

400-007 Dumps

Cisco Certified Design Expert (CCDE v3.0) Written Exam

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NEW QUESTION 1

Refer to the exhibit.



The enterprise customer wants to stream one-way video from their head office to eight branch offices using multicast. Their current service provider provides a Layer3 VPN solution and manages the CE routers, but they do not currently support multicast. Which solution quickly allows this multicast traffic to go through while allowing for future scalability?

- A. Enable a GRE tunnel between nodes CE1 and CE2
- B. Enable a GRE tunnel between nodes C2 and C4
- C. Enable a GRE tunnel between nodes C1 and C4
- D. Implement hub and spoke MPLS VPN over DMVPN (also known as 2547o DMVPN) between CE1and CE2
- E. The service provider must provide a Draft Rosen solution to enable a GRE tunnel between nodesPE1 and PE2

Answer: B

NEW QUESTION 2

An enterprise network has two core routers that connect to 200 distribution routers and uses fullmesh IBGP peering between these routers as its routing method. The distribution routers are experiencing high CPU utilization due to the BGP process. Which design solution is the most cost effective?

- A. Implement route reflectors on the two core routers
- B. Increase the memory on the core routers
- C. Implement e BGP between the core and distribution routers
- D. Increase the memory on the distribution routers
- E. Increase bandwidth between the core routers

Answer: A

NEW QUESTION 3

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

Answer: D

NEW QUESTION 4

Which two data plane hardening techniques are true? (Choose two)

- A. warning banners
- B. redundant AAA servers
- C. Control Plane Policing
- D. SNMPv3
- E. routing protocol authentication

Answer: EF

NEW QUESTION 5

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

Answer: B

NEW QUESTION 6

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.

Answer: DE

NEW QUESTION 7

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

Answer: C

NEW QUESTION 8

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

Answer: A

NEW QUESTION 9

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.

Answer: B

NEW QUESTION 10

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.

Answer: AD

NEW QUESTION 10

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. fast sharing
- C. OSPF LFA
- D. BFD
- E. flex links

Answer: D

NEW QUESTION 12

Company XYZ network runs IPv4 and IPv6 and they want to introduce a multidomain, multicast-based 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

Answer: C

NEW QUESTION 15

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. confidentiality
- B. serviceability
- C. reliability
- D. availability
- E. integrity
- F. scalability

Answer: ADE

NEW QUESTION 19

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

Answer: D

NEW QUESTION 21

Which two features control multicast traffic in a VLAN environment? (Choose two)

- A. IGMP snooping
- B. MLD snooping
- C. RGMP
- D. PIM snooping
- E. pruning

Answer: AB

NEW QUESTION 23

An architect receives a business requirement from a CTO that states the RTO and RPO for a new system should be as close as possible to zero.

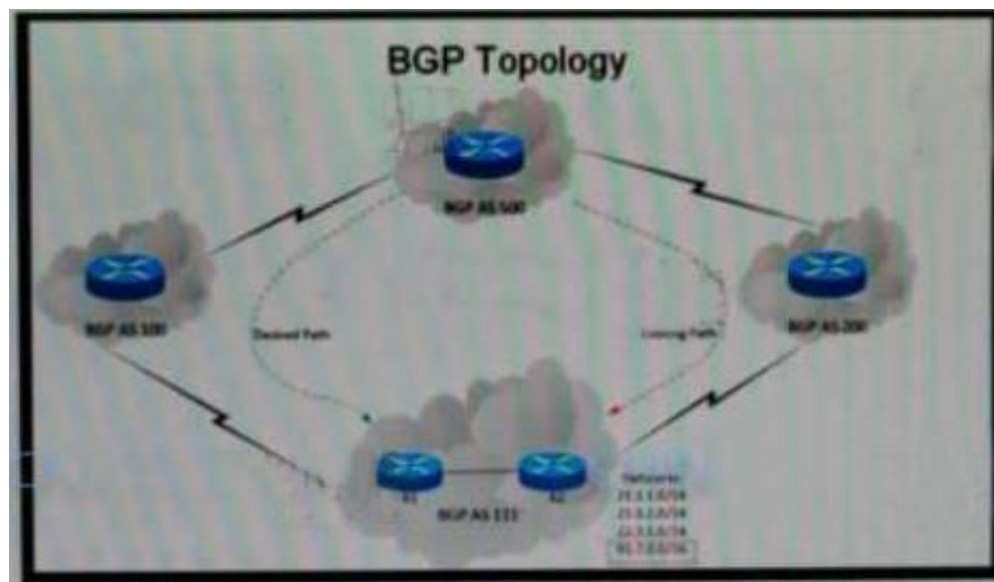
Which replication method and data center technology should be used?

- A. asynchronous replication over dual data centers via DWDM
- B. synchronous replication over geographically dispersed dual data centers via MPLS
- C. synchronous replication over dual data centers via Metro Ethernet
- D. asynchronous replication over geographically dispersed dual data centers via CWDM

Answer: C

NEW QUESTION 27

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.

Answer: A

NEW QUESTION 28

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

Answer: B

NEW QUESTION 29

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.

Answer: CD

NEW QUESTION 32

Which two statements describe the usage of the IS-IS overload bit technique? (Choose two)

- A. If overload-bit is set on a Level 2 intermediate system, the other Level 2 intermediate systems in the topology will stop using the overloaded IS to forward Level 2 traffic. However, the intermediate system can still forward Level 1 traffic.
- B. It can be set in intermediate systems (IS-IS routers) to prioritize control plane CSNP packets.
- C. It can be used to automatically synchronize the link-state database between Level 1 intermediate systems.
- D. It can be set in intermediate systems (IS-IS routers) to avoid traffic black holes until routing protocols are fully converged after a reload operation.
- E. It can be set in intermediate systems (IS-IS routers) to attract transit traffic from other intermediate systems.

Answer: AD

NEW QUESTION 35

You have been tasked with designing a data center interconnect to provide business continuity.

You want to encrypt the traffic over the DCI using IEEE 802.1AE MACsec to prevent the deployment of any firewall or IPS.

Which two interconnect technologies support MACsec? (Choose two.)

- A. EoMPLS
- B. MPLS Layer 3 VPN
- C. DMVPN
- D. GET VPN
- E. KVPLS

Answer: AE

NEW QUESTION 39

While reviewing an existing network design, you are discussing the characteristics of different STP versions.

Which protocol minimizes unicast flooding during a Topology Change Notification in a Layer 2 switched network with many VLANs?

- A. PVRSTP
- B. MST
- C. STP
- D. PVSTP+

Answer: A

NEW QUESTION 43

A network design includes a long signaling delay in notifying the Layer 3 control plane that an interface has failed. Which two of these actions would reduce that delay? (Choose two.)

- A. Increase network stability.
- B. Reduce the time for the network to reconverge.
- C. Increase the notification of interface flaps.
- D. Enable lower data link layer recovery systems to have an opportunity to restore the interface

Answer: BD

NEW QUESTION 44

Which two possible drawbacks should you consider when introducing Network Functions Virtualization in a network design? (Choose two)

- A. Bandwidth utilization increases
- B. Traffic flows are suboptimal
- C. High-end routers are required to support NFV
- D. OpenFlow must be supported in the network
- E. An SDN orchestration layer is required to support NFV

Answer: CE

NEW QUESTION 46

A service provider hires you to design its new managed CE offering to meet these requirements:

- The CEs cannot run a routing protocol with the PE
- Provide the ability for equal or unequal ingress load balancing in dual-homed CE scenarios.
- Provide support for IPv6 customer routes
- Scale up to 250.000 CE devices per customer.
- Provide low operational management to scale customer growth.
- Utilize low-end (inexpensive) routing platforms for CE functionality.

Which tunneling technology do you recommend?

- A. FlexVPN
- B. point-to-point GRE
- C. DMVPN
- D. LISP

Answer: D

NEW QUESTION 50

Which design principal improves network resiliency?

- A. Added load-balancing
- B. Added redundancy
- C. Added confidentiality
- D. Added reliability

Answer: B

NEW QUESTION 55

When designing a WAN that will be carrying real-time traffic, what are two important reasons to consider serialization delay? (Choose two)

- A. Serialization delays are invariable because they depend only on the line rate of the interface
- B. Serialization delays are variable because they depend on the line rate of the interface and on the type of the packet being serialized.
- C. Serialization delay is the time required to transmit the packet on the physical media.
- D. Serialization delays are variable because they depend only on the size of the packet being serialized
- E. Serialization delay depends not only on the line rate of the interface but also on the size of the packet

Answer: BD

NEW QUESTION 60

Which two aspects are considered when designing a dual hub dual DMVPN cloud topology? (Choose two)

- A. will only work with single-tier headend architecture
- B. hub sites must connect to both DMVPN clouds
- C. recommended for high availability
- D. spoke-to-spoke traffic will transit the hub unless spokes exchange dynamic routing directly
- E. requires all sites to have dual Internet connections

Answer: AC

NEW QUESTION 61

A green data center is being deployed and a design requirement is to be able to readily scale server virtualization. Which IETF standard technology can provide this requirement?

- A. data center bridging
- B. unified fabric
- C. Transparent Interconnection of Lots of Links
- D. fabric path

Answer: C

NEW QUESTION 62

A senior network designer suggests that you should improve network convergence times by reducing BGP timers between your CE router and the PE router of the service provider.

Which two factors should you consider to adjust the timer values? (Choose two.)

- A. service provider agreement to support tuned timers
- B. manual updates to the peer groups
- C. service provider scheduling of changes to the PE
- D. number of routes on the CE router
- E. number of VRFs on the PE router

Answer: AD

NEW QUESTION 67

A network architect must redesign a service provider edge, where multiservice and multitenant PEs are currently present. Which design feature should be minimized in the new design to achieve reliability?

- A. bridging
- B. fate sharing
- C. redundancy
- D. unicast overlay routing

Answer: B

NEW QUESTION 71

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

Answer: A

NEW QUESTION 74

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

Answer: B

NEW QUESTION 79

An MPLS service provider is offering a standard EoMPLS-based VPLS service to CustomerA providing Layer 2 connectivity between a central site and approximately 100 remote sites.

CustomerA 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

Answer: D

NEW QUESTION 81

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
- E. Ansible etc.) and Orchestration refers to commercial products that control configuration deployment

Answer: A

NEW QUESTION 85

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 multipoint 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

Answer: B

NEW QUESTION 86

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

Answer: CD

NEW QUESTION 88

Which protocol does an SD-Access wireless Access Point use for its fabric data plane?

- A. GRE
- B. MPLS
- C. VXLAN
- D. LISP
- E. CAPWAP

Answer: C

NEW QUESTION 93

Which two design solutions ensure sub 50 msec of the convergence time after a link failure in the network? (Choose two)

- A. BFD
- B. TI-LFA
- C. minimal BGP scan time
- D. MPLS-FRR
- E. IGP fast hello

Answer: BD

NEW QUESTION 95

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

Answer: B

NEW QUESTION 99

Which option is a fault-sharing characteristic in regards to network design?

- A. A failure of a single element causes the entire service to fail
- B. It protects the network against failures in the distribution layer
- C. It acts as a stateful forwarding device
- D. It provides data sequencing and acknowledgment mechanisms

Answer: A

NEW QUESTION 104

Drag and Drop Question

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

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

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

	Performance Management
	Accounting Management
	Configuration Management
	Fault Management
	Security Management

NEW QUESTION 109

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

Answer: C

NEW QUESTION 110

Which statement about hot-potato routing architecture design is true?

- A. Hot-potato routing is the preferred architecture when connecting to content providers
- B. Hop-potato keeps traffic under the control of the network administrator for longer
- C. OSPF uses hot-potato routing if all ASBRs use the same value for the external metric
- D. Hot-potato routing is prone to misconfiguration as well as poor coordination between twonetworks

Answer: A

NEW QUESTION 114

A BGP route reflector in the network is taking longer than expected to coverage 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.

Answer: A

NEW QUESTION 118

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

Answer: AD

NEW QUESTION 123

Which two design option are available to dynamically discover the RP in an IPv6 multicast network? (Choose two)

- A. embedded RP
- B. MSDP
- C. BSR
- D. Auto-RP
- E. MLD

Answer: AC

NEW QUESTION 126

Company A has a hub-and spoke topology over an SP-managed infrastructure. To measure traffic performance metrics, 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. memory usage on the hub router
- B. interface buffers on the hub and spoke routers
- C. CPU and memory usage on the spoke routers
- D. CPU usage on the hub router

Answer: D

NEW QUESTION 129

Which two descriptions of CWDM are true? (Choose two)

- A. typically used over long distances, but requires optical amplification
- B. uses the 850nm band
- C. allows up to 32 optical channels to be multiplexed onto a single fiber
- D. shares the same transmission window as DWDM
- E. Passive CWDM devices require no electrical power

Answer: DE

NEW QUESTION 132

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

Answer: C

NEW QUESTION 135

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 state consistency
- C. control path reliability
- D. controller clustering

Answer: B

NEW QUESTION 137

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.

Answer: C

NEW QUESTION 139

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

Answer: ACD

NEW QUESTION 141

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 SL
- C. andIPsec for secure transport over the public Internet.
- D. Both technologies should be use
- E. Each should be used to back up the other one; where theprimary links are MPLS, the internet should be used as a backup link with IPsec (and vice versa).
- F. MPLS meets all these requirements and it is more reliable than using the Interne
- G. It is widelyused with defined best practices and an industry standard.

Answer: A

NEW QUESTION 146

The network designer needs to use GLOP IP address in order make them unique within their ASN, which multicast address range will be considered?

- A. 239.0.0.0 to 239.255.255.255
- B. 224.0.0.0 to 224.0.0.255
- C. 233.0.0.0 to 233.255.255.255
- D. 232.0.0.0 to 232.255.255.255

Answer: C

NEW QUESTION 148

Drag and Drop Question

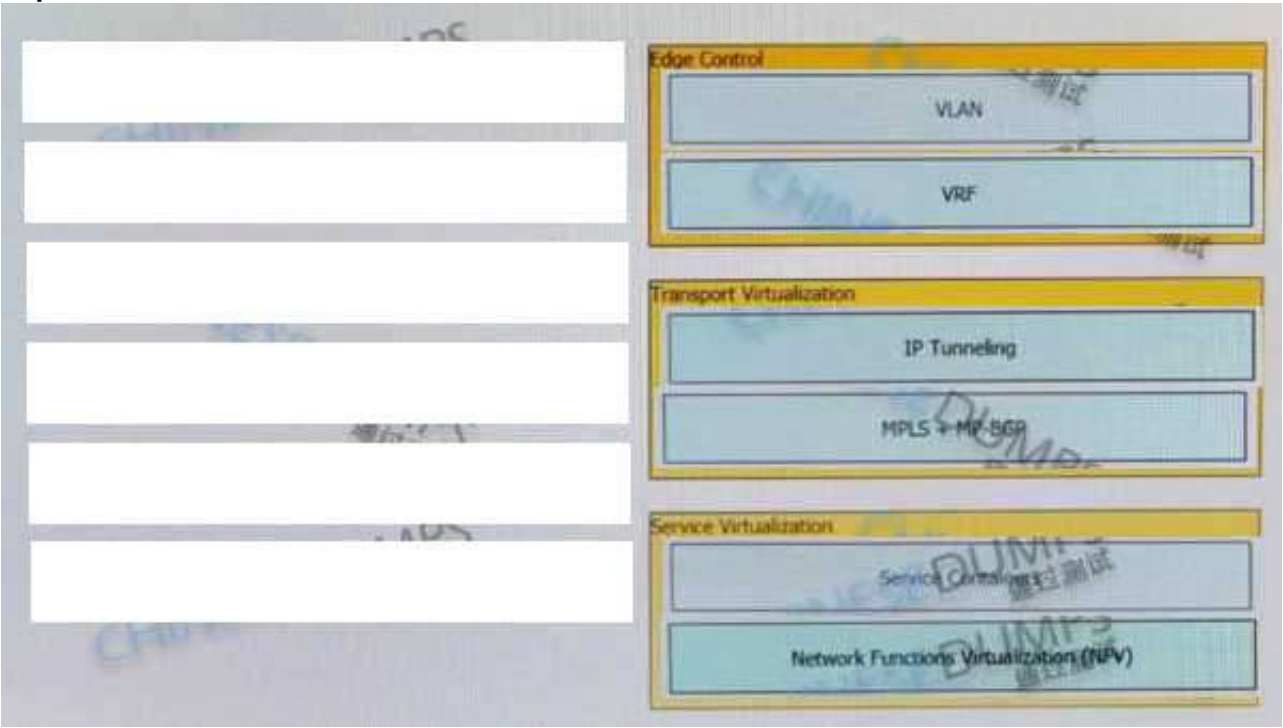
Drag and drop the end-to-end network virtualization elements from the left onto the correct network areas on the right.

The diagram shows a drag-and-drop interface for network virtualization. On the left, there are six blue boxes representing network elements: 'Network Functions Virtualization (NFV)', 'IP Tunneling', 'VRF', 'MPLS + MP-BGP', 'VLAN', and 'Service Chaining'. On the right, there are three yellow boxes representing network areas: 'Edge Control', 'Transport Virtualization', and 'Service Virtualization'. Each of these yellow boxes contains two sub-boxes labeled 'option A' and 'option B'. The interface is designed for users to drag the elements from the left into the appropriate option boxes on the right.

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:



NEW QUESTION 153

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