEP
- AES
- RC4
- TKIP



Refer to the exhibit. An engineer must add a subnet for a new office that will add 20 users to the network. Which IPv4 network and subnet mask combination does the engineer assign to minimize wasting addresses?

- 10.10.225.48 255.255.255.240
- 10.10.225.32 255.255.255.240
- 10.10.225.48 255.255.255.224
- 10.10.225.32 255.255.255.224

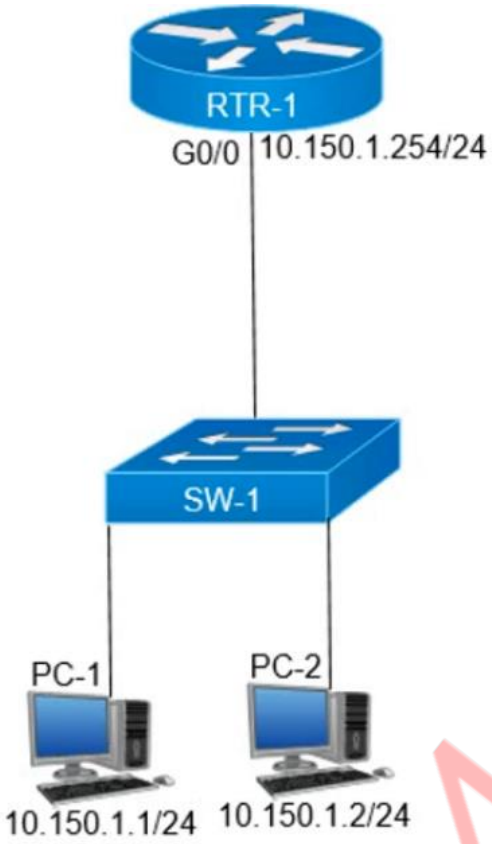
```
Switch(config)#hostname R1
R1(config)#interface FastEthernet0/1
R1(config-if)#no switchport
R1(config-if)#ip address 10.100.20.42 255.255.255.0
R1(config-if)#line vty 0 4
R1(config-line)#login
```

Refer to the exhibit. An engineer booted a new switch and applied this configuration via the console port. Which additional configuration must be applied to allow administrators to authenticate directly to global configuration mode via Telnet using a local username and password?

- R1(config)#**username admin secret p@ss1234**
  R1(config-if)#**line vty 0 4**
  R1(config-line)#**login local**
  R1(config)#**enable secret p@ss1234**
- R1(config)#**username admin**
  R1(config-if)#**line vty 0 4**
  R1(config-line)#**password p@ss1234**
  R1(config-line)#**transport input telnet**
- R1(config)#**username admin privilege 15 secret p@ss1234**
  R1(config-if)#**line vty 0 4**
  R1(config-line)#**login local**
- R1(config)#**username admin**
  R1(config-if)#**line vty 0 4**
  R1(config-line)#**password p@ss1234**

An engineer needs to configure LLDP to send the port description type length value (TLV). Which command sequence must be implemented?

- switch(config)#**lldp port-description**
- switch#**lldp port-description**
- switch(config-if)#**lldp port-description**
- switch(config-line)#**lldp port-description**



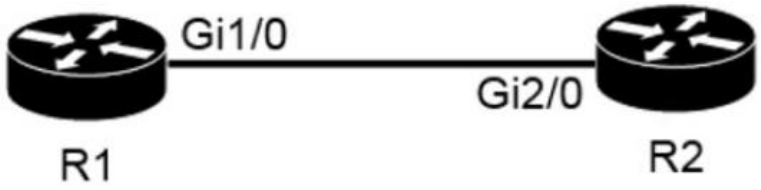

```
RTR-1:

hostname RTR-1
!
interface GigabitEthernet0/0
ip address 10.150.1.254 255.255.255.0
duplex auto
speed auto
!
access-list 10 deny host 10.150.1.1
!
line con 0
password 7 0822455D0A16
login
!
line vty 0 4
access-class 10 in
password 7 0822455D0A16
login
!
end
```

Refer to the exhibit. An access list is created to deny Telnet access from host PC-1 to RTR-1 and allow access from all other hosts. A Telnet attempt from PC-2 gives this message: "% Connection refused by remote host." Without allowing Telnet access from PC-1, which action must be taken to permit the traffic?

- Add the **access-list 10 permit any** command to the configuration.
- Remove the **access-class 10 in** command from line vty 0 4.
- Add the **ip access-group 10 out** command to interface g0/0.
- Remove the **password** command from line vty 0 4.

What are two characteristics of a public cloud implementation? (Choose two.)

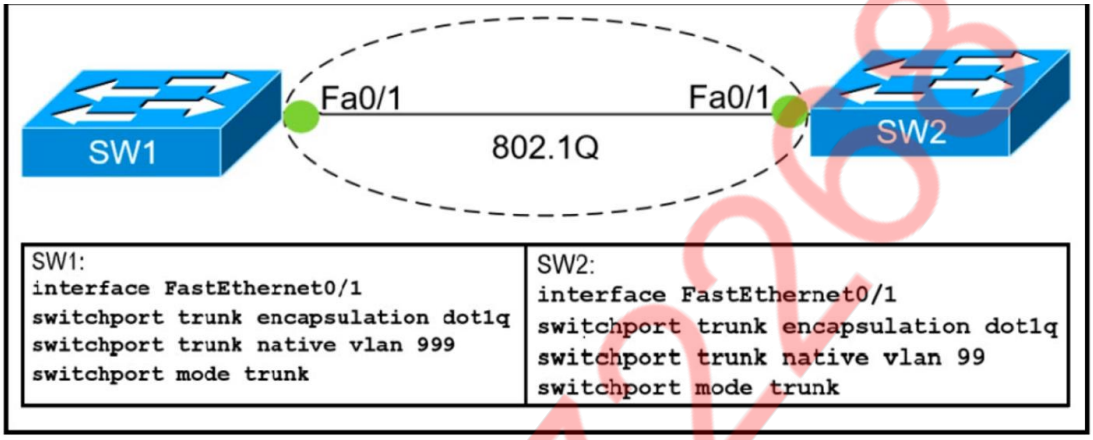
- [x] It provides services that are accessed over the Internet.
- [ ] It enables an organization to fully customize how it deploys network resources.
- [ ] It is owned and maintained by one party, but it is shared among multiple organizations.
- [x] It supports network resources from a centralized third-party provider and privately-owned virtual resources.
- [ ] It is a data center on the public Internet that maintains cloud services for only one company.




```
R1#show running-config
Building configuration...
!
interface GigabitEthernet1/0
 mtu 1600
 ip address 192.168.0.1 255.255.255.252
 negotiation auto
!
router ospf 1
 router-id 1.1.1.1
 passive-interface default
 no passive-interface GigabitEthernet1/0
 network 192.168.0.1 0.0.0.0 area 0
!
R2#show running-config
Building configuration...
!
interface GigabitEthernet2/0
 ip address 192.168.0.2 255.255.255.252
 negotiation auto
!
router ospf 1
 router-id 2.2.2.2
```

Refer to the exhibit. Which configuration issue is preventing the OSPF neighbor relationship from being established between the two routers?

- R2 is using the **passive-interface default** command.
- R2 should have its **network** command in area 1.
- R1 interface Gi1/0 has a larger MTU size.
- R1 has an incorrect **network** command for interface Gi1/0.



Refer to the exhibit. Which action do the switches take on the trunk link?

- (•) The trunk forms, but the mismatched native VLANs are merged into a single broadcast domain.
- ( ) The trunk forms, but VLAN 99 and VLAN 999 are in a shutdown state.
- ( ) The trunk does not form, but VLAN 99 and VLAN 999 are allowed to traverse the link.
- ( ) The trunk does not form, and the ports go into an err-disabled status.

An engineer must configure an OSPF neighbor relationship between router R1 and R3. The authentication configuration has been configured and the connecting interfaces are in the same 192.168.1.0/30 subnet. What are the next two steps to complete the configuration? (Choose two.)

- [x] configure both interfaces with the same area ID
- [ ] configure the same process ID for the router OSPF process
- [ ] configure the same router ID on both routing processes
- [x] configure the hello and dead timers to match on both sides
- [ ] configure the interfaces as OSPF active on both sides

What are two benefits of FHRPs? (Choose two.)

- [x] They enable automatic failover of the default gateway.
- [ ] They allow encrypted traffic.
- [x] They allow multiple devices to serve as a single virtual gateway for clients in the network.
- [ ] They are able to bundle multiple ports to increase bandwidth.
- [ ] They prevent loops in the Layer 2 network.

A user configured OSPF in a single area between two routers. A serial interface connecting R1 and R2 is running encapsulation PPP. By default, which OSPF network type is seen on this interface when the user types **show ip ospf interface** on R1 or R2?

- nonbroadcast
- point-to-multipoint
- broadcast
- point-to-point

```
     10.0.0.0/24 is subsetted, 1 subnets
C       10.0.0.0 is directly connected, FastEthernet0/1
C    172.160.0/16 is directly connected, FastEthernet0/0
D    192.168.0.0/24 [90/30720] via 172.16.0.2, 00:00:03, FastEthernet0/0
```

Refer to the exhibit. Which route type does the routing protocol Code D represent in the output?

- /24 route of a locally configured IP
- route learned through EIGRP
- statically assigned route
- internal BGP route

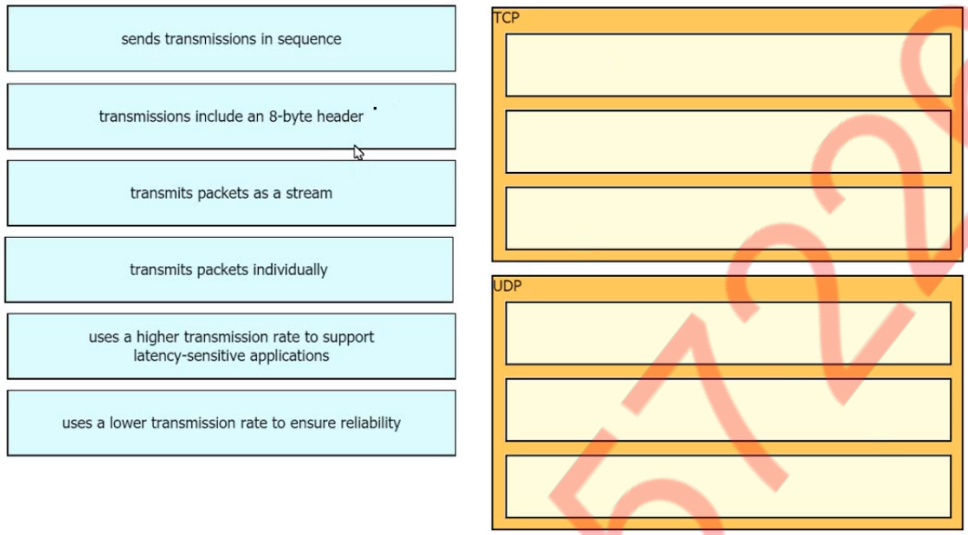
When OSPF learns multiple paths to a network, how does it select a route?

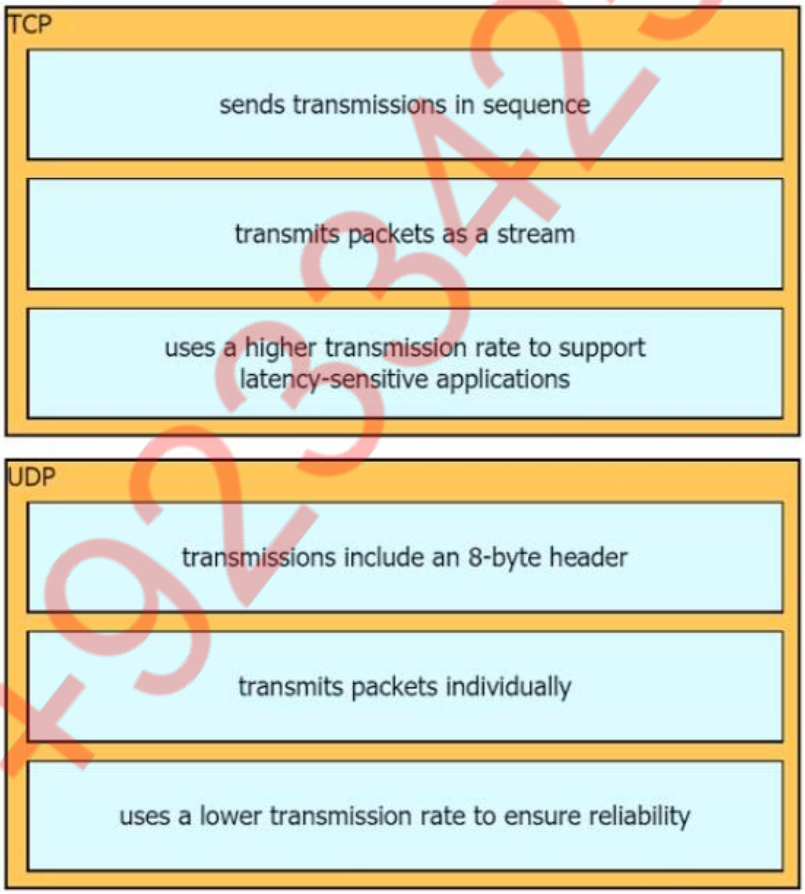
- It multiplies the active K values by 256 to calculate the route with the lowest metric.
- It counts the number of hops between the source router and the destination to determine the route with the lowest metric.
- For each existing interface, it adds the metric from the source router to the destination to calculate the route with the lowest bandwidth.
- It divides a reference bandwidth of 100 Mbps by the actual bandwidth of the exiting interface to calculate the route with the lowest cost.

Which action must be taken to assign a global unicast IPv6 address on an interface that is derived from the MAC address of that interface?

- configure a stateful DHCPv6 server on the network
- enable SLAAC on an interface
- disable the EUI-64 bit process
- explicitly assign a link-local address

Drag and drop the descriptions of IP protocol transmissions from the left onto the IP traffic types on the right.



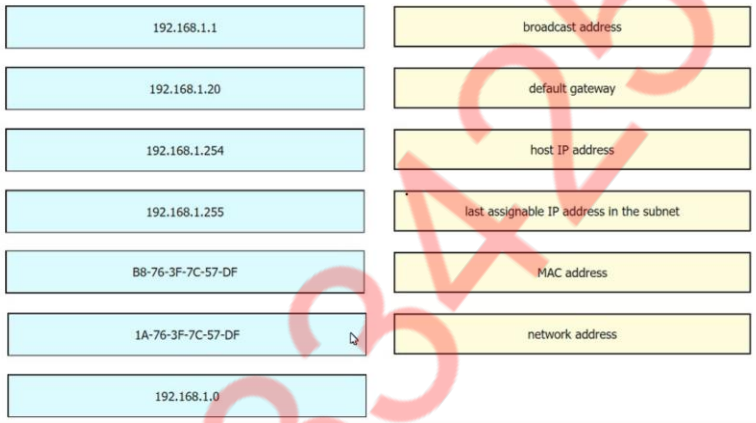


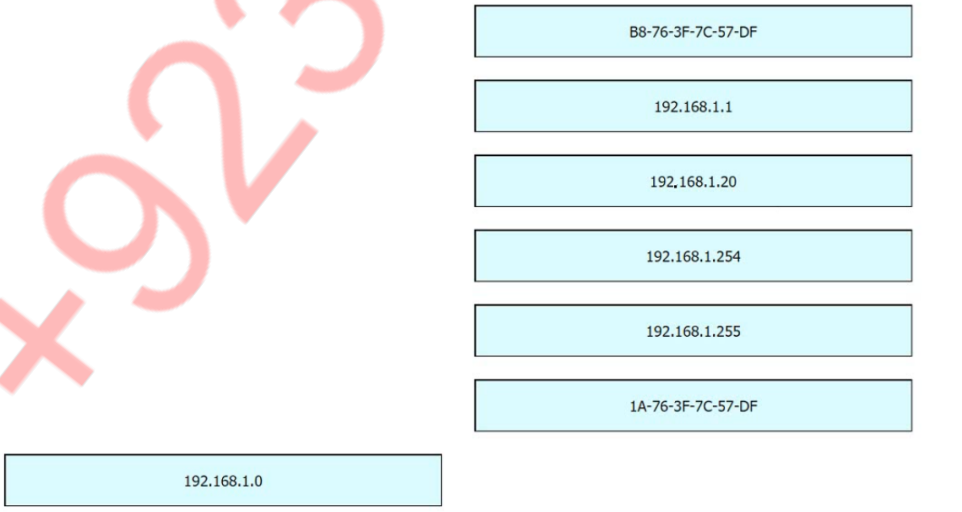
```
Gateway of last resort is 10.12.0.1 to network 0.0.0.0

O*E2    0.0.0.0/0 [110/1] via 10.12.0.1, 00:00:01, GigabitEthernet0/0
        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.0.0.0/24 is directly connected, GigabitEthernet0/0
L       10.0.0.2/32 is directly connected, GigabitEthernet0/0
C       10.13.0.0/24 is directly connected, GigabitEthernet0/1
L       10.13.0.2/32 is directly connected, GigabitEthernet0/1
```

Refer to the exhibit. If configuring a static default route on the router with the **ip route 0.0.0.0 0.0.0.0 10.13.0.1 120** command, how does the router respond?

- It starts load-balancing traffic between the two default routes.
- It ignores the new static route until the existing OSPF default route is removed.
- It starts sending traffic without a specific matching entry in the routing table to GigabitEthernet0/1.
- It immediately replaces the existing OSPF route in the routing table with the newly configured static route.

Refer to the exhibit. An engineer is required to verify that the network parameters are valid for the users wireless LAN connectivity on a /24 subnet. Drag and drop the values from the left onto the network parameters on the right. Not all values are used.





What is the path for traffic sent from one user workstation to another workstation on a separate switch in a three-tier architecture model?

- access - distribution - distribution - access
- [x] access - distribution - core - distribution - access
- access - core - access
- access - core - distribution - access

What is a difference between RADIUS and TACACS+?

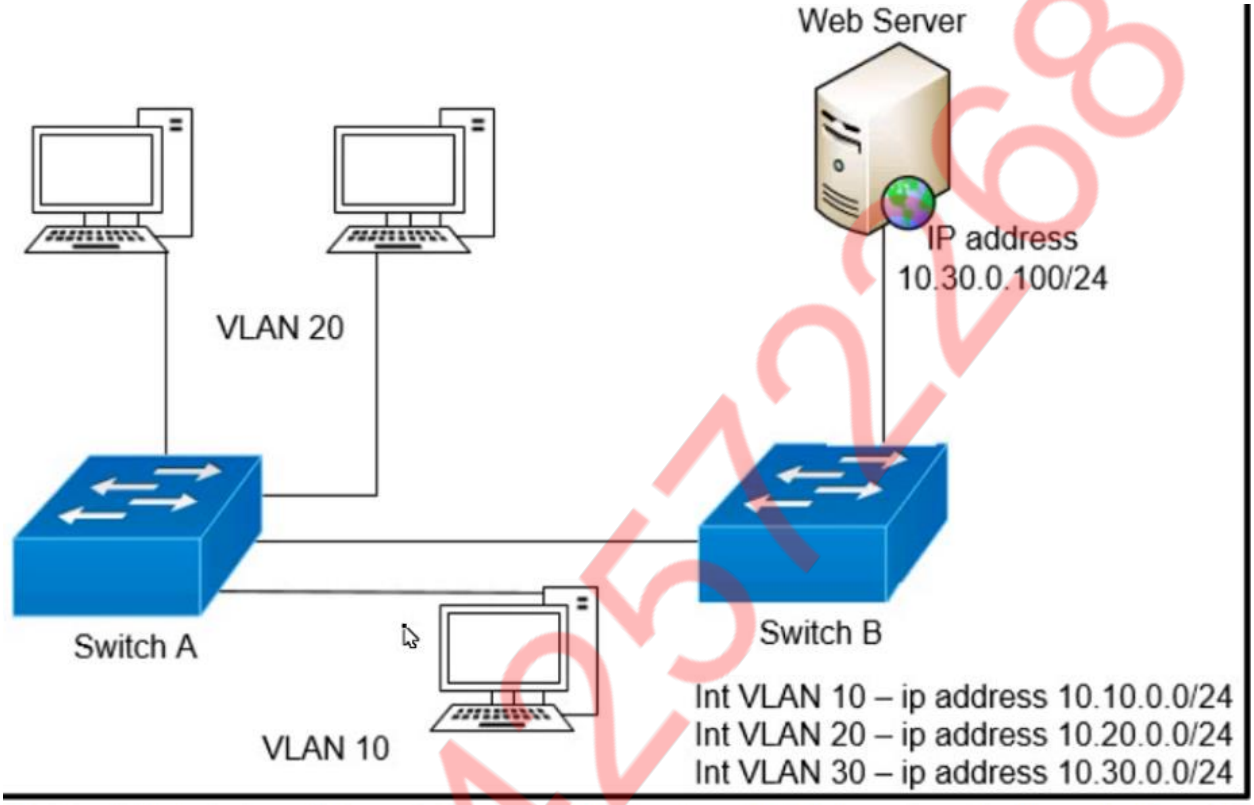
- [x] TACACS+ separates authentication and authorization, and RADIUS merges them.
- RADIUS is most appropriate for dial authentication, but TACACS+ is also used for multiple types of authentication.
- TACACS+ encrypts only password information, and RADIUS encrypts the entire payload.
- RADIUS logs all commands that are entered by the administrator, but TACACS+ logs only start, stop, and interim commands.

How will Link Aggregation be implemented on a Cisco Wireless LAN Controller?

- When enabled, the WLC bandwidth drops to 500 Mbps.
- The EtherChannel must be configured in "mode active".
- To pass client traffic, two or more ports must be configured.
- [x] One functional physical port is needed to pass client traffic.

How does CAPWAP communicate between an access point in local mode and a WLC?

- The access point must directly connect to the WLC using a copper cable.
- [x] The access point has the ability to link to any switch in the network, assuming connectivity to the WLC.
- The access point must be connected to the same switch as the WLC.
- The access point must not be connected to the wired network, as it would create a loop.



Refer to the exhibit. A network engineer must block access for all computers on VLAN 20 to the web server via HTTP. All other computers must be able to access the web server. Which configuration when applied to switch A accomplishes this task?

```
config t
ip access-list extended wwwblock
permit ip any any
deny tcp any host 10.30.0.100 eq 80
int vlan 20
ip access-group wwwblock in
```

```
config t
ip access-list extended wwwblock
permit ip any any
deny tcp any host 10.30.0.100 eq 80
int vlan 30
ip access-group wwwblock in
```

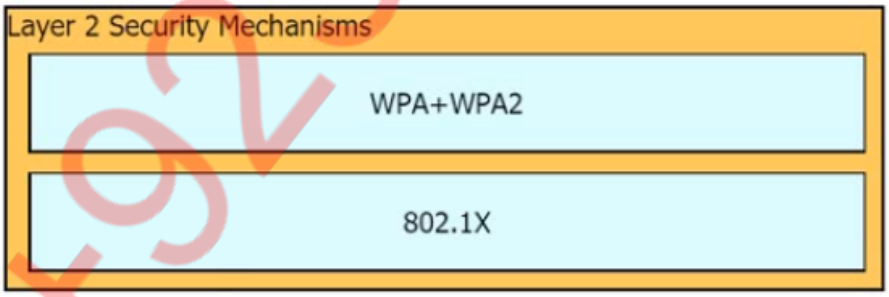
```
config t
ip access-list extended wwwblock
deny tcp any host 10.30.0.100 eq 80
int vlan 10
ip access-group wwwblock in
```

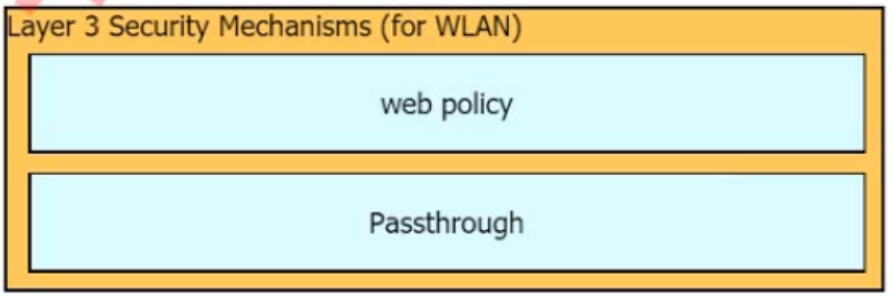
```
config t
ip access-list extended wwwblock
deny tcp any host 10.30.0.100 eq 80
permit ip any any
int vlan 20
ip access-group wwwblock in
```

Where does a switch maintain DHCP snooping information?

- in the CAM table
- in the frame forwarding database
- in the binding database
- in the MAC address table

Drag and drop the Cisco Wireless LAN Controller security settings from the left onto the correct security mechanism categories on the right.





```
R2#show ip route
C    192.168.1.0/26 is directly connected, FastEthernet0/1
```

Refer to the exhibit. Which two prefixes are included in this routing table entry? (Choose two.)

- [x] 192.168.1.17
- [x] 192.168.1.61
- [ ] 192.168.1.64
- [ ] 192.168.1.127
- [ ] 192.168.1.254

A Cisco IP phone receives untagged data traffic from an attached PC. Which action is taken by the phone?

- ( ) It drops the traffic.
- ( ) It tags the traffic with the native VLAN.
- (•) It allows the traffic to pass through unchanged.
- ( ) It tags the traffic with the default VLAN.

Which technology must be implemented to configure network device monitoring with the highest security?

- ( ) IP SLA
- ( ) syslog
- ( ) NetFlow
- (•) SNMPv3

```
R1# show ip route | begin gateway
Gateway of last resort is 209.165.200.246 to network 0.0.0.0
S* 0.0.0.0/0 [1/0] via 209.165.200.246, Serial0/1/0
     is directly connected, Serial0/1/0
     172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
S    172.16.3.0/24 [1/0] via 209.165.200.250, Serial0/0/0
O    172.16.3.0/28 [110/1] via 209.165.200.254, 00:00:28, Serial0/0/1
     209.165.200.0/24 is variably subnetted, 6 subnets, 2 masks
C    209.165.200.244/30 is directly connected, Serial0/1/0
L    209.165.200.245/32 is directly connected, Serial0/1/0
C    209.165.200.248/30 is directly connected, Serial0/0/0
L    209.165.200.249/32 is directly connected, Serial0/0/0
C    209.165.200.252/30 is directly connected, Serial0/0/1
L    209.165.200.253/32 is directly connected, Serial0/0/1
```

Refer to the exhibit. A packet is being sent across router R1 to host 172.16.0.14. What is the destination route for the packet?

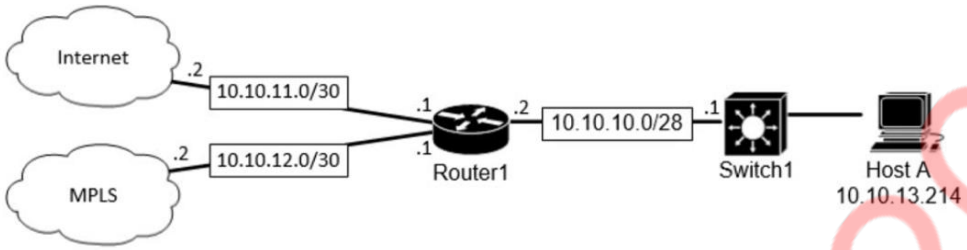
- 209.165.200.246 via Serial0/1/0
- 209.165.200.250 via Serial0/0/0
- [x] 209.165.200.254 via Serial0/0/1
- 209.165.200.254 via Serial0/0/0

A network administrator needs to aggregate 4 ports into a single logical link which must negotiate layer 2 connectivity to ports on another switch. What must be configured when using active mode on both sides of the connection?

- Cisco vPC
- [x] LACP
- LLDP
- 802.1q trunks

Which type of IPv6 address is publicly routable in the same way as IPv4 public addresses?

- [x] global unicast
- multicast
- link-local
- unique local




```
Router1#show ip route
Gateway of last resort is 10.10.11.2 to network 0.0.0.0

     209.165.200.0/27 is subnetted, 1 subnets
B       209.165.200.224 [20/0] via 10.10.12.2, 03:22:14
     209.165.201.0/27 is subnetted, 1 subnets
B       209.165.201.0 [20/0] via 10.10.12.2, 02:26:33
     209.165.202.0/27 is subnetted, 1 subnets
B       209.165.202.128 [20/0] via 10.10.12.2, 02:26:03
     10.0.0.0/8 is variably subnetted, 8 subnets, 4 masks
C       10.10.10.0/28 is directly connected, GigabitEthernet0/0
C       10.10.11.0/30 is directly connected, FastEthernet2/0
C       10.10.12.0/30 is directly connected, GigabitEthernet0/1
O       10.10.13.0/25 [110/2] via 10.10.10.1, 00:00:04, GigabitEthernet0/0
O       10.10.13.128/28 [110/2] via 10.10.10.1, 00:00:04, GigabitEthernet0/0
O       10.10.13.144/28 [110/2] via 10.10.10.1, 00:00:04, GigabitEthernet0/0
O       10.10.13.160/29 [110/2] via 10.10.10.1, 00:00:04, GigabitEthernet0/0
O       10.10.13.208/29 [110/2] via 10.10.10.1, 00:00:04, GigabitEthernet0/0
S*   0.0.0.0/0 [1/0] via 10.10.11.2
```

Refer to the exhibit. Which prefix does Router1 use for traffic to Host A?

- 10.10.10.0/28
- 10.10.13.0/25
- 10.10.13.144/28
- 10.10.13.208/29

Which JSON data type is an unordered set of attribute-value pairs?

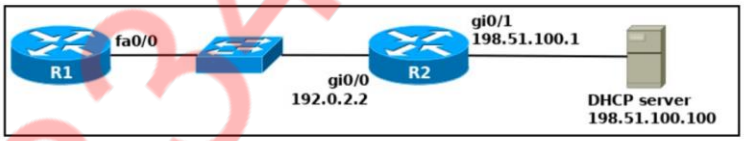
- string
- array
- object
- Boolean

With REST API, which standard HTTP header tells a server which media type is expected by the client?

- Accept-Encoding: gzip, deflate
- Content-Type: application/json; charset=utf-8
- Accept-Patch: text/example; charset=utf-8
- Accept: application/json

Which type of traffic is sent with pure IPsec?

- unicast messages from a host at a remote site to a server at headquarters
- spanning-tree updates between switches that are at two different sites
- broadcast packets from a switch that is attempting to locate a MAC address at one of several remote sites
- multicast traffic from a server at one site to hosts at another location



Refer to the exhibit. An engineer deploys a topology in which R1 obtains its IP configuration from DHCP. If the switch and DHCP server configurations are complete and correct, which two sets of commands must be configured on R1 and R2 to complete the task? (Choose two.)

- [x] R2(config)# **interface gi0/0**
  R2(config-if)# **ip helper-address 198.51.100.100**
- [ ] R1(config)# **interface fa0/0**
  R1(config-if)# **ip helper-address 192.0.2.2**
- [ ] R1(config)# **interface fa0/0**
  R1(config-if)# **ip helper-address 198.51.100.100**
- [x] R1(config)# **interface fa0/0**
  R1(config-if)# **ip address dhcp**
  R1(config-if)# **no shutdown**
- [ ] R2(config)# **interface gi0/0**
  R2(config-if)# **ip address dhcp**

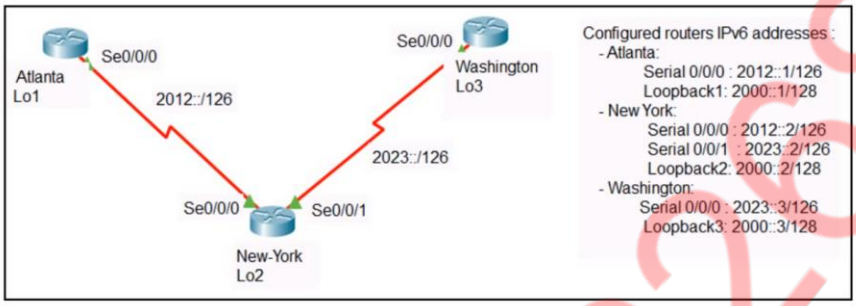
```
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route

Gateway of last resort is 209.165.202.131 to network 0.0.0.0

S*    0.0.0.0/0 [1/0] via 209.165.202.131
      209.165.200.0/27 is subnetted, 1 subnets
S        209.165.200.224 [254/0] via 209.165.202.129
      209.165.201.0/27 is subnetted, 1 subnets
S        209.165.201.0 [1/0] via 209.165.202.130
```

Refer to the exhibit. Which command configures a floating static route to provide a backup to the primary link?

- ip route 0.0.0.0 0.0.0.0 209.165.200.224
- ip route 209.165.200.224 255.255.255.224 209.165.202.129 254
- ip route 209.165.201.0 255.255.255.224 209.165.202.130
- ip route 0.0.0.0 0.0.0.0 209.165.202.131

Which two primary drivers support the need for network automation? (Choose two.)

- [ ] reducing hardware footprint
- [ ] eliminating training needs
- [x] policy-driven provisioning of resources
- [ ] increasing reliance on self-diagnostics and self-healing
- [x] providing a single entry point for resource provisioning



Refer to the exhibit. An engineer configured the New York router with static routes that point to the Atlanta and Washington sites. Which command must be configured on the Atlanta and Washington routers so that both sites are able to reach the loopback2 interface on the New York router?

- ipv6 route ::/0 Serial 0/0/1
- ipv6 route 0/0 Serial 0/0/0
- ipv6 route ::/0 Serial 0/0/0
- ipv6 route ::/0 2000::2
- ip route 0.0.0.0 0.0.0.0 Serial 0/0/0

Which network plane is centralized and manages routing decisions?

- policy plane
- management plane
- control plane
- data plane

Which configuration management mechanism uses TCP port 22 by default when communicating with managed nodes?

- Ansible
- Chef
- Puppet
- Python

A corporate office uses four floors in a building.

- Floor 1 has 24 users.
- Floor 2 has 29 users.
- Floor 3 has 28 users.
- Floor 4 has 22 users.

Which subnet summarizes and gives the most efficient distribution of IP addresses for the router configuration?

- 192.168.0.0/23 as summary and 192.168.0.0/25 for each floor
- 192.168.0.0/24 as summary and 192.168.0.0/28 for each floor
- 192.168.0.0/26 as summary and 192.168.0.0/29 for each floor
- [x] 192.168.0.0/25 as summary and 192.168.0.0/27 for each floor

What is the expected outcome when an EUI-64 address is generated?

- The characters FE80 are inserted at the beginning of the MAC address of the interface.
- The MAC address of the interface is used as the interface ID without modification.
- The interface ID is configured as a random 64-bit value.
- [x] The seventh bit of the original MAC address of the interface is inverted.

What is a characteristic of private IPv4 addressing?

- traverse the Internet when an outbound ACL is applied
- [x] used without tracking or registration
- issued by IANA in conjunction with an autonomous system number
- composed of up to 65,536 available addresses

Which two values or settings must be entered when configuring a new WLAN in the Cisco Wireless LAN Controller GUI? (Choose two.)

- [ ] IP address of one or more access points
- [ ] management interface settings
- [x] profile name
- [ ] QoS settings
- [x] SSID

When a WPA2-PSK WLAN is configured in the Wireless LAN Controller, what is the minimum number of characters that is required in ASCII format?

- 6
- 8
- 12
- 18

Which command must be entered when a device is configured as an NTP server?

- **ntp master**
- **ntp server**
- **ntp authenticate**
- **ntp peer**

How do traditional campus device management and Cisco DNA Center device management differ in regards to deployment?

- Traditional campus device management schemes typically deploy patches and updates quicker than Cisco DNA Center device management.
- Cisco DNA Center device management is implemented at a lower cost than most traditional campus device management options.
- Traditional campus device management allows a network to scale quicker than using Cisco DNA Center device management.
- Cisco DNA Center device management deploys a network faster than traditional campus device management.

Which two actions influence the EIGRP route selection process? (Choose two.)

- [ ] The advertised distance is calculated by a downstream neighbor to inform the local router of the bandwidth on the link.
- [x] The router calculates the feasible distance of all paths to the destination route.
- [ ] The router calculates the reported distance by multiplying the delay on the exiting interface by 256.
- [ ] The router must use the advertised distance as the metric for any given route.
- [x] The router calculates the best backup path to the destination route and assigns it as the feasible successor.

Using direct sequence spread spectrum, which three 2.4-GHz channels are used to limit collisions?

- ○ 5, 6, 7
- ◉ 1, 6, 11
- ○ 1, 2, 3
- ○ 1, 5, 10

Which role does a hypervisor provide for each virtual machine in server virtualization?

- ◉ control and distribution of physical resources
- ○ infrastructure-as-a-service
- ○ software-as-a-service
- ○ services as a hardware controller

What is a syslog facility?

- password that authenticates a Network Management System to receive log messages
- group of log messages associated with the configured severity level
- set of values that represent the processes that can generate a log message
- host that is configured for the system to send log messages

Which command must be entered to configure a DHCP relay?

- **ip dhcp pool**
- **ip address dhcp**
- **ip helper-address**
- **ip dhcp relay**

What prevents a workstation from receiving a DHCP address?

- DTP
- VTP
- STP
- 802.1Q

Which unified access point mode continues to serve wireless clients after losing connectivity to the Cisco Wireless LAN Controller?

- mesh
- [x] flexconnect
- sniffer
- local

An engineer must establish a trunk link between two switches. The neighboring switch is set to trunk or desirable mode. Which action should be taken?

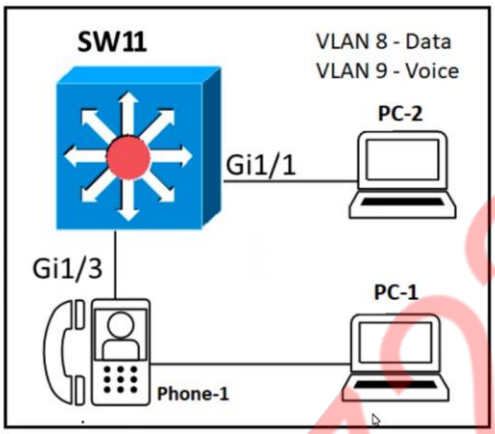
- configure **switchport mode dynamic desirable**
- [x] configure **switchport trunk dynamic desirable**
- configure **switchport mode dynamic auto**
- configure **switchport nonegotiate**

The **service password-encryption** command is entered on a router. What is the effect of this configuration?

- encrypts the password exchange when a VPN tunnel is established
- prevents network administrators from configuring clear-text passwords
- protects the VLAN database from unauthorized PC connections on the switch
- [x] restricts unauthorized users from viewing clear-text passwords in the running configuration

What are two differences between optical-fiber cabling and copper cabling? (Choose two.)

- [ ] Fiber connects to physical interfaces using RJ-45 connections.
- [ ] A BNC connector is used for fiber connections.
- [ ] The data can pass through the cladding.
- [x] Light is transmitted through the core of the fiber.
- [x] The glass core component is encased in a cladding.



Refer to the exhibit. An administrator must configure interfaces Gi1/1 and Gi1/3 on switch SW11. PC-1 and PC-2 must be placed in the Data VLAN, and Phone-1 must be placed in the Voice VLAN. Which configuration meets these requirements?

- interface gigabitethernet1/1
  switchport mode access
  switchport access vlan 8
  !
  interface gigabitethernet1/3
  switchport mode trunk
  switchport trunk vlan 8
  switchport voice vlan 9

- interface gigabitethernet1/1
  switchport mode access
  switchport access vlan 9
  !
  interface gigabitethernet1/3
  switchport mode trunk
  switchport trunk vlan 8
  switchport trunk vlan 9

- interface gigabitethernet1/1
  switchport mode access
  switchport access vlan 8
  !
  interface gigabitethernet1/3
  switchport mode access
  switchport access vlan 8
  switchport voice vlan 9

- interface gigabitethernet1/1
  switchport mode access
  switchport access vlan 8
  !
  interface gigabitethernet1/3
  switchport mode access
  switchport voice vlan 8
  switchport access vlan 9

An engineer configured an OSPF neighbor as a designated router. Which state verifies the designated router is in the proper mode?

- Full
- 2-way
- Init
- Exchange

```
R1(config)# router eigrp 1
R1(config)# eigrp router-id 1.1.1.1
R1(config)# network 10.1.1.0 0.0.0.255
R1(config)# network 192.168.0.1 0.0.0.0

R2#config t
R2(config)# interface gi1/1
R2(config-if)# ip address 192.168.0.2 255.255.255.0

R2#config t
R2(config)# router bgp 65001
R2(config-router)# neighbor 192.168.0.1 remote-as 65000

R2(config)# router ospf 1
R2(config)# router-id 2.2.2.2
R2(config)# network 192.168.1.2 0.0.0.0 area 0

R2(config)# router eigrp 1
R2(config)# eigrp router-id 1.1.1.1
R2(config)# network 192.168.0.1 0.0.0.0

R2(config)# ip route 10.1.1.0 255.255.255.0 192.168.0.1
```

Refer to the exhibit. Router R2 is configured with multiple routes to reach network 10.1.1.0/24 from router R1. Which path is chosen by router R2 to reach the destination network 10.1.1.0/24?

- static
- eBGP
- EIGRP
- OSPF

Which 802.11 frame type is indicated by a probe response after a client sends a probe request?

- control
- action
- data
- management

A network engineer must create a diagram of a multivendor network. Which command must be configured on the Cisco devices so that the topology of the network is allowed to be mapped?

- (•) Device(config)#**lldp run**
- ( ) Device(config)#**cdp run**
- ( ) Device(config-if)#**cdp enable**
- ( ) Device(config)#**flow-sampler-map topology**

A wireless administrator has configured a WLAN; however, the clients need access to a less congested 5-GHz network for their voice quality. Which action must be taken to meet the requirement?

- ( ) enable RX-SOP
- ( ) enable DTIM
- ( ) enable AAA override
- (•) enable Band Select

The SW1 interface g0/1 is in the down/down state. What are two reasons for the interface condition? (Choose two.)

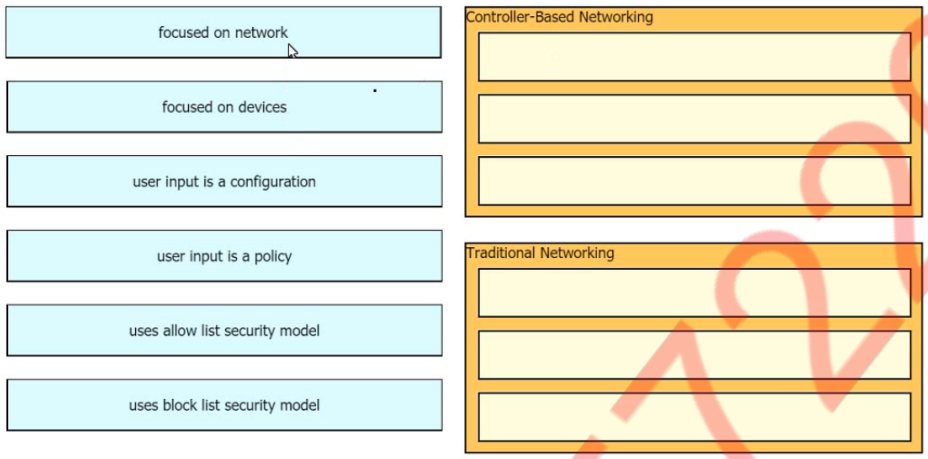
- [ ] There is a duplex mismatch.
- [x] The interface is error-disabled.
- [ ] There is a protocol mismatch.
- [ ] The interface is shut down.
- [x] There is a speed mismatch.

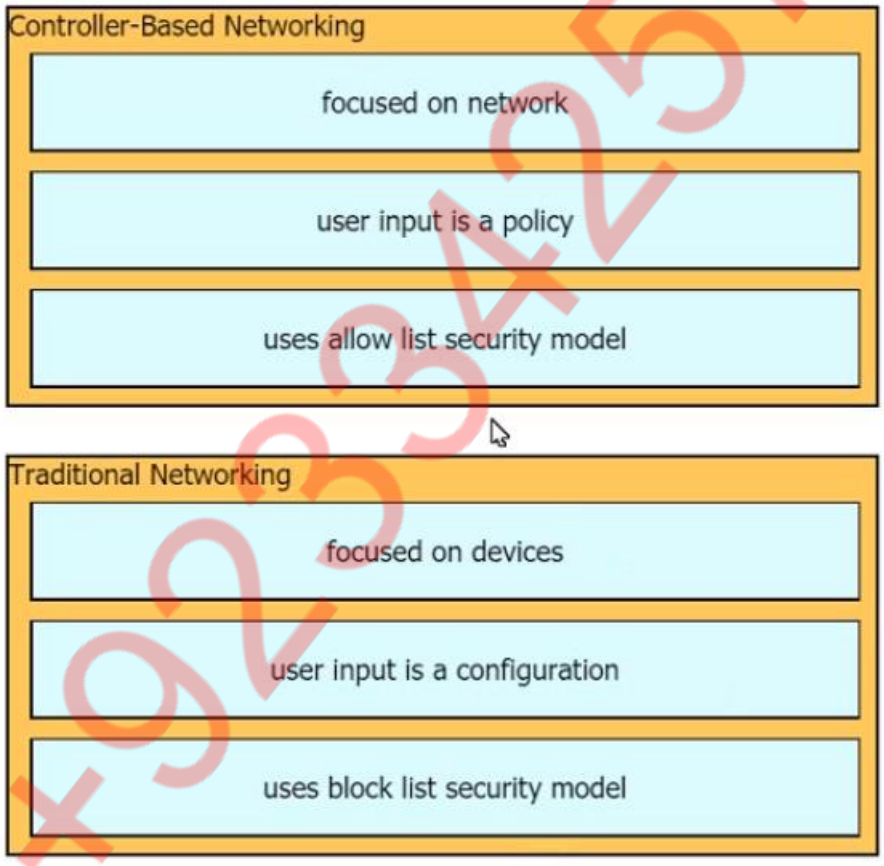
```
R1#show ip route
#output suppressed

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C       172.16.1.128/25 is directly connected, GigabitEthernet1/1/0
C       192.168.12.0/24 is directly connected, FastEthernet0/0
C       192.168.13.0/24 is directly connected, FastEthernet0/1
C       192.168.14.0/24 is directly connected, FastEthernet1/0
C       172.16.16.1 is directly connected, Loopback1
    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
0       192.168.10.0.24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
0       192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:52, FastEthernet0/1
0       192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D       192.168.10.1/32 [90/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
0*E2    0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0
```

Refer to the exhibit. If R1 receives a packet destined to 172.16.1.1, to which IP address does it send the packet?

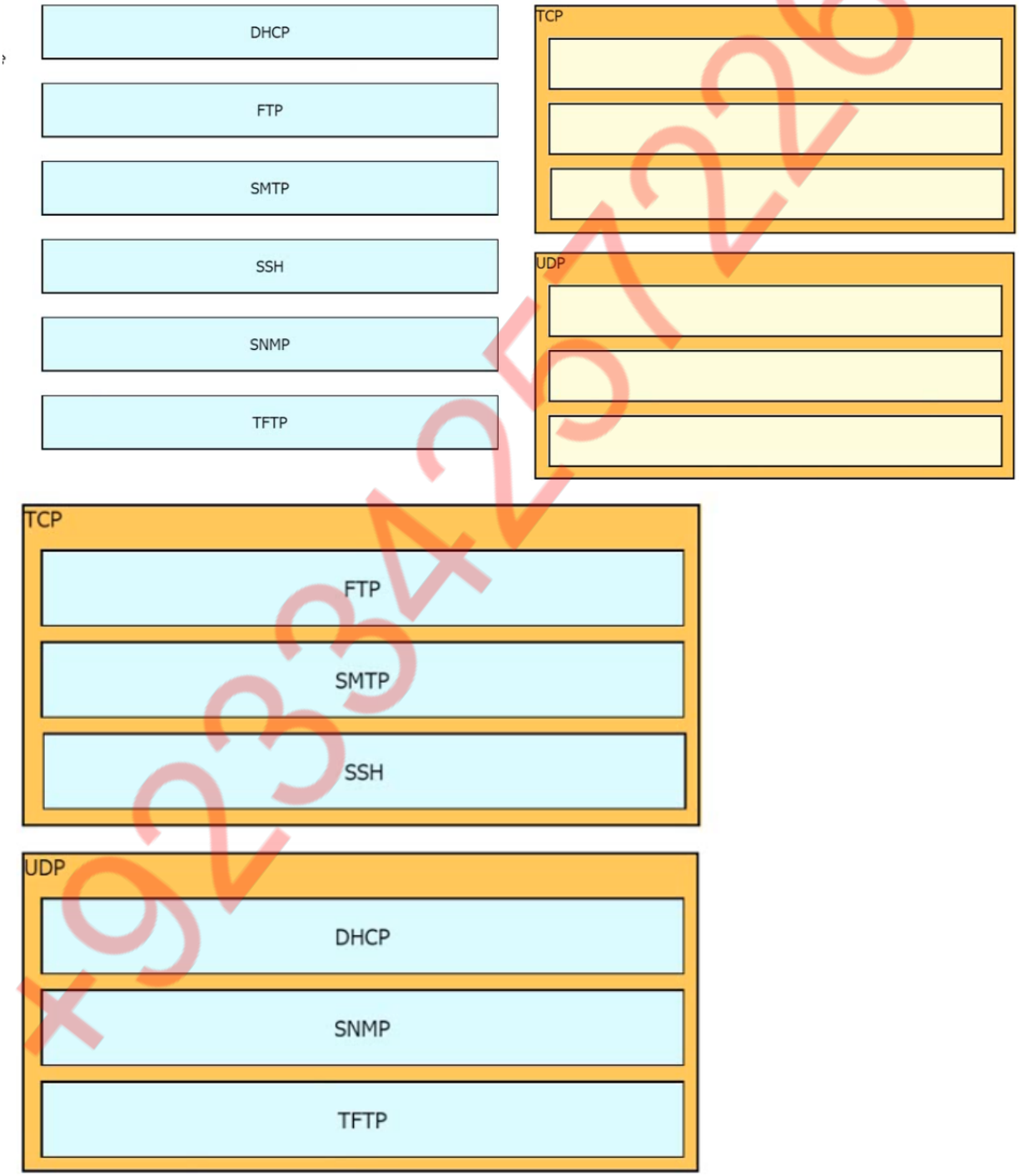
- ( ) 192.168.12.2
- ( ) 192.168.13.3
- (•) 192.168.14.4
- ( ) 192.168.15.5

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





Drag and drop the application protocols from the left onto the transport protocols that it uses on the right.



What are two reasons for an engineer to configure a floating static route? (Choose two.)

- [ ] to control the return path of traffic that is sent from the router
- [x] to enable fallback static routing when the dynamic routing protocol fails
- [ ] to route traffic differently based on the source IP of the packet
- [ ] to support load balancing via static routing
- [x] to automatically route traffic on a secondary path when the primary path goes down