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**Exam Code: 400-007**

**Exam Name: Cisco Certified Design Expert CCDE v3.0**



## Exam A

### QUESTION 1

What are two examples of business goals to be considered when a network design is built? (Choose two.)

- A. standardize resiliency
- B. minimize operational costs
- C. integrate endpoint posture
- D. ensure faster obsolescence
- E. reduce complexity

**Correct Answer: B, E**

**Section:**

### QUESTION 2

Which three items do you recommend for control plane hardening of an infrastructure device? (Choose three.)

- A. redundant AAA servers
- B. Control Plane Policing
- C. warning banners
- D. to enable unused .services
- E. SNMPv3
- F. routing protocol authentication

**Correct Answer: B, E, F**

**Section:**

### QUESTION 3

According to the CIA triad principles for network security design, which principle should be priority for a Zero Trust network?

- A. requirement for data-in-motion encryption and 2FA authentication
- B. requirement for data-at-rest encryption for user identification within the VPN termination hardware
- C. categorization of systems, data, and enterprise BYOD assets that are connected to network zones based on individual privacy needs
- D. ensuring that authorized users have high-availability system access from defined zones to defined systems or zones

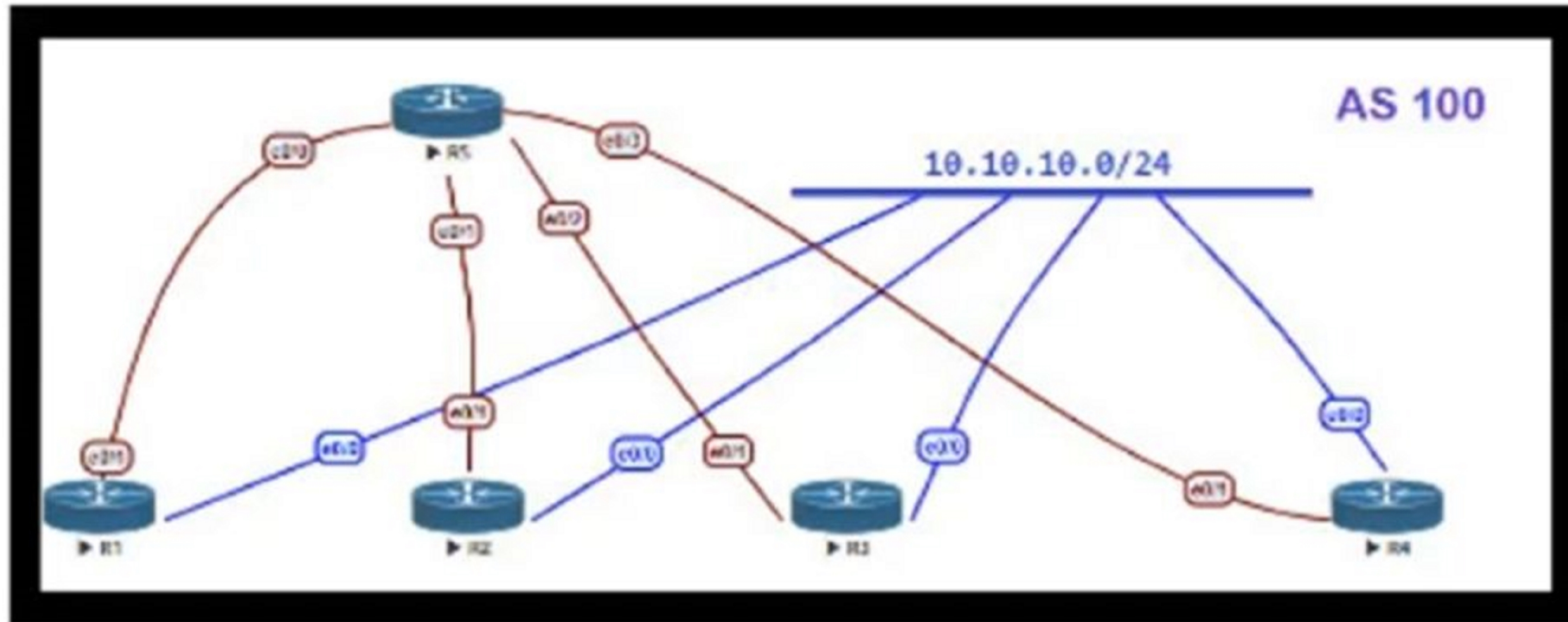
**Correct Answer: B**

**Section:**

### QUESTION 4

Refer to the exhibit.

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OSPF is running as the IGP to provide reachability to all AS100 networks R3 and R4 are the current ABRs at the boundary of OSPF Area0 and Areal Now BGP must be deployed within AS 100 because it will be receiving Internet routes from its eBGP peers (the service provider) connected to R1 and R2 What is an optimal solution for this deployment to configure BGP relationships and redistribute BGP learned routes into OSPF?

- A. R5 should be configured as a route reflector for R1, R2, R3 and R4. BGP routes must be redistributed at R1 and R2 into OSPF.
- B. Configuration should be set up with R1 and R2, and R3 in one sub AS, with and R4 in another, and redistribution at R1 and R2.
- C. A full mesh should be deployed between all the routers with mutual redistribution to take place at R1 and R2.
- D. R1, R2, R3 and R4 must be set up with a neighbor relationship with R5 only must not be a route reflector.

**Correct Answer: A**

**Section:**

#### QUESTION 5

Company ABC wants to minimize the risk of users plugging unauthorized switches and hubs into the network Which two features can be used on the LAN access ports to support this design requirement? (Choose two.)

- A. Loop Guard
- B. PortFast
- C. DTF
- D. Root Guard
- E. BPDU Guard

**Correct Answer: B, E**

**Section:**

#### QUESTION 6

You are tasked with the design of a high available network. Which two features provide fail closed environments? (Choose two.)

- A. EIGRP
- B. RPVST+

- C. MST
- D. L2MP

**Correct Answer: A, B**

**Section:**

**QUESTION 7**

Which two characteristics apply to firewall transparent mode operations in a firewall solution design?  
(Choose two.)

- A. Changes in the existing IP addressing and subnets are required
- B. The firewall can participate actively on spanning tree.
- C. Multicast traffic can traverse the firewall.
- D. OSPF adjacencies can be established through the firewall
- E. The firewall acts like a router hop in the network.

**Correct Answer: C, D**

**Section:**

**QUESTION 8**

Your company wants to deploy a new data center infrastructure Based on the requirements you have chosen VXLAN as encapsulation technology The customer is concerned about miss-configuration of Layer 2 devices and DC wide outages caused by Layer 2 loops What do you answer?

- A. VXLAN offers native loop avoidance mechanism
- B. Storm Control should be enabled on all ports
- C. VPC+ could prevent L2 loop on access ports
- D. BPDU Guard should be enabled on all VTEP access ports

**Correct Answer: D**

**Section:**

**QUESTION 9**

DRAG DROP

Drag and drop the end-to-end network virtualization elements from the left onto the correct network areas on the right.

**Select and Place:**

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**Correct Answer:**



**Section:**

**Explanation:**

#### QUESTION 10

A multicast network is using Bidirectional PIM. Which two combined actions achieve high availability so that two RPs within the same network can act in a redundant manner? (Choose two)

- A. Use two phantom RP addresses
- B. Manipulate the administration distance of the unicast routes to the two RPs
- C. Manipulate the multicast routing table by creating static mroutes to the two RPs
- D. Advertise the two RP addresses in the routing protocol
- E. Use anycast RP based on MSDP peering between the two RPs
- F. Control routing to the two RPs through a longest match prefix

**Correct Answer: A, F**

**Section:**

#### QUESTION 11

Which purpose of a dynamically created tunnel interface on the design of IPv6 multicast services is true?

- A. first-hop router registration to the RP

- B. multicast client registration to the RP
- C. multicast source registration to the RP
- D. transport of all IPv6 multicast traffic

**Correct Answer: A**  
**Section:**

**QUESTION 12**  
Refer to the exhibit.



ACME Mining has four data centers in Santiago. Cape Town. Mumbai, and Beijing, full-mesh connected via a 400 Mb/s EVP-LAN They want to deploy a new mission-critical application with these requirements: cluster heartbeat 2 Mb/s continuous (250 KB/s) cluster heartbeat one-way maximum latency 100 ms  
These are the current ping tests results between the four data centers:

	Santiago	Cape Town	Mumbai	Beijing
Santiago	-	280 ms	378 ms	409 ms
Cape Town	280 ms	-	185 ms	445 ms
Mumbai	383 ms	176 ms	-	443 ms
Beijing	430 ms	448 ms	442 ms	-

Which hosting data center pair can host the new application?

- A. Mumbai and Beijing
- B. Santiago and Cape Town
- C. Santiago and Mumbai
- D. Cape Town and Mumbai
- E. Cape Town and Beijing
- F. Santiago and Beijing

**Correct Answer: D**  
**Section:**

**QUESTION 13**  
How can EIGRP topologies be designed to converge as fast as possible in the event of a point-topoint link failure?

- A. Limit the query domain by use of distribute lists.
- B. Build neighbor adjacencies in a triangulated fashion.
- C. Build neighbor adjacencies in squared fashion.
- D. Limit the query domain by use of summarization.
- E. Limit the query domain by use of default routes.

**Correct Answer: D**

**Section:**

**QUESTION 14**

Which effect of using ingress filtering to prevent spoofed addresses on a network design is true?

- A. It reduces the effectiveness of DDoS attacks when associated with DSCP remarking to Scavenger.
- B. It protects the network Infrastructure against spoofed DDoS attacks.
- C. It Classifies bogus traffic and remarks it with DSCP bulk.
- D. It filters RFC 1918 IP addresses.

**Correct Answer: B**

**Section:**

**QUESTION 15**

Which relationship between iBGP and the underlying physical topology is true?

- A. iBGP full mesh requirement does not dictate any specific network topology.
- B. iBGP can work only on a ring network topology with a link-state protocol like OSPF or IS-IS
- C. iBGP full mesh requires an underlying fully meshed network topology.
- D. iBGP does not work on a ring network topology even with an underlying IGP.

**Correct Answer: A**

**Section:**

**Explanation:**

iBGP peers can be multiple hops away. not like eBGP that needs direct connection (or ebgp-multihop defined). thus, only IP connectivity between two peers is required for an adjacency to form

**QUESTION 16**

How many fully established neighbour relationships exist on an Ethernet with five routers running OSPF as network type broadcast?

- A. 5
- B. 6
- C. 7
- D. 10
- E. 20

**Correct Answer: C**

**Section:**

**Explanation:**

Assuming routers R1-R5, R1 is elected DR, R2 BDR. Fully established neighborships only occur to DR and BDR, all other neighbors are in 2Way DR other state. DR|BDRFull relationships: R2-R1R3-R1R3-R2R4-R1R4-R2R5-R1R5-R2

**QUESTION 17**

Refer to the exhibit.





Traffic was equally balanced between Layer 3 links on core switches SW1 and SW2 before an introduction of the new video server in the network. This video server uses multicast to send video streams to hosts and now one of the links between core switches is over utilized Which design solution solves this issue?

- A. Add more links between core switches.
- B. Aggregate links Layer 2 link aggregation.
- C. Apply a more granular load- balancing method on SW1.
- D. Apply a more granular load-balancing method on SW2.
- E. Filter IGMP joins on an over -utilized link.

**Correct Answer: B**

**Section:**

#### QUESTION 18

How must the queue sizes be designed to ensure that an application functions correctly?

- A. Each individual device queuing delay in the chain must be less than or equal to the application required delay.
- B. The queuing delay on every device in the chain must be exactly the same to the application required delay.
- C. The default queue sizes are good for any deployment as it compensates the serialization delay.
- D. The sum of the queuing delay of all devices plus serialization delay in the chain must be less than or equal to the application required delay.

**Correct Answer: D**

**Section:**

#### QUESTION 19

Company XYZ has a hub-and-spoke topology over an SP-managed infrastructure. To measure traffic performance metrics, they implemented IP SLA senders on all spoke CE routers and an IP SLA responder on the hub CE router. What must they monitor to have visibility on the potential performance impact due to the constantly increasing number of spoke sites?

- A. CPU and memory usage on the spoke routers
- B. memory usage on the hub router
- C. CPU usage on the hub router
- D. interface buffers on the hub and spoke routers

**Correct Answer: C**

**Section:**

#### QUESTION 20

Which optimal use of interface dampening on a fast convergence network design is true?



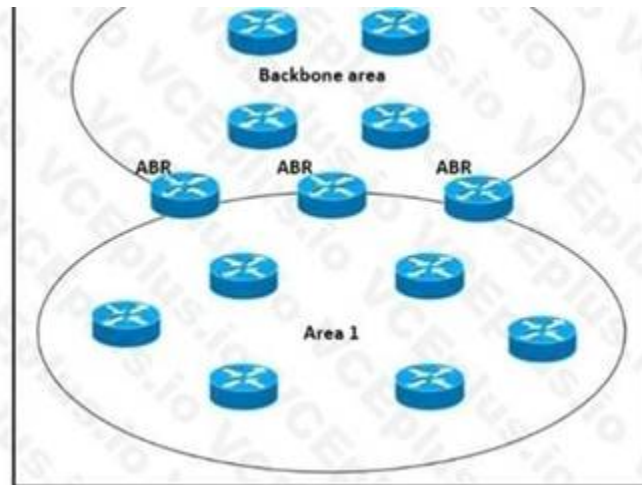
- A. When occasional flaps of long duration occur
- B. when numerous adjacent flaps of very short duration occur
- C. when the router hardware is slower than the carrier delay down detection
- D. when the switch hardware is faster than the debounce timer down detection

**Correct Answer: B**

**Section:**

#### QUESTION 21

Refer to the exhibit.



Which impact of using three or more ABRs between the backbone area and area 1 is true?

- A. In a large-scale network LSA replication by all ABRs can cause serious scalability issues
- B. Multiple ABRs reduce the CPU processing on each ABR due to splitting prefix advertisement
- C. In a large-scale network multiple ABRs can create microloops.
- D. Prefixes from the non-backbone area are advertised by one ABR to the backbone

**Correct Answer: A**

**Section:**

#### QUESTION 22

In an OSPF network with routers connected together with Ethernet cabling, which topology typically takes the longest to converge?

- A. partial mesh
- B. full mesh
- C. ring
- D. squared
- E. triangulated

**Correct Answer: C**

**Section:**

#### QUESTION 23

Company XYZ is designing the network for IPv6 security and they have these design requirements:

A switch or router must deny access to traffic from sources with addresses that are correct, but are topologically incorrect Devices must block Neighbor Discovery Protocol resolution for destination addresses that are not found

in the binding table.

Which two IPv4 security features are recommended for this company? (Choose two)

- A. IPv6 DHCP Guard
- B. IPv6 Source Guard
- C. IPv6 Destination Guard
- D. IPv6 Prefix Guard
- E. IPv6 RA Guard

**Correct Answer: C, D**

**Section:**

#### QUESTION 24

Which two statements describe the hierarchical LAN design model? (Choose two)

- A. It is a well-understood architecture that provides scalability
- B. It is the best design for modern data centers
- C. It is the most optimal design but is highly complex
- D. It provides a simplified design
- E. Changes, upgrades, and new services can be introduced in a controlled and staged manner

**Correct Answer: A, E**

**Section:**

#### QUESTION 25

Which two points must network designers consider when designing a new network design or when evaluating an existing network design to help them understand the high-level design direction with regards to the security aspects? (Choose two)

- A. Consider Business objectives and goals
- B. Consider organization's security policy standards
- C. Consider for only multi-site networks
- D. Consider for only new network technologies and components

**Correct Answer: A, B**

**Section:**

#### QUESTION 26

A healthcare customer requested that SNMP traps must be sent over the MPLS Layer 3 VPN service. Which protocol must be enabled?

- A. SNMPv3
- B. Syslog
- C. Syslog TLS
- D. SNMPv2
- E. SSH

**Correct Answer: A**

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**Section:**

**QUESTION 27**

What are two common approaches to analyzing and designing networks? (Choose two.)

- A. bottom-up approach
- B. high-low security approach
- C. top-down approach
- D. left-right approach
- E. three-tier approach

**Correct Answer: A, C**

**Section:**

**QUESTION 28**

The Company XYZ network is experiencing attacks against their router. Which type of Control Plane Protection must be used on the router to protect all control plane IP traffic that is destined directly for one of the router interfaces?

- A. Control Plane Protection host subinterface
- B. Control Plane Protection main interface
- C. Control Plane Protection transit subinterface
- D. Control Plane Protection CEF-exception subinterface

**Correct Answer: A**

**Section:**

**QUESTION 29**

What is the most important operational driver in building a resilient and secure modular network design?

- A. Dependencies on hardware or software that is difficult to scale
- B. Minimize app downtime
- C. Reduce the frequency of failures requiring human intervention
- D. Increase time spent on developing new features

**Correct Answer: C**

**Section:**

**QUESTION 30**

Which BGP feature provides fast convergence?

- A. BGP PIC |
- B. BGP-EVPN
- C. BGP FlowSpec
- D. BGP-LS

**Correct Answer: A**

**Section:**

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### QUESTION 31

An enterprise requires MPLS connected branches to access cloud-based Microsoft 365 services over an SD-WAN solution. Internet access is available only at dual regional hub sites that are connected to the MPLS network. Which connectivity method provides an optimum access method to the cloud-based services if one ISP suffers loss or latency?

- A. Cloud onRamp gateway site
- B. Cloud onRamp SWG
- C. Cloud onRamp
- D. Cloud onRamp SaaS

**Correct Answer: D**

**Section:**

**Explanation:**

<https://www.cisco.com/c/en/us/td/docs/routers/sdwan/configuration/cloudonramp/vedge-20-x/cloud-onramp-book-vedge/cor-saas.html#common-scenarios-cor-saas-b>

### QUESTION 32

Refer to the table.

CONNECTIVITY	CAPEX	OPEX ANNUAL	INSTALLATION FEE	TERM
DWDM over dark fiber	\$250,000	\$100,000	\$30,000	60 months
CWDM over dark fiber	\$150,000	\$100,000	\$25,000	60 months
MPLS	\$50,000	\$150,000	\$75,000	12 months
Metro Ethernet	\$45,000	\$125,000	\$5,000	36 months

A customer investigates connectivity options for a DCI between two production data centers. The solution must provide dual 10G connections between locations with no single points of failure for Day 1 operations. It must also include an option to scale for up to 20 resilient connections in the second year to accommodate isolated SAN over IP and isolated, dedicated replication IP circuits. All connectivity methods are duplex 10 Gbps. Which transport technology costs the least over two years, in the scenario?

- A. Metro Ethernet
- B. DWDM
- C. CWDM
- D. MPLS

**Correct Answer: B**

**Section:**

### QUESTION 33

Which architecture does not require an explicit multicast signaling protocol, such as PIM or P2MP, to signal the multicast state hop-by-hop, but instead uses a link state protocol to advertise the multicast forwarding state?

- A. Binary indexed explicit routing
- B. Binary intermediate enhanced routing
- C. Bit indexed explicit replication
- D. Bi-directional implicit replication

**Correct Answer: C**

**Section:**

### QUESTION 34

Refer to the table.

CONNECTIVITY	CAPEX	OPEX ANNUAL	INSTALLATION FEE	TERM
DWDM over dark fiber	\$200,000	\$100,000	\$30,000	12 months
CWDM over dark fiber	\$150,000	\$100,000	\$25,000	18 months
MPLS wires only	\$50,000	\$180,000	\$5,000	12 months
Metro Ethernet	\$65,000	\$100,000	\$5,000	36 months

A customer investigates connectivity options for a DCI between two production data centers to aid a large-scale migration project. The migration is estimated to take 20 months to complete but might extend an additional 10 months if issues arise. All connectivity options meet the requirements to migrate workloads. Which transport technology provides the best ROI based on cost and flexibility?

- A. CWDM over dark fiber
- B. MPLS
- C. DWDM over dark fiber
- D. Metro Ethernet

**Correct Answer: D**

**Section:**

**QUESTION 35**

Refer to the exhibit.



An engineer is designing the traffic flow for AS 111. Traffic from AS 111 should be preferred via AS 100 for all external routes. A method must be used that only affects AS 111. Which BGP attributes are best suited to control outbound traffic?

- A. community
- B. MED
- C. local preference
- D. As path

**Correct Answer: C**

**Section:**

**QUESTION 36**

Which two impacts of adding the IP event dampening feature to a network design are true? (Choose two.)

- A. It protects against routing loops.
- B. It switches traffic immediately after a link failure.
- C. It speeds up link failure detection.
- D. It reduces the utilization of system processing resources.
- E. It improves overall network stability.

**Correct Answer: D, E**

**Section:**

**QUESTION 37**

A small organization of 20 employees is looking to deliver a network design service for modernizing customer networks to support advanced solutions. Project scope and weekly progress should be visualized by the management. Always consider feedback and make changes accordingly during the project. Should consider flexibility to change scope at the point of time. Which project methodology meets the requirements and have the least impact on the outcome?

- A. Scrum
- B. LEAN
- C. Kanban
- D. Six-Sigma

**Correct Answer: C**

**Section:**

**Explanation:**

**QUESTION 38**

Refer to the table.

CONNECTIVITY	CAPEX	OPEX ANNUAL	INSTALLATION FEE	TERM
DWDM over dark fiber	\$250,000	\$100,000	\$30,000	12 months
CWDM over dark fiber	\$150,000	\$100,000	\$25,000	18 months
MPLS wires only	\$50,000	\$80,000	\$5,000	24 months
Metro Ethernet	\$45,000	\$100,000	\$5,000	36 months

A customer investigates connectivity options for a DCI between two production data centers to aid a large-scale migration project. The solution must provide a single 10G connection between locations and be able to run its own varying QoS profiles without service provider interaction based on the migration stages. All connectivity methods are at 10 Gbps. Which transport technology costs the least if the connectivity is required for just one year?

- A. MPLS wires only
- B. CWDM over dark fiber
- C. DWDM over dark fiber
- D. Metro Ethernet



**Correct Answer: A**

**Section:**

**QUESTION 39**

Which technology is an open-source infrastructure automation tool that automates repetitive tasks for users who work in networks such as cloud provisioning and intraservice orchestration?

- A. Ansible
- B. Contrail
- C. Java
- D. Jinja2

**Correct Answer: A**

**Section:**

**QUESTION 40**

SDWAN networks capitalize the usage of broadband Internet links over traditional MPLS links to offer more cost benefits to enterprise customers. However, due to the insecure nature of the public Internet, it is mandatory to use encryption of traffic between any two SDWAN edge devices installed behind NAT gateways. Which overlay method can provide optimal transport over unreliable underlay networks that are behind NAT gateways?

- A. TLS
- B. DTLS
- C. IPsec
- D. GRE

**Correct Answer: C**

**Section:**

**QUESTION 41**

Company XYZ runs OSPF in their network. A design engineer decides to implement hot-potato routing architecture. How can this implementation be achieved?

- A. Enable iBGP and apply prepend to ensure all prefixes will have the same length of the AS path attribute value.
- B. Redistribute the external prefixes onto OSPF and ensure the total metric calculation includes only the ext value and the value is the same in all ASBRs.
- C. Enable OSPF load-balancing over unequal cost path.
- D. Redistribute the external prefixes onto OSPF and ensure that the total metric calculation includes external internal values.

**Correct Answer: D**

**Section:**

**QUESTION 42**

What are two primary design constraints when a robust infrastructure solution is created? (Choose two.)

- A. monitoring capabilities
- B. project time frame
- C. staff experience
- D. component availability
- E. total cost

**Correct Answer: B, E**

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**Section:**

**Explanation:**

**QUESTION 43**

SD-WAN can be used to provide secure connectivity to remote offices, branch offices, campus networks, data centers, and the cloud over any type of IP-based underlay transport network. Which two statements describe SD WAN solutions? (Choose two.)

- A. SD-WAN networks are inherently protected against slow performance.
- B. Control and data forwarding planes are kept separate.
- C. Improved operational efficiencies result In cost savings.
- D. Solutions include centralized orchestration, control, and zero-touch provisioning.
- E. Solutions allow for variations of commodity and specialized switching hardware.

**Correct Answer: C, D**

**Section:**

**QUESTION 44**

An architect designs a multi-controller network architecture with these requirements:

Achieve fast failover to control traffic when controllers fail.

Yield a short distance and high resiliency in the connection between the switches and the controller.

Reduce connectivity loss and enable smart recovery to improve the SDN survivability.

Improve connectivity by adding path diversity and capacity awareness for controllers.

Which control plane component of the multi-controller must be built to meet the requirements?

- A. control node reliability
- B. controller stale consistency
- C. control path reliability
- D. controller clustering

**Correct Answer: C**

**Section:**

**QUESTION 45**

Company XYZ is planning to deploy primary and secondary (disaster recovery) data center sites. Each of these sites will have redundant SAN fabrics and data protection is expected between the data center sites. The sites are 100 miles (160 km) apart and target RPO/RTO are 3 hrs and 24 hrs, respectively. Which two considerations must Company XYZ bear in mind when deploying replication in their scenario? (Choose two.)

- A. Target RPO/RTO requirements cannot be met due to the one-way delay introduced by the distance between sites.
- B. VSANs must be routed between sites to isolate fault domains and increase overall availability.
- C. Synchronous data replication must be used to meet the business requirements
- D. Asynchronous data replication should be used in this scenario to avoid performance impact in the primary site.
- E. VSANs must be extended from the primary to the secondary site to improve performance and availability.

**Correct Answer: C, D**

**Section:**

**Explanation:**

synchronous data replication must be used to meet the business requirements, is incorrect. As described above, asynchronous replication would be a better choice in this scenario due to the distance between the data center sites and the target RPO/RTO requirements. asynchronous data replication should be used in this scenario to avoid performance impact in the primary site, is correct. Asynchronous replication would allow Company XYZ to meet

the target RPO/RTO requirements while avoiding the performance impact of synchronous replication

**QUESTION 46**

Which undesired effect of increasing the jitter compensation buffer is true?

- A. The overall transport jitter decreases and quality improves.
- B. The overall transport jitter increases and quality issues can occur.
- C. The overall transport delay increases and quality issues can occur.
- D. The overall transport delay decreases and quality improves.

**Correct Answer: C**

**Section:**

**QUESTION 47**

Which three tools are used for ongoing monitoring and maintenance of a voice and video environment? (Choose three.)

- A. flow-based analysis to measure bandwidth mix of applications and their flows
- B. call management analysis to identify network convergence-related failures
- C. call management analysis to identify CAC failures and call quality issues
- D. active monitoring via synthetic probes to measure loss, latency, and jitter
- E. passive monitoring via synthetic probes to measure loss, latency, and jitter
- F. flow-based analysis with PTP time-stamping to measure loss, latency, and jitter

**Correct Answer: A, C, D**

**Section:**

**QUESTION 48**

Which two advantages of using DWDM over traditional optical networks are true? (Choose two.)

- A. inherent topology flexibility and service protection provided without penalty through intelligent oversubscription of bandwidth reservation
- B. ability to expand bandwidth over existing optical Infrastructure
- C. inherent topology flexibility with built-in service protection
- D. inherent topology flexibility with intelligent chromatic dispersion
- E. inherent topology flexibility with a service protection provided through a direct integration with an upper layer protocol

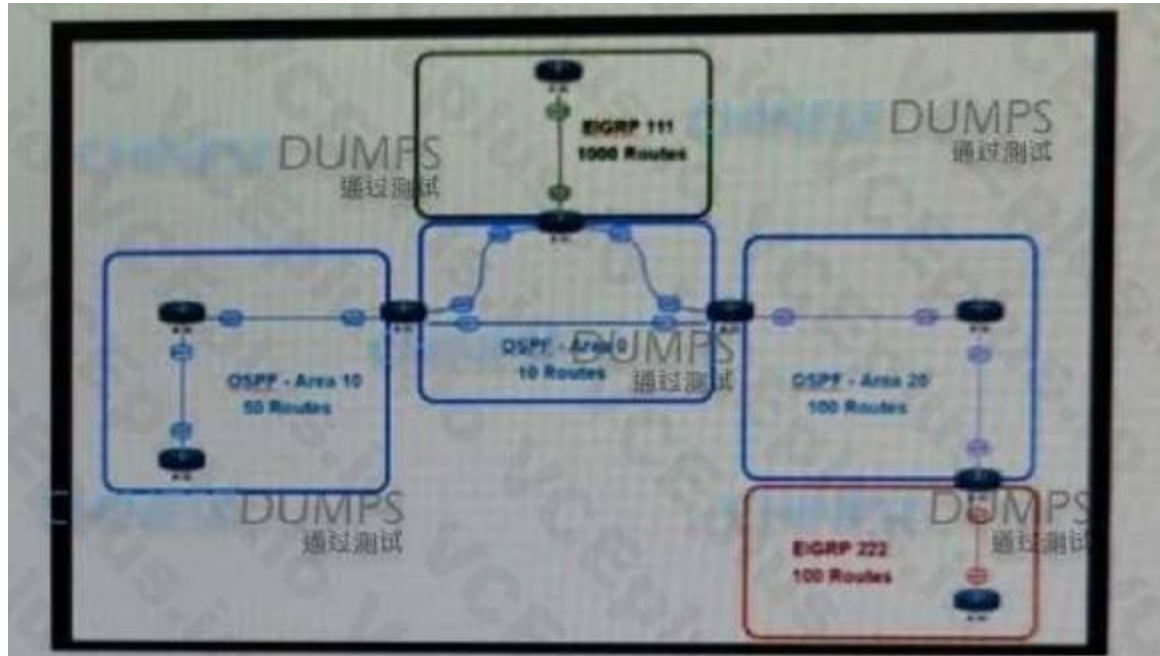
**Correct Answer: B, C**

**Section:**

**QUESTION 49**

Refer to the exhibit.

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This network is running OSPF and EIGRP as the routing protocols. Mutual redistribution of the routing protocols has been configured on the appropriate ASBRs. The OSPF network must be designed so that flapping routes in EIGRP domains do not affect the SPF runs within OSPF. The design solution must not affect the way EIGRP routes are propagated into the EIGRP domains. Which technique accomplishes the requirement?

- A. route summarization on the ASBR interfaces facing the OSPF domain
- B. route summarization on the appropriate ASBRs.
- C. route summarization on the appropriate ASBRs.
- D. route summarization on EIGRP routers connecting toward the ASBR

**Correct Answer: B**

**Section:**

#### QUESTION 50

Company XYZ is running OSPF in their network. They have merged with another company that is running EIGRP as the routing protocol. Company XYZ now needs the two domains to talk to each other with redundancy, while maintaining a loop-free environment. The solution must scale when new networks are added into the network in the near future. Which technology can be used to meet these requirements?

- A. multipoint route-redistribution with route filtering using ACLs
- B. DUMP multipoint route-redistribution with route filtering using route tags
- C. DUMPS single point route-redistribution with route filtering using route tags
- D. DUMPS single point route-redistribution with route filtering using ACLs

**Correct Answer: B**

**Section:**

#### QUESTION 51

Company XYZ is in the process of identifying which transport mechanism(s) to use as their WAN technology. Their main two requirements are.

- a technology that could offer DPI, SLA, secure tunnels, privacy, QoS, scalability, reliability, and ease of management
- a technology that is cost-effective

Which WAN technology(ies) should be included in the design of company XYZ?

- A. Software-defined WAN should be the preferred choice because it complements both technologies, covers all the required features, and it is the most cost-effective solution.
- B. Internet should be the preferred option because it is cost-effective and supports BFD, IP SLA, and IPsec for secure transport over the public Internet.

- C. Both technologies should be used. Each should be used to back up the other one; where the primary links are MPLS, the internet should be used as a backup link with IPsec (and vice versa).
- D. MPLS meets all these requirements and it is more reliable than using the Internet. It is widely used with defined best practices and an industry standard.

**Correct Answer: A**

**Section:**

#### QUESTION 52

Company XYZ asks for design recommendations for Layer 2 redundancy. The company wants to prioritize fast convergence and resiliency elements. In the design. Which two technologies are recommended? (Choose two.)

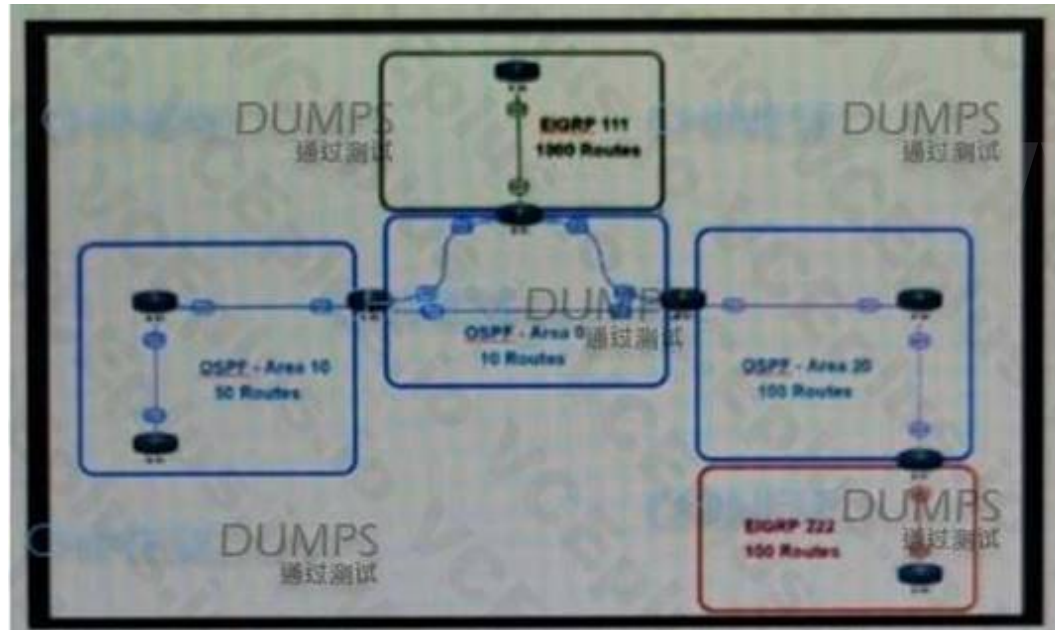
- A. Design MLAG/MC-LAG into the network wherever possible.
- B. Configure DHCP snooping on the switches.
- C. Use root guard.
- D. Use BPDU guard.
- E. Use UniDirectional Link Detection.

**Correct Answer: A, E**

**Section:**

#### QUESTION 53

Refer to the exhibit.



An engineer is designing a multiarea OSPF network for a client who also has a large EIGRP domain. EIGRP routes are getting redistributed into OSPF. OSPF area 20 has routers with limited memory and CPU resources. The engineer wants to block routes from EIGRP 111 from propagating into area 20 and allow EIGRP 222 routes to. How in which OSPF area type fulfills this design requirement?

- A. area 20 as a stub area
- B. type 5 LSA filtering on the ASBR between EIGRP 111 and area 0
- C. area 20 as a NSSA area
- D. type 3 LSA filtering on the ABR between area 0 and area 20

**Correct Answer: C**

**Section:**

#### QUESTION 54



A European government passport agency considers upgrading its IT systems to increase performance and workload flexibility in response to constantly changing requirements. The budget manager wants to reduce capital expenses and IT staff and must adopt the lowest-cost technology. Which technology choice is suitable?

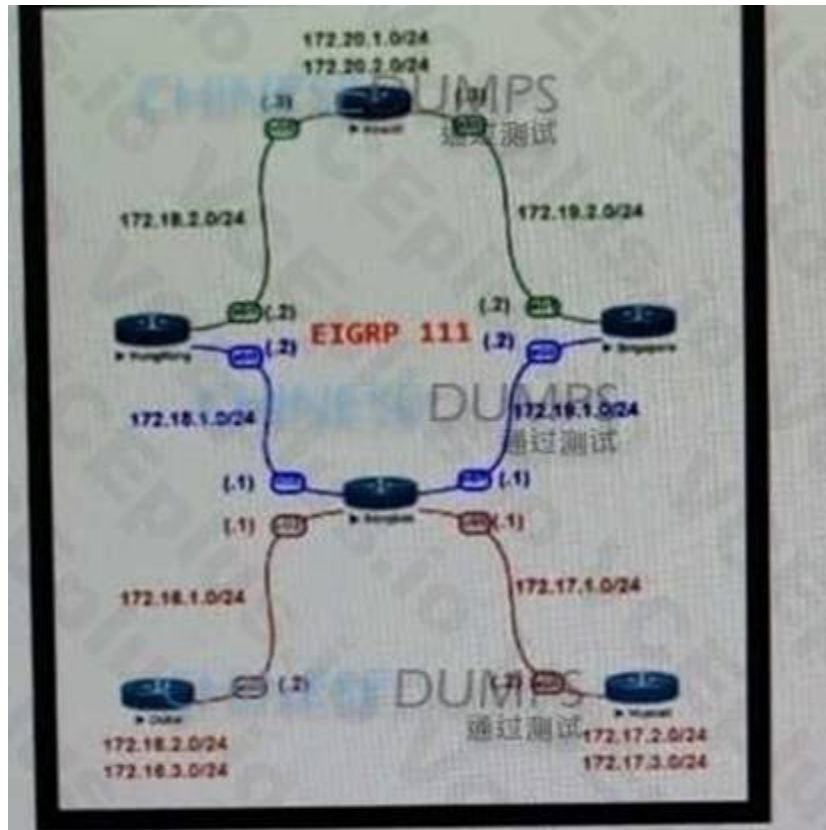
- A. on premises
- B. private cloud
- C. public cloud
- D. hybrid cloud

**Correct Answer: C**

**Section:**

#### QUESTION 55

Refer to the exhibit.



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For Company XYZ Bangkok is using ECMP to reach the 172 20 2 0/24 network The company wants a design that would allow them to forward traffic from 172 16 2 0/24 toward 172 20 2 0/24 via the Singapore router as the preferred route

The rest of the traffic should continue to use ECMP Which technology fulfills this design requirement?

- A. policy-based routing
- B. route summarization
- C. unequal-cost load balancing using variance
- D. LFA

**Correct Answer: A**

**Section:**

#### QUESTION 56

Which design consideration is valid when you contrast fabricPath and trill?



- A. FabricPath uses IS-IS, but TRILL uses VxLAN
- B. FabricPath permits active-active FHRP and TRILL support anycast gateway.
- C. FabricPath Permits ECMP, but TRILL does not
- D. FabricPath permits active-active mode, but TRILL supports only active-standby mode.

**Correct Answer: B**

**Section:**

**QUESTION 57**

Which mechanism enables small, unmanaged switches to plug into ports of access switches without risking switch loops?

- A. PortFast
- B. UDLD
- C. Root guard
- D. BPDU guard

**Correct Answer: D**

**Section:**

**QUESTION 58**

Which main IoT migration aspect should be reviewed for a manufacturing plant?

- A. Sensors
- B. Security
- C. Applications
- D. Wi-Fi Infrastructure
- E. Ethernet Switches

**Correct Answer: A**

**Section:**

**QUESTION 59**

Which two pain points are the most common for container technology adoption? (Choose two)

- A. Performance
- B. Security
- C. Cost
- D. Container deployment
- E. Skilled staff
- F. Compliance

**Correct Answer: D, E**

**Section:**

**QUESTION 60**

Company ABC uses IPv4-only. Recently they started deploying new endpoint devices. For operational reasons, IPv6 cannot be disabled on these new endpoint devices. Which security measure prevents the new endpoint from

learning an  
IPv6 prefix from an attacker?

- A. Source Guard and Prefix Guard
- B. Router Advertisement Guard
- C. Prefix Guard
- D. Secure Neighbor Discovery

**Correct Answer: B**

**Section:**

#### QUESTION 61

Company XYZ needs advice in redesigning their legacy Layer 2 infrastructure. Which technology should be included in the design to minimize or avoid convergence delays due to STP or FHRP and provide a loop-free topology?

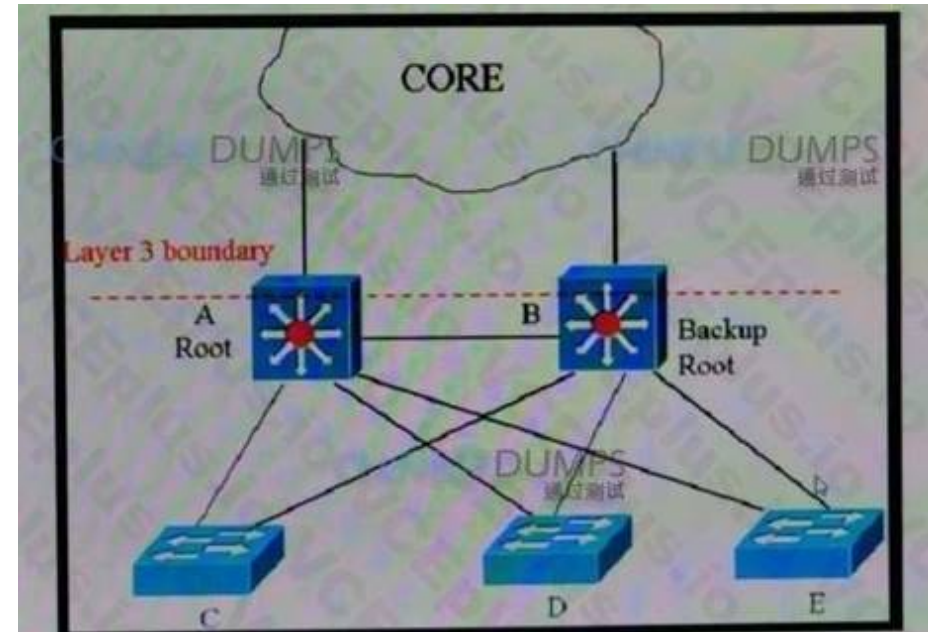
- A. Use switch clustering in the access layer.
- B. Use switch clustering in the core/distribution layer.
- C. Use spanning-tree PortFast.
- D. Use BFD.

**Correct Answer: B**

**Section:**

#### QUESTION 62

Refer to the exhibit.



This network is running legacy STP 802.1d. Assuming "hello\_timer" is fixed to 2 seconds, which parameters can be modified to speed up convergence times after single link/node failure?

- A. The transit\_delay=5 and dpdu\_delay=20 are recommended values, considering helto\_timer=2 and specified
- B. Only the maximum\_transmission\_halt\_delay and diameter parameters are configurable parameters in 802. to speed up STP convergence process
- C. The max\_age and forward delay parameters can be adjusted to speed up STP convergence process.
- D. Only the transit\_delay and bpdu\_delay timers are configurable parameters in 802.1d to speed up STP convergence process.

**Correct Answer: C**

**Section:**

**QUESTION 63**

Which two control plane policer designs must be considered to achieve high availability? (Choose two.)

- A. Control plane policers are enforced in hardware to protect the software path, but they are hardware platform dependent in terms of classification ability.
- B. Control plane policers are really needed only on externally facing devices.
- C. Control plane policers can cause the network management systems to create false alarms.
- D. Control plane policers must be processed before a forwarding decision is made.
- E. Control plane policers require that adequate protocols overhead are factored in to allow protocol convergence.

**Correct Answer: A, D**

**Section:**

**QUESTION 64**

Company XYZ Is running a redundant private WAN network using OSPF as the underlay protocol The current design accommodates for redundancy In the network, but it Is taking over 30 seconds for the network to reconverge upon failure

Which technique can be Implemented In the design to detect such a failure in a subsecond?

- A. STP
- B. fate sharing
- C. OSPF LFA
- D. BFD
- E. flex links

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**Correct Answer: E**

**Section:**

**QUESTION 65**

Company XYZ network runs IPv4 and IPv6 and they want to Introduce a multidomain, multicastbased network. The new design should use a flavor of PIM that forwards traffic using SPT. Which technology meets this requirement?

- A. PIM-DM
- B. PIM-SM
- C. PIM-SSM
- D. BIDIR-PIM

**Correct Answer: C**

**Section:**

**QUESTION 66**

Which three elements help network designers to construct secure systems that protect information and resources (such as devices, communication, and data) from unauthorized access, modification, inspection, or destruction? (Choose three.)

- A. confidential
- B. serviceability

- C. reliability
- D. availability
- E. integrity
- F. scalability

**Correct Answer: A, D, E**

**Section:**

**QUESTION 67**

Which network management framework can be used to develop a network architecture that contains business requirements analysis, gap analysis, and network diagrams as artifacts to be used for design and implementation later?

- A. TOG
- B. ITIL
- C. FCAPS
- D. Cobit

**Correct Answer: A**

**Section:**

**QUESTION 68**

Company XYZ has implemented policy-based routing in their network. Which potential problem must be kept in mind about network reconvergence and PBR?

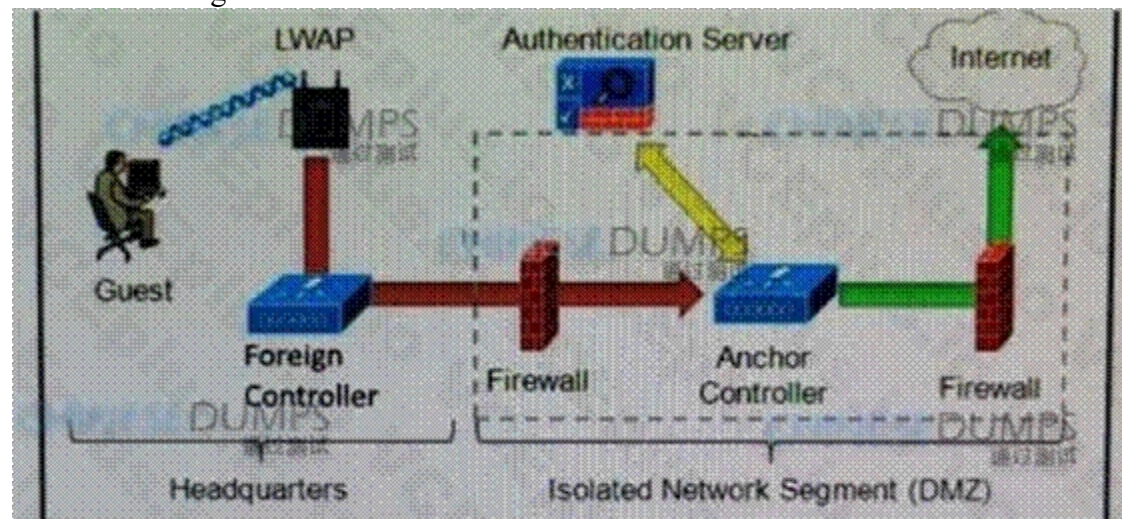
- A. It can limit network scalability
- B. It can create microloops during reconvergence
- C. It increases convergence time.
- D. It reduces convergence time.

**Correct Answer: B**

**Section:**

**QUESTION 69**

Refer to the diagram.



Which solution must be used to send traffic from the foreign wireless LAN controller to the anchor wireless LAN controller?

- A. Send packets from the foreign controller to the anchor controller via Layer 3 MPLS VPN or VRF-Lite
- B. Send packets without encapsulation to the anchor controller over the routed network.
- C. Encapsulate packets into an EoIP tunnel and send them to the anchor controller.
- D. Send packets from the foreign controller to the anchor controller via IPinIP or IPsec tunnel.

**Correct Answer: C**

**Section:**

#### QUESTION 70

Refer to the exhibit.



An engineer is designing the network for a multihomed customer running in AS 111 does not have any other Ass connected to it. Which technology is more comprehensive to use in the design to make sure that the AS is not being used as a transit AS?

- A. Configure the AS-set attribute to allow only routes from AS 111 to be propagated to the neighbor ASs.
- B. Use the local preference attribute to configure your AS as a non-transit" AS.
- C. include an AS path access list to send routes to the neighboring ASs that only have AS 111 in the AS path field.
- D. Include a prefix list to only receive routes from neighboring ASs.

**Correct Answer: C**

**Section:**

#### QUESTION 71

Organizations that embrace Zero Trust initiatives ranging from business policies to technology infrastructure can reap business and security benefits. Which two domains should be covered under Zero Trust initiatives? (Choose two)

- A. workload
- B. work domain
- C. workplace
- D. workgroup
- E. workspace

**Correct Answer: A, C**

**Section:**

#### QUESTION 72

Which two types of planning approaches are used to develop business-driven network designs and to facilitate the design decisions? (Choose two)

- A. cost optimization approach
- B. strategic planning approach
- C. modular approach
- D. tactical planning approach
- E. business optimization approach

**Correct Answer: B, D**

**Section:**

**QUESTION 73**

A healthcare provider discovers that protected health information of patients was altered without patient consent. The healthcare provider is subject to HIPAA compliance and is required to protect PHI data. Which type of security safeguard should be implemented to resolve this issue?

- A. technical and physical access control
- B. administrative security management processes
- C. physical device and media control
- D. technical integrity and transmission security

**Correct Answer: D**

**Section:**

**Explanation:**

[https://www.cisco.com/en/US/docs/solutions/Enterprise/Compliance/HIPAA/HIP\\_AppC.html#wp10\\_85353](https://www.cisco.com/en/US/docs/solutions/Enterprise/Compliance/HIPAA/HIP_AppC.html#wp10_85353)

**QUESTION 74**

Which two technologies enable multilayer segmentation? (Choose two.)

- A. policy-based routing
- B. segment routing
- C. data plane markings
- D. firewalls
- E. filter lists

**Correct Answer: A, D**

**Section:**

**QUESTION 75**

IPFIX data collection via standalone IPFIX probes is an alternative to flow collection from routers and switches. Which use case is suitable for using IPFIX probes?

- A. performance monitoring
- B. security
- C. observation of critical links
- D. capacity planning

**Correct Answer: C**

**Section:**



#### QUESTION 76

Company XYZ wants to use the FCAPS ISO standard for network management design. The focus of the design should be to monitor and keep track of any performance issues by continuously collecting and analyzing statistical information to monitor, correct, and optimize any reduced responsiveness across the network. Which layer accomplishes this design requirement?

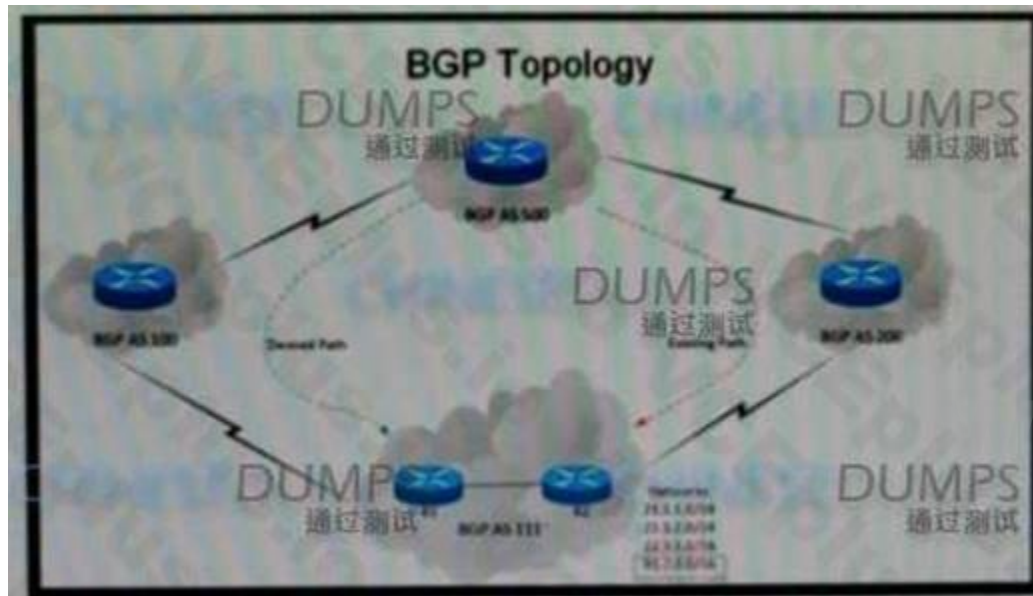
- A. fault management
- B. accounting management
- C. performance management
- D. security management

**Correct Answer: C**

**Section:**

#### QUESTION 77

Refer to the exhibit.



An engineer has been asked to redesign the traffic flow toward AS 111 coming from AS 500. Traffic destined to AS 111 network 91.7.0.0/16 should come in via AS 100, while traffic destined to all other networks in AS 111 should continue to use the existing path. Which BGP attributes are best suited to control this inbound traffic coming from BGP AS 500 into the 91.7.0.0/16 network?

- A. Prepend AS path for the 91.7.0.0/16 network and set it for neighbor in AS 200.
- B. Use extended community for the 91.7.0.0/16 network, not advertising it to the bi-lateral peer.
- C. Use local preference on R1 for the networks that AS 500 advertises to AS 111.
- D. Set higher MED for neighbor in AS 100 to influence incoming traffic for the 91.7.0.0/16 network.

**Correct Answer: A**

**Section:**

#### QUESTION 78

A European national bank considers migrating its on-premises systems to a private cloud offering in a non-European location to significantly reduce IT costs. What is a primary factor prior to migration?

- A. data governance
- B. additional latency
- C. security
- D. cloud connectivity

**Correct Answer: A**

**Section:**

**QUESTION 79**

Company XYZ has 30 sites running a legacy private WAN architecture that connects to the Internet via multiple high-speed connections. The company is now redesigning their network and must comply with these design requirements:

Use a private WAN strategy that allows the sites to connect to each other directly and caters for future expansion.

Use the Internet as the underlay for the private WAN.

Securely transfer the corporate data over the private WAN.

Which two technologies should be incorporated into the design of this network? (Choose two.)

- A. S-VTI
- B. IPsec
- C. DMVPN
- D. GET VPN
- E. PTP

**Correct Answer: B, C**

**Section:**

**QUESTION 80**

Company XYZ wants to improve the security design of their network to include protection from reconnaissance and DoS attacks on their sub interfaces destined toward next hop routers. Which technology can be used to prevent these types of attacks?

- A. MPP
- B. CPPr
- C. CoPP
- D. DPP

**Correct Answer: B**

**Section:**

**QUESTION 81**

Which management category is not part of FCAPS framework?

- A. Configuration
- B. Security
- C. Performance
- D. Authentication
- E. Fault-management

**Correct Answer: D**

**Section:**

**QUESTION 82**

What is a characteristic of a secure cloud architecture model?

- A. limited access to job function

- B. dedicated and restricted workstations
- C. multi-factor authentication
- D. software-defined network segmentation

Correct Answer: C  
Section:

QUESTION 83  
Which best practice ensures data security in the private cloud?

- A. Use IPsec for communication between unsecured network connection
- B. Encrypt data at rest and in transition.
- C. Use the same vendor for consistent encryption.
- D. Anonymize data ownership to comply with privacy rules.

Correct Answer: B  
Section:

QUESTION 84  
DRAG DROP  
Drag and drop the design use cases from the left onto the correct uRPF techniques used to prevent spoofing attacks Not all options are used.

Select and Place:

to check whether a route to a given IP address exists without regard to its incoming interface	strict mode
to filter Bogon IP addresses	feasible mode
to ensure the incoming interface is the best reverse path to a given IP address	loose mode
when there are alternate routes to a given IP address	

Correct Answer:

to check whether a route to a given IP address exists without regard to its incoming interface	to ensure the incoming interface is the best reverse path to a given IP address
	when there are alternate routes to a given IP address
	to filter Bogon IP addresses

Section:  
Explanation:

**QUESTION 85**

**DRAG DROP**

Drag and drop the FCAPS network management reference models from the left onto the correct definitions on the right.

Select and Place:

Fault Management	ensures that network transit quality remains at acceptable levels
Configuration Management	gathers usage statistics for users and business units
Accounting Management	gathers and stores configuration code from network devices
Performance Management	recognizes, isolates, corrects, and logs events that occur in the network
Security Management	controls access to assets in the network

Correct Answer:

	Performance Management
	Accounting Management
	Configuration Management
	Fault Management
	Security Management

Section:

Explanation:

**QUESTION 86**

You are designing a network running both IPv4 and IPv6 to deploy QoS Which consideration is correct about the QoS for IPv4 and IPv6?

- A. IPv4 and IPv6 traffic types can use use queuing mechanisms such as LLQ, PQ and CQ.
- B. IPv6 packet classification is only available with process switching, whereas IPv4 packet classification is available with both process switching and CEF.
- C. IPv6 and IB/4 traffic types can use a single QoS policy to match both protocols
- D. Different congestion management mechanisms need to be used for IPv4 and IPv6 traffic types

Correct Answer: C

Section:

**QUESTION 87**

A company plans to use BFD between its routers to detect a connectivity problem inside the switched network. An IPS is transparently installed between the switches. Which packets shold the IPS forward for BFD to work under all circumstances?

- A. Fragmented packet with the do-not-fragment bit set
- B. IP packets with broadcast IP source addresses
- C. IP packets with the multicast IP source address
- D. IP packet with the multicast IP destination address
- E. IP packets with identical source and destination IP addresses
- F. IP packets with the destination IP address 0.0.0.0.

**Correct Answer: E**

**Section:**

#### QUESTION 88

A Tier-3 Service Provider is evolving into a Tier-2 Service Provider due to the amount of Enterprise business it is receiving. The network engineers are re-evaluating their IP/MPLS design considerations in order to support duplicate/overlapping IP addressing from their Enterprise customers within each Layer3 VPN. Which concept would need to be reviewed to ensure stability in their network?

- A. Assigning unique Route Distinguishers
- B. Assigning unique Route Target ID'S
- C. Assigning unique IP address space for the Enterprise NAT/Firewalls
- D. Assigning unique VRF ID's to each L3VPN

**Correct Answer: A**

**Section:**

#### QUESTION 89

Which three Cisco products are used in conjunction with Red Hat to provide an NFVi solution? (Choose three.)

- A. Cisco Prime Service Catalog
- B. Cisco Open Virtual Switch
- C. Cisco Nexus switches
- D. Cisco UCS
- E. Cisco Open Container Platform
- F. Cisco Virtual Network Function

**Correct Answer: C, D, F**

**Section:**

#### QUESTION 90

What are two key design principles when using a hierarchical core-distribution-access network model? (Choose two )

- A. A hierarchical network design model aids fault isolation
- B. The core layer is designed first, followed by the distribution layer and then the access layer
- C. The core layer provides server access in a small campus.
- D. A hierarchical network design facilitates changes
- E. The core layer controls access to resources for security

**Correct Answer: A, D**



**Section:**

**QUESTION 91**

A Service Provider is designing a solution for a managed CE service to a number of local customers using a single CE platform and wants to have logical separation on the CE platform using Virtual Routing and Forwarding (VRF) based on IP address ranges or packet length. Which is the most scalable solution to provide this type of VRF Selection process on the CE edge device?

- A. Static Routes for Route Leaking
- B. Policy Based Routing
- C. OSPF per VRF Instance
- D. Multi-Protocol BGP

**Correct Answer: B**

**Section:**

**QUESTION 92**

An MPLS service provider is offering a standard EoMPLS-based VPLS service to Customer A. providing Layer 2 connectivity between a central site and approximately 100 remote sites. Customer A wants to use the VPLS network to carry its internal multicast video feeds which are sourced at the central site and consist of 20 groups at Mbps each. Which service provider recommendation offers the most scalability?

- A. EoMPLS-based VPLS can carry multicast traffic in a scalable manner
- B. Use a mesh of GRE tunnels to carry the streams between sites
- C. Enable snooping mechanisms on the provider PE routers.
- D. Replace VPLS with a Layer 3 MVPN solution to carry the streams between sites

**Correct Answer: C**

**Section:**

**QUESTION 93**

What best describes the difference between Automation and Orchestration?

- A. Automation refers to an automatic process for completing a single task and Orchestration refers to assembling and coordinating a set of tasks and conditions.
- B. Automation describes a hands-off configuration process while Orchestration refers to sets of automation tasks that require the network administrator to coordinate
- C. Automation refers to an automatic process for completing multiple tasks with conditions and Orchestration refers to executing tasks in parallel.
- D. Automation refers to scripting languages (Python. Ansible etc.) and Orchestration refers to commercial products that control configuration deployment

**Correct Answer: A**

**Section:**

**QUESTION 94**

A customer asks you to perform a high level review of their upcoming WAN refresh for remote sites The review is specially focused on their retail store operations consisting of 500+ locations connected via mutlipoint IPsec VPN solution.

Which routing protocol would be valid but would also be the most restrictive for the expansion of this deployment model?

- A. EIGRP
- B. IS-IS
- C. OSPF
- D. BGP



**Correct Answer: B**

**Section:**

**QUESTION 95**

Which actions are performed at the distribution layer of the three-layer hierarchical network design model? (Choose two)

- A. Fast transport
- B. Reliability
- C. QoS classification and marking boundary
- D. Fault isolation
- E. Redundancy and load balancing

**Correct Answer: D, E**

**Section:**

**QUESTION 96**

An enterprise campus is adopting a network virtualization design solution with these requirements

- It must include the ability to virtualize the data plane and control plane by using VLANs and VRFs
- It must maintain end-to-end logical path transport separation across the network
- resources available grouped at the access edge

Which two primary models can this network virtualization design be categorized? (Choose two)

- A. Path isolation
- B. Session isolation
- C. Group virtualization
- D. Services virtualization
- E. Edge isolation

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**Correct Answer: A, D**

**Section:**

**QUESTION 97**

An existing wireless network was designed to support data traffic only. You must now install context Aware services for location tracking changes must be applied to the existing wireless network to increase the location accuracy? (Chose two)

- A. Add access points along the perimeter of the coverage area.
- B. Increase the access point density to create an average inter-access point distance of less than 40 feet or 12.2 meters
- C. Use directional antennas to provide more cell overlapping
- D. Install additional access points in monitor mode where the co-channel interference would otherwise be affected
- E. Fine tune the radio configuration of the access point to have a higher average transmission power to achieve better coverage

**Correct Answer: B, E**

**Section:**

**QUESTION 98**

Which design benefit of bridge assurance is true?

- A. It supposes a spanning-tee topology change upon connecting and disconnecting a station on a port

- B. It prevents switched traffic from traversing suboptimal paths on the network.
- C. It allows small, unmanaged switches to be plugged into ports of access switches without the risk of switch loops.
- D. It prevents switch loops caused by unidirectional point-to-point link condition on Rapid PVST + and MST

**Correct Answer: D**

**Section:**

**QUESTION 99**

Which DCI technology utilizes a “flood and learn” technique to populate the Layer2 forwarding table?

- A. LISP
- B. OTV
- C. VPLS
- D. EVPN

**Correct Answer: C**

**Section:**

**QUESTION 100**

What advantage of placing the IS-IS layer 2 flooding domain boundary at the core Layer in a three-layer hierarchical network is true?

- A. The Layer 1 and Layer 2 domains can easily overlap
- B. It reduces the complexity of the Layer 1 domains
- C. It can be applied to any kind of topology
- D. The Layer 2 domain is contained and more stable

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**Correct Answer: D**

**Section:**

**QUESTION 101**

A network engineering team is in the process of designing a lab network for a customer demonstration. The design engineer wants to show that the resiliency of the MPLS traffic Engineering Fast Reroute solution has the same failover/failback times as a traditional SONET/SDH network (around 50MSEC). In order to address both link failure and node failure within the lab topology network, which type of the MPLS TE tunnels must be considered for this demonstration?

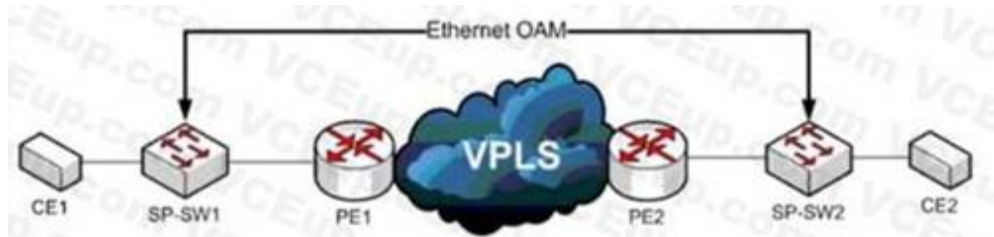
- A. TE backup tunnel
- B. Next-hop (NHop) tunnel
- C. FRR Backup tunnel
- D. next-next-hop (NNHop) tunnel

**Correct Answer: D**

**Section:**

**QUESTION 102**

Refer to the exhibit



A service provider has a requirement to use Ethernet OAM to detect end-to-end connectivity failures between SP-SW1 and SP-SW2. Which two ways to design this solution are true? (Choose two)

- A. Enable unicast heartbeat messages to be periodically exchanged between MEPs
- B. Enable Connectivity Fault Management on the SP switches
- C. Use upward maintenance endpoints on the SP switches
- D. Forward E-LMI PDUs over VPLS
- E. Forward LLD PDUs over the VPLS

**Correct Answer: B, C**

**Section:**

#### QUESTION 103

You have been asked to design a remote access VPN solution to support up to 2000 devices. You must ensure that only corporate assets are allowed to connect to the VPN, and users must authenticate to gain access of their based on their user role. Users must use a password that they are already using to access existing applications. A user may not always use the same device to access the VPN. Which two options combined meet the requirements? (Choose two)

- A. Use local usernames and passwords on the VPN device
- B. Deploy a central authentication directory that users can be authenticated and authorized against
- C. Deploy certificates that are unique to each user
- D. Deploy an IPsec VPN solution
- E. Deploy certificates that are unique to each device
- F. Deploy a SSL VPN solution

**Correct Answer: B, F**

**Section:**

#### QUESTION 104

As network designer, which option is your main concern with regards to virtualizing multiple network zones into a single hardware device?

- A. State sharing
- B. CPU resource allocation
- C. Congestion control
- D. Security
- E. Bandwidth allocation

**Correct Answer: A**

**Section:**

#### QUESTION 105

You are designing the routing design for two merging companies that have overlapping IP address space. Which of these must you consider when developing the routing and NAT design?

- A. Local to global NAT translation is done after routing
- B. Global to local NAT translation is done before routing.
- C. Local to global NAT translation is done before policy-based routing
- D. Global to local NAT translation is done after policy-based routing.

**Correct Answer: B**

**Section:**

#### QUESTION 106

Which feature must be part of the network design to wait a predetermined amount of time before notifying the routing protocol of a change in the path in the network?

- A. Transmit delay
- B. Throttle timer
- C. SPF hold time
- D. Interface dampening

**Correct Answer: B**

**Section:**

#### QUESTION 107

Which service abstracts away the management of the operating system, middleware, and runtime?

- A. IaaS
- B. PaaS
- C. SaaS
- D. BMaaS

**Correct Answer: B**

**Section:**

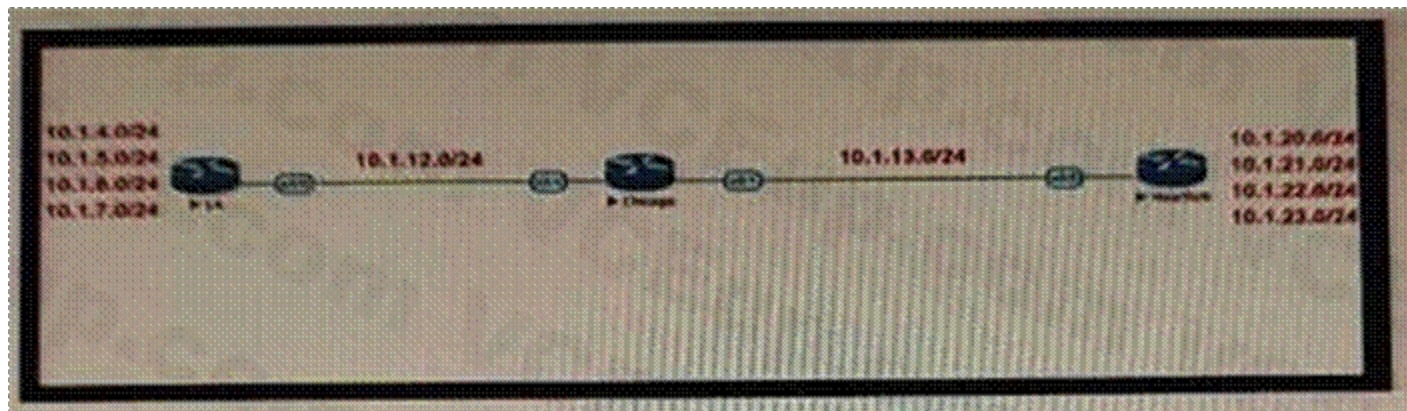
**Explanation:**

IaaS, PaaS, and SaaS each offer a progressive layer of abstraction after that. IaaS abstracts away the physical compute, network, storage, and the technology needed to virtualize those resources. PaaS goes a step further and abstracts away the management of the operating system, middleware, and runtime.

<https://www.ibm.com/topics/iaas#:~:text=IaaS%20abstracts%20away%20the%20physical,system%2C%20middleware%2C%20and%20runtime.>

#### QUESTION 108

Refer to the exhibit.



Company XYZ BGP topology is as shown in the diagram. The interface on the LA router connected toward the 10 1.5.0/24 network is faulty and is going up and down, which affects the entire routing domain. Which routing technique can the network administrator use so that the rest of the network is not affected by the flapping issue?



- A. The LA administrator should use route aggregation to summarize the 10.1.4.0/24, 10.1.5.0/24, 10.1.6.0/24, and 10.1.7.0/24 networks toward Chicago.
- B. The LA administrator should use route dampening for the 10.1.5.0/24 network so that it does not get propagated when it flaps up and down.
- C. The LA administrator should use route filtering to block the 10.1.5.0/24 network from getting propagated toward Chicago and New York.
- D. The Chicago administrator should use route filtering to block the 10.1.5.0/24 network from coming in from the LA router.

**Correct Answer: A**

**Section:**

#### QUESTION 109

Company XYZ wants to deploy OSPF. The design plan requires that two OSPF networks be mutually redistributed at multiple locations and ensure end-to-end connectivity to all of the company's networks. Which technology can be used to fulfill the requirements while avoiding the creation of routing loops?

- A. Create a virtual link between ASBRs.
- B. Change the router ID for both ASBRs.
- C. Redistribute routes as external type 2 routes.
- D. Use route maps on ASBRs to filter routes with tags so they are not redistributed.

**Correct Answer: D**

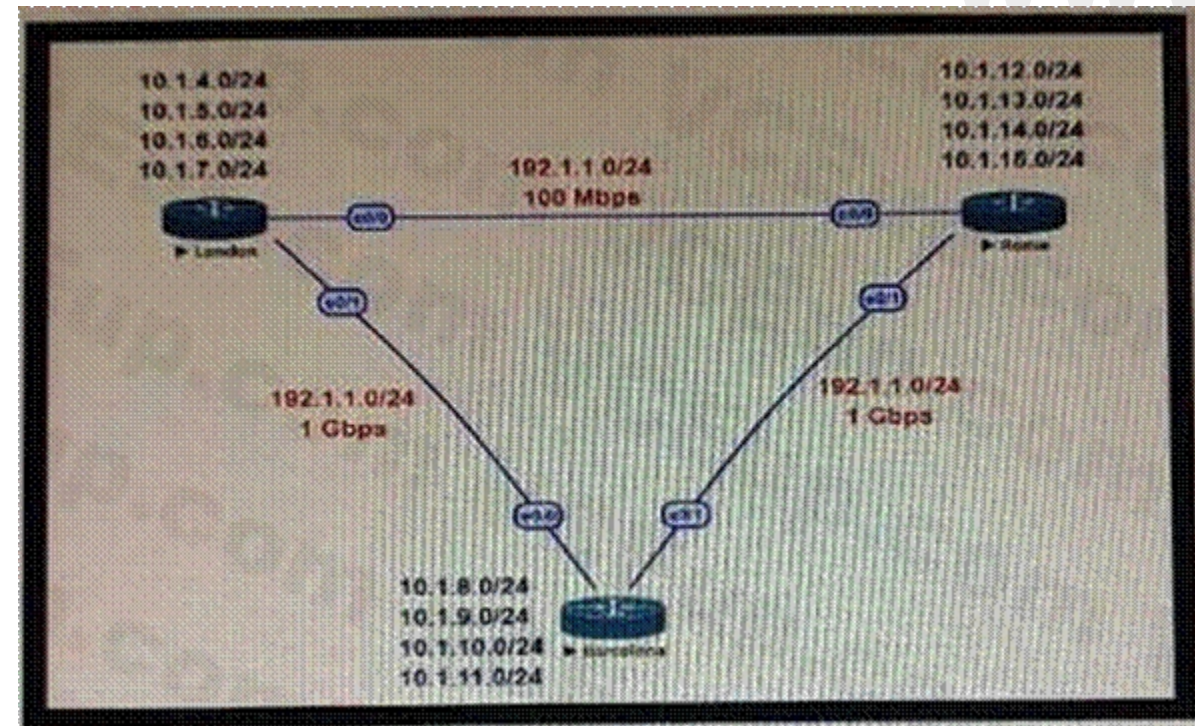
**Section:**

**Explanation:**

<https://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/4170-ospfprocesses.html>

#### QUESTION 110

Refer to the exhibit.



This network is running OSPF as the routing protocol. The internal networks are being advertised in OSPF. London and Rome are using the direct link to reach each other although the transfer rates are better via Barcelona. Which OSPF design change allows OSPF to calculate the proper costs?

- A. Change the OSPF reference bandwidth to accommodate faster links.
- B. Filter the routes on the link between London and Rome.

- C. Change the interface bandwidth on all the links.
- D. Implement OSPF summarisation to fix the issue

**Correct Answer: A**

**Section:**

**QUESTION 111**

When an SDN-based model is used to transmit multimedia traffic, which aspect should an architect consider while designing the network?

- A. QoE estimation
- B. security
- C. traffic patterns
- D. flow forwarding

**Correct Answer: A**

**Section:**

**QUESTION 112**

Various teams in different organizations within an enterprise are preparing low-level design documents to capture network parameters using a Waterfall project model:

- hardware sizing and power consumption
- Layer 2 and layer 3 services parameters
- configuration of all control plane protocols

Input from relevant stakeholders was captured at the start of the project, and the project scope has been defined based on the parameters above. What impact will it have on documentation and project deliverables if the stakeholders ask to have changes carried out in the network before the information has been captured?

- A. This provides more opportunity to think outside the box.
- B. Rework is expected before the delivery.
- C. Significant effort and time are required.
- D. This provides a flexible approach to incorporate changes.

**Correct Answer: B**

**Section:**

**QUESTION 113**

A network security team observes phishing attacks on a user machine from a remote location. The organization has a policy of saving confidential data on two different systems using different types of authentication. What is the next step to control such events after the security team verifies all users in Zero Trust modeling?

- A. Enforce risk-based and adaptive access policies.
- B. Assess real-time security health of devices.
- C. Apply a context-based network access control policy for users.
- D. Ensure trustworthiness of devices.

**Correct Answer: D**

**Section:**

**QUESTION 114**

A product manufacturing organization is integrating cloud services into their IT solution The IT team is working on the preparation phase of the implementation approach, which includes the Define Strategy step. This step defines the scope of IT, the application, and the service What is one topic that should be considered in the Define Strategy step?



- A. financial and governance models
- B. innovate and align with business according to volume
- C. due diligence and financial scenarios
- D. contingency exit strategy steps

**Correct Answer: A**

**Section:**

#### QUESTION 115

During evaluation of migrating current on premises infrastructure to add cloud-based infrastructure, a network planning team must meet three core requirements as they make recommendations on which cloud strategy to adopt going forward

- Technology is changing rapidly, therefore the enterprise must be open to adopting new ways of doing things, and be ready to invest CapEx-funds in the next three years
- Network bandwidth capacity requirements are dynamic and are expected to change over the next year
- If new technologies are to be introduced, operational expenses must be kept at a minimum. Which cloud strategy meets these requirements?

- A. private
- B. hybrid
- C. public
- D. multicloud

**Correct Answer: D**

**Section:**

#### QUESTION 116

Company XYZ is revisiting the security design for their data center because they now have a requirement to control traffic within a subnet and implement deep packet inspection Which technology meets the updated requirements and can be incorporated into the design?

- A. routed firewall
- B. VLAN ACLs on the switch
- C. transparent firewall
- D. zone-based firewall on the Layer 3 device

**Correct Answer: C**

**Section:**

#### QUESTION 117

Hybrid cloud computing allows organizations to like advantage of public and private cloud models Which best practice should organizations follow to ensure data security in the private cloud?

- A. Use standard protocols for data transmission over the network.
- B. Encrypt data when it is at rest and in motion
- C. Communicate all data security risks to customers and end users.
- D. Use standard network protocols for data communication between unsecured network connections.

**Correct Answer: B**

**Section:**

#### QUESTION 118

A financial company requires that a custom TCP-based stock-trading application be prioritized over all other traffic for the business due to the associated revenue. The company also requires that VoIP be prioritized for manual trades.

Which directive should be followed when a QoS strategy is developed for the business?

- A. Allow VoIP and the custom application to share the same priority queue,
- B. The custom application and VoIP must be assigned their own separate priority queue.
- C. Interleave the custom application with other TCP applications in the same CBWR
- D. Avoid placing the custom application in a CBWFQ queue that contains other

**Correct Answer: B**

**Section:**

#### QUESTION 119

An engineer is designing a DMVPN network where OSPF has been chosen as the routing protocol A spoke-to-spoke 'J<ita propagation model must be set up Which two design considerations must be taken into account? (Choose two )

- A. Configure all the sites as network type broadcast
- B. The network type on all sites should be point-to-multipoint
- C. The network type should be point-to-multipoint for the hub and point-to-point for the spokes.
- D. The hub should be set as the DR by specifying the priority to 255.
- E. The hub should be the DR by changing the priority of the spokes to 0.

**Correct Answer: A, E**

**Section:**

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#### QUESTION 120

Which two characteristics are associated with 802.1s? (Choose two)

- A. 802.1s supports up to 1024 instances of 802.1
- B. 802.1 s is a Cisco enhancement to 802.1w.
- C. 802.1s provides for faster convergence over 802.1D and PVST+.
- D. CPU and memory requirements are the highest of all spanning-tree STP implementations.
- E. 802.1s maps multiple VLANs to the same spanning-tree instance

**Correct Answer: C, E**

**Section:**

#### QUESTION 121

Which parameter is the most important factor to consider when deciding service placement in a cloud solution?

- A. data replication cost
- B. application structure
- C. security framework Implementation time
- D. data confidentiality rules

**Correct Answer: B**

**Section:**

**QUESTION 122**

An external edge router provides connectivity from a service provider to an enterprise Which two Internet edge best practices meet compliance regulations'? (Choose two )

- A. Implement filterng to control traffic that is sourced from the infrastructure IP space.
- B. Enable and use only secure protocols.
- C. Send logs to a centralized logging collection server.
- D. Implement EBGP to advertise all owned IP blocks.
- E. Use login banners and interface access lists to restrict administrative access to the system

**Correct Answer: B, E**

**Section:**

**QUESTION 123**

What are two top cloud-native security challenges faced by today's cloud-oriented organizations?  
(Choose two )

- A. establishing user roles
- B. polymorphism
- C. lack of visibility and tracking
- D. increased attack surface
- E. user credential validation

**Correct Answer: C, D**

**Section:**

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**QUESTION 124**

As a network designer you need to support an enterprise with hundreds of remote sites connected over a single WAN network that carries different types of traffic, including VoIP, video, and data applications which of following design considerations will not impact design decision?

- A. Focus on the solution instead of the problem, which helps to reduce downtime duration
- B. The location of the data collection
- C. What direction the data or flows should be metered
- D. Identify traffic types and top talkers over this link

**Correct Answer: A**

**Section:**

**QUESTION 125**

A customer migrates from a traditional Layer 2 data center network into a new SDN-based. spineand- leaf VXLAN EVPN data center within the same location. The networks are joined to enable host migration at Layer 2 Which activity should be completed each time a legacy network is migrated?

- A. The migrated VLAN should be pruned from the Layer 2 interconnects.
- B. The migrated network should have a VXLAN VNID configured within the new network.
- C. The migrated network should be advertised to the EVPN network as a Type 2 network.
- D. The migrated network should be added to the EVPN BGP routing.

**Correct Answer: A**

**Section:****QUESTION 126**

The administrator of a small branch office wants to implement the Layer 2 network without running STP. The office has some redundant paths. Which mechanism can the administrator use to allow redundancy without creating Layer 2 loops?

- A. Use double-sided VPC on both switches
- B. Use two port channels as Flex links
- C. Use fabric path with ECMP
- D. Use 802.3ad link bundling.

**Correct Answer: B**

**Section:****Explanation:**

Reference:

[https://www.cisco.com/en/US/docs/switches/lan/catalyst3850/software/release/3se/consolidated\\_guide/b\\_consolidated\\_3850\\_3se\\_cg\\_chapter\\_01001101.html](https://www.cisco.com/en/US/docs/switches/lan/catalyst3850/software/release/3se/consolidated_guide/b_consolidated_3850_3se_cg_chapter_01001101.html)

**QUESTION 127**

An engineer is designing the QoS strategy for Company XYZ. Based on initial analysis, a lot of scavenger type of traffic is traversing the network's 20Mb Internet link toward the service provider. The new design must use a QoS technique that limits scavenger traffic to 2 Mbps, which helps avoid oversubscription of the link during times of congestion. Which QoS technique can be used to facilitate this requirement?

- A. class-based traffic policing
- B. LLQ
- C. CBWFQ
- D. class-based traffic shaping

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**Correct Answer: C**

**Section:****QUESTION 128**

Company XYZ has designed their network to run GRE over IPsec on their Internet-based VPN to connect two sites. Which IPsec tunneling feature can they enable to optimize the data flow while ensuring that the headers contain no duplicate IP addresses?

- A. Transport Mode in IPsec Phase I
- B. Transport Mode in IPsec Phase II
- C. Tunnel Mode in IPsec Phase II
- D. Tunnel Mode in IPsec Phase I

**Correct Answer: B**

**Section:****QUESTION 129**

Which development model is closely associated with traditional project management?

- A. static model
- B. Agile model
- C. evolutionary delivery model
- D. lifecycle model

**Correct Answer: D**

**Section:**

**QUESTION 130**

The controller has a global view of the network, and it can easily ensure that the network is in a consistent and optimal configuration. Which two statements describe a centralized SDN control path? (Choose two.)

- A. Scaling of the centralized controller cluster is challenging for services like DHCP and loadbalancing.
- B. It is highly-available by design with no single-point-of-failure risks present.
- C. Integrating smart NIC capabilities on the local host level is made easier through rest APIs.
- D. It significantly improves the latency when performing reactive handling of PACKET\_IN events.
- E. It centralized controller can support all southbound APIs, which allows for easy integration with legacy equipment.

**Correct Answer: A, E**

**Section:**

**QUESTION 131**

A business requirement stating that failure of WAN access for dual circuits into an MPLS provider for a Data Centre cannot happen due to related service credits that would need to be paid has led to diversely routed circuits to different points of presence on the providers network? What should a network designer also consider as part of the requirement?

- A. Provision of an additional MPLS provider
- B. Out of band access to the MPLS routers
- C. Ensuring all related remote branches are dual homed to the MPLS network
- D. Dual PSUs & Supervisors on each MPLS router

**Correct Answer: A**

**Section:**

**QUESTION 132**

SDN emerged as a technology trend that attracted many industries to move from traditional networks to SDN. Which challenge is solved by SDN for cloud service providers?

- A. need for intelligent traffic monitoring
- B. exponential growth of resource-intensive application
- C. complex and distributed management flow
- D. higher operating expense and capital expenditure

**Correct Answer: B**

**Section:**

**QUESTION 133**

Which two mechanisms avoid suboptimal routing in a network with dynamic mutual redistribution between multiple OSPFv2 and EIGRP boundaries? (Choose two.)

- A. AD manipulation
- B. matching OSPF external routes
- C. route tagging
- D. route tagging
- E. route filtering
- F. matching EIGRP process ID

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**Correct Answer: D, E**

**Section:**

**Explanation:**

<https://www.cisco.com/c/en/us/support/docs/ip/enhanced-interior-gateway-routing-protocol- eigrp/8606-redist.html>

**QUESTION 134**

Which Interconnectivity method offers the fastest convergence in the event of a unidirectional issue between three Layer 3 switches connected together with routed links in the same rack in a data center?

- A. Copper Ethernet connectivity with BFD enabled
- B. Copper Ethernet connectivity with UDLD enabled
- C. Fiber Ethernet connectivity with BFD enabled
- D. Fiber Ethernet connectivity with UDLD enabled

**Correct Answer: C**

**Section:**

**QUESTION 135**

Which two actions ensure voice quality in a branch location with a low-speed, high-latency WAN connection? (Choose two.)

- A. Increase WAN bandwidth
- B. Increase memory branch switch.
- C. Fragment data packets.
- D. Replace any electrical links with optical links
- E. Prioritize voice packets

**Correct Answer: C, E**

**Section:**

**QUESTION 136**

Which function is performed at the access layer of the three-layer hierarchical network design model?

- A. fault isolation
- B. QoS classification and marking boundary
- C. reliability -
- D. fast transport
- E. redundancy and load balancing

**Correct Answer: B**

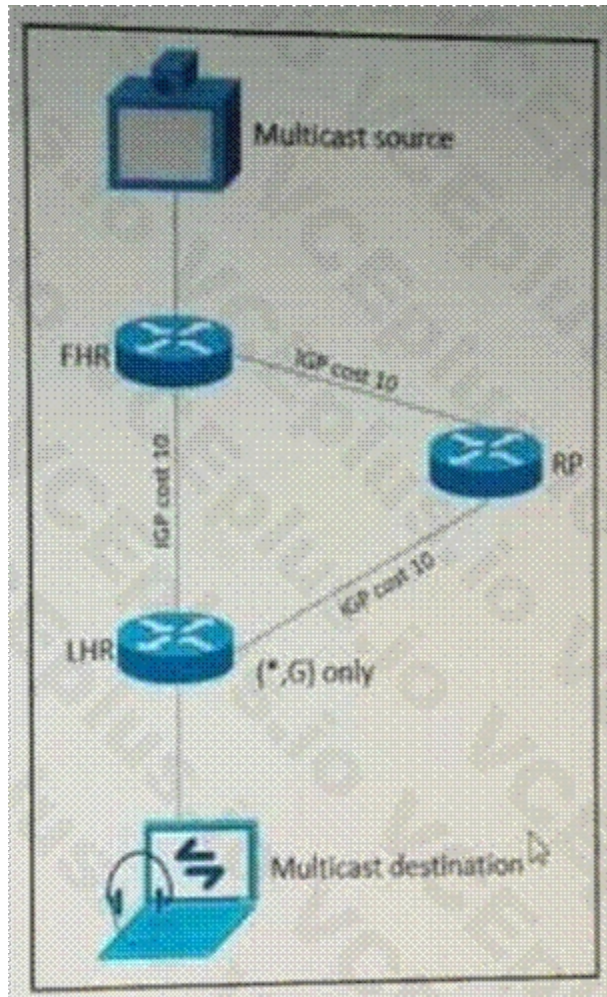
**Section:**

**QUESTION 137**

Refer to the exhibit.

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As part of a redesign project, you must predict multicast behavior. What happens to the multicast traffic received on the shared tree (\*,G), if it is received on the LHR interface indicated\*?

- A. It is dropped due to an unsuccessful RPF check against the multicast source
- B. It is switched given that no RPF check is performed
- C. It is switched due to a successful RPF check against the routing table
- D. It is dropped due to an unsuccessful RPF check against the multicast receiver.

**Correct Answer: C**

**Section:**

**Explanation:**

<https://www.cisco.com/c/en/us/support/docs/ip/ip-multicast/16450-mcastguide0.html>

When a multicast packet arrives on an interface, the RPF process checks to ensure that this incoming interface is the outgoing interface used by unicast routing in order to reach the source of the multicast packet. This RPF check process prevents loops. Multicast routing does not forward a packet unless the source of the packet passes a RPF check. Once a packet passes this RPF check, multicast routing forwards the packet based only upon the destination address.

#### QUESTION 138

A BGP route reflector in the network is taking longer than expected to converge during large network changes. Troubleshooting shows that the router cannot handle all the TCP acknowledgements during route updates. Which action can be performed to tune the device performance?

- A. Increase the size of the hold queue.
- B. Increase the size of the large buffers.
- C. Decrease the size of the small buffers.
- D. Increase the keepalive timers for each BGP neighbor.

**Correct Answer: A**

**Section:**

**QUESTION 139**

Which two application requirements are mandatory for traffic to receive proper treatment when placed in the priority queue? (Choose two.)

- A. small transactions (HTTP-like behavior)
- B. WRED drop treatment
- C. tolerance to packet loss
- D. intolerance to jitter
- E. TCP-based application

**Correct Answer: A, D**

**Section:**

**QUESTION 140**

Which two conditions must be met for EIGRP to maintain an alternate loop-free path to a remote network? (Choose two.)

- A. The Reported Distance from a successor is lower than the local Feasible Distance.
- B. The Reported Distance from a successor is higher than the local Feasible Distance.
- C. The feasibility condition does not need to be met.
- D. The Feasible Distance from a successor is lower than the local Reported Distance.
- E. A feasible successor must be present.

**Correct Answer: A, E**

**Section:**

**QUESTION 141**

Company XYZ connects its sites over a private WAN. Their overlay network is running a DMVPN setup where the headquarters site is the hub. The company is planning on implementing multicast routing on the network. What should be used in the multicast routing design?

- A. PIM dense mode with RP located at the hub
- B. PIM sparse mode with RP located at each remote site
- C. PIM sparse mode with RP located at the hub
- D. PIM dense mode with RP located at each remote site

**Correct Answer: C**

**Section:**

**Explanation:**

<https://www.ccexpert.us/routing-switching-2/dynamic-multipoint-vpn.html>

**QUESTION 142**

You want to split an Ethernet domain in two.

Which parameter must be unique in this design to keep the two domains separated?

- A. VTP domain
- B. VTP password

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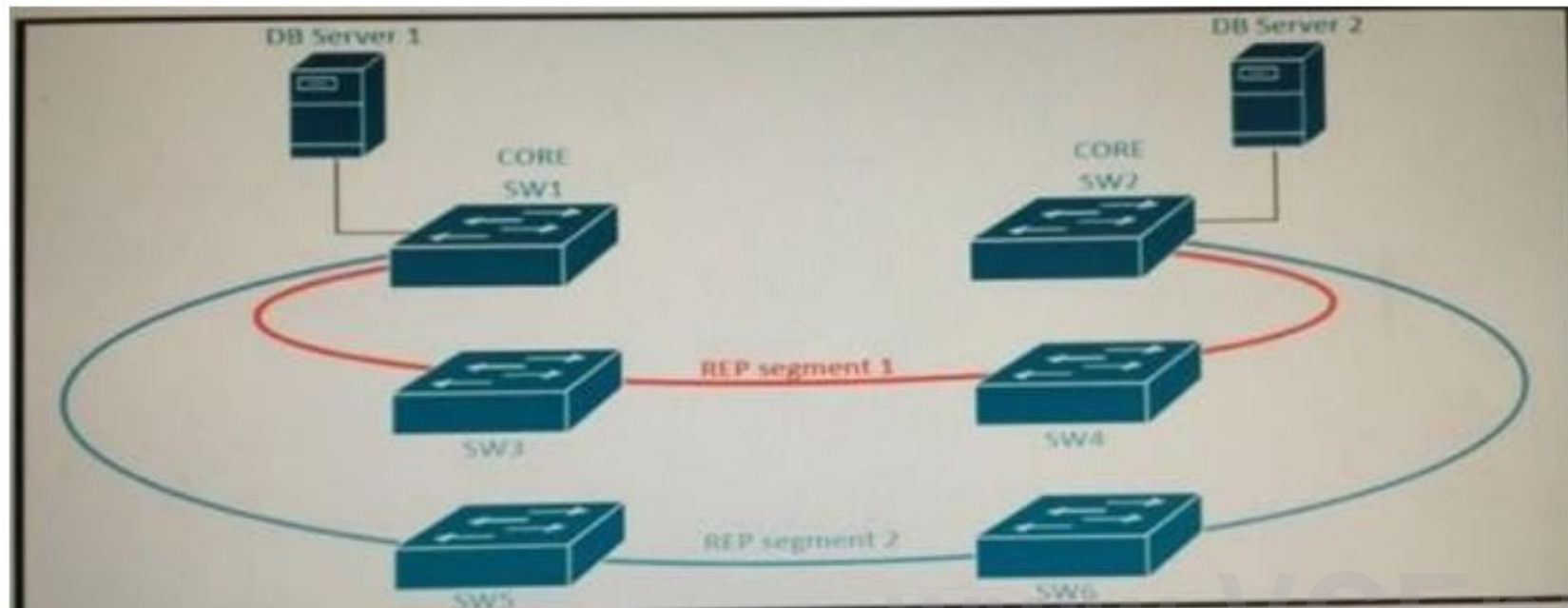
- C. STP type
- D. VLAN ID

**Correct Answer: D**

**Section:**

#### QUESTION 143

Refer to the exhibit.



A new high availability DB sever cluster is installed in the network. These two servers require high bandwidth and low latency Layer 2 connectivity for database replication. Which solution supports these requirements?

- A. Add two new links between SW1 and SW2 configured as LACP trunk with STP
- B. Add secondary links to REP segments 1 and 2
- C. Add two new links between SW1 and SW2 configured as REP segment 3
- D. Add two new links between SW1 and SW2 configured as REP segments 1 and 2 respectively

**Correct Answer: C**

**Section:**

#### QUESTION 144

VPLS is implemented in a Layer 2 network with 2000 VLANs. What is the primary concern to ensure successful deployment of VPLS?

- A. Flooding is necessary to propagate MAC address reachability information
- B. PE scalability
- C. The underlying transport mechanism
- D. VLAN scalability

**Correct Answer: B**

**Section:**

**QUESTION 145**

As part of a new network design documentation, you are required to explain the reason for choosing cisco FabricPath for Layer 2 loop avoidance. Which two elements help Cisco FabricPath mitigate Layer 2 loops if they happen in the Layer 2 MP network? (Choose two)

- A. MAC tunneling
- B. IS-IS multipath
- C. RPF check
- D. TTL header

**Correct Answer: C, D**

**Section:**

**QUESTION 146**

Which design benefit of PortFast is true?

- A. PortFast does not generate a spanning tree topology change when a station on a port is connected or disconnected
- B. PortFast disables spanning tree on the port, which puts the port into the forwarding state immediately after it is connected
- C. PortFast allows small, unmanaged switches to be plugged into ports of access switches without risking switch loops
- D. PortFast detects one-way communications on the physical port, which prevents switch loops
- E. PortFast prevents switch loops that are caused by a unidirectional point to point link condition on Rapid PVST+ and MST
- F. PortFast prevents switched traffic from traversing suboptimal paths on the network

**Correct Answer: A**

**Section:**

**QUESTION 147**

You are a network designer and you must ensure that the network you design is secure. How do you plan to prevent infected devices on your network from sourcing random DDoS attacks using forged source address?

- A. ACL based forwarding
- B. unicast RPF loose mode
- C. unicast RPF strict mode
- D. ACL filtering by destination

**Correct Answer: C**

**Section:**

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