



# 640-864

**Cisco**

*Designing for Cisco Internetwork Solutions*

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**Question: 1**

Which consideration is the most important for the network designer when considering IP routing?

- A. Convergence
- B. Scalability
- C. On-demand routing
- D. Redistribution

**Answer: A**

**Explanation:**

Convergence is most important because with delayed convergence outage recovery will be delayed as well.

**Question: 2**

You want to gather as much detail as possible during a network audit, to data time stamping across a large number of interfaces, customized include according to interface, with a minimal impact on the network devices themselves. Which tool would you use to meet these requirements?

- A. RMON
- B. SNMPV3
- C. Net Flow
- D. Cisco Discovery Protocol

**Answer: C**

**Explanation:**

Net Flow provides extremely granular and accurate traffic measurements and a high-level collection of aggregated traffic. The output of netflow information is displayed via the show ip cache flow command on routers. The Table shows a description of the fields for NetFlow output. Table. Netflow Output escription

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Field	Description
Bytes	Number of bytes of memory that are used by the NetFlow cache
Active	Number of active flows
Inactive	Number of flow buffers that are allocated in the Netflow cache
Added	Number of flows that have been created since the start of the summary
Exporting flows	IP address and UDP port number of the workstation to which flows are exported
Flows exported	Total number of flows export and the total number of UDP datagrams
Protocol	IP protocol and well-known port number
Total Flows	Number of flows for this protocol since the last time that statistics were cleared
Flows/sec	Average number of flows this protocol per second
Packets/flow	Average number of packets per flow per second
Bytes/pkt	Average number of bytes for this protocol
Packets/sec	Average number of packets for this protocol per second

**Question: 3**

Data Quirk is a web-based medical transcription company for exotic-animal veterinarians. The company recently added a third ISP for international business. They are organizing the enterprise network into a fully operational Enterprise Edge.

To which two modules will the three ISPs be directly related? (Choose two)

- A. PSTN
- B. E- Commerce
- C. WAN/MAN
- D. Edge Distribution
- E. Internet Connectivity
- F. Remote Access VPN

**Answer: B, E**

**Explanation:**

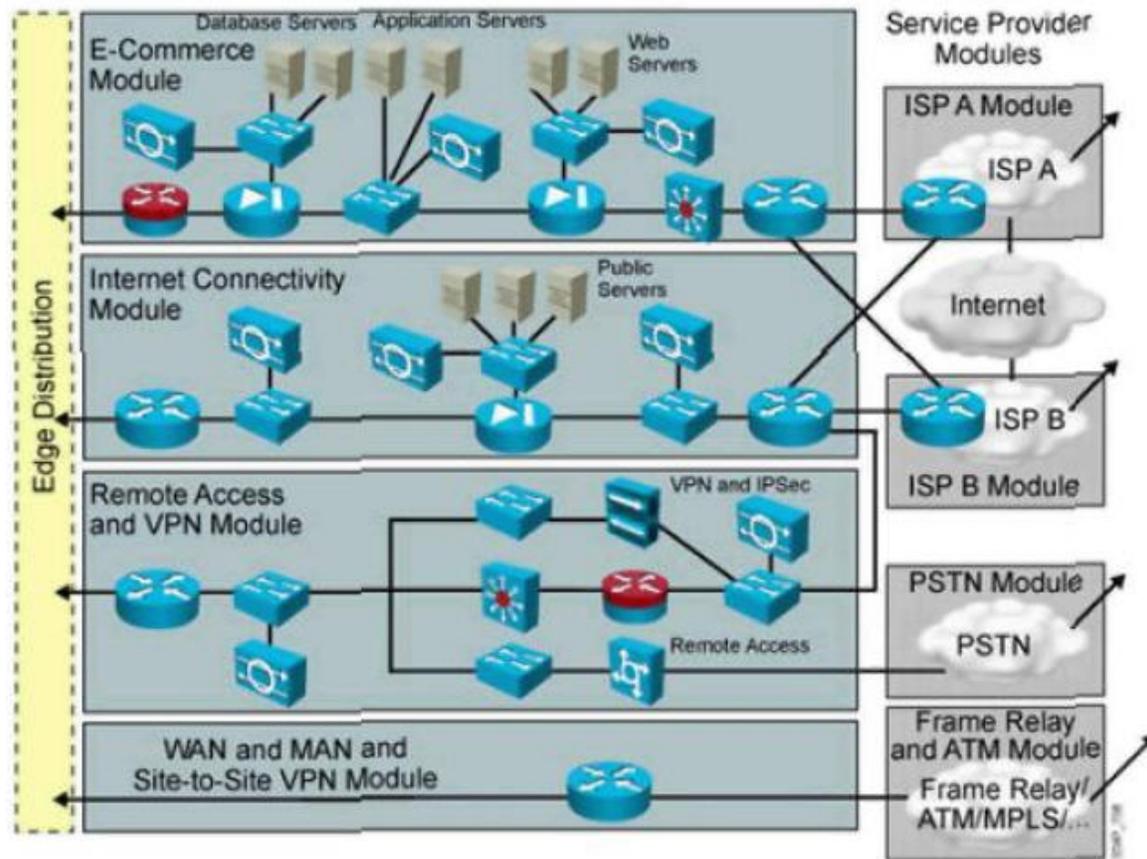
The purpose of ISP link is for serving customers & it is also providing internet connectivity to internal & external users, thus it falls into above 2 categories.

**Explanation**

The Enterprise Edge Module consists of the following modules:

+ E-commerce module: includes the devices and services necessary for an organization to provide e-commerce applications.  
 + Internet connectivity module: provides enterprise users with Internet access.  
 + VPN and remote access module: terminates VPN trafç and dial-in connections from external users.  
 + WAN/ MAN and site-to-site module: provides connectivity between remote sites and the central site over various WAN technologies. In these modules, only E-Commerce and Internet Connectivity modules will be directly related to the three ISPs.

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**Question: 4**

Which two of these practices are considered to be best practices when designing the access layer for the enterprise campus? (Choose two)

- A. Implement all of the service (QoS, security, STP, and so on) in the access layer, offloading the work from the distribution and core layers.
- B. Always use a Spanning Tree Protocol; preferred is Rapid PVST+.
- C. Use automatic VLAN pruning to prune unused VLANs from trunked interface to avoid broadcast propagation.
- D. Avoid wasted processing by disabling STP where loops are not possible.
- E. Use VTP transparent mode to decrease the potential for operational error

**Answer: B, E**

**Explanation:**

When designing the building access layer, you must consider the number of users or ports required to size up the LAN switch. Connectivity speed for each host should also be considered. Hosts might be connected using various technologies such as Fast Ethernet, Gigabit Ethernet, or port channels. The planned VLANs enter into the design.

Performance in the access layer is also important. Redundancy and QoS features should be considered.

The following are recommended best practices for the building access layer:

- Limit VLANs to a single closet when possible to provide the most deterministic and highly available topology.

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- Use Rapid Per-VLAN Spanning Tree Plus (RPVST+) if STP is required. It provides the faster convergence than traditional 802.1d default timers.
  - Set trunks to ON and ON with no-negotiate.
  - Manually prune unused VLANs to avoid broadcast propagation (commonly done on the distribution switch).
  - Use VLAN Trunking Protocol (VTP) Transparent mode, because there is little need for a common VLAN database in hierarchical networks.
  - Disable trunking on host ports, because it is not necessary. Doing so provides more security and speeds up PortFast.
  - Consider implementing routing in the access layer to provide fast convergence and Layer 3 load balancing.
  - Use the switchport host commands on server and end-user ports to enable PortFast and disable channeling on these ports.
  - Use Cisco STP Toolkit, which provides
    - PortFast: Bypass listening-learning phase for access ports
    - Loop Guard: Prevents alternate or root port from becoming designated in absence of bridge protocol data units (BPDU)
    - Root Guard: Prevents external switches from becoming root
    - BPDU Guard: Disables PortFast-enabled port if a BPDU is received
- Cisco Press CCDA 640-864 Official Certification Guide Fourth Edition, Chapter 3, Page 85

**Question: 5**

With deterministic Wireless LAN Controller redundancy design, the different options available to the designer have their own strengths. Which one of these statements is an example of such strength?

- Dynamic load balancing, or salt-and-pepper access point design, avoids the potential impact of oversubscription on aggregate network performance.
- N+N redundancy configuration allows logically grouping access points on controllers to minimize intercontroller roaming events.
- N+N+1 redundancy configuration has the least impact to system management because all of the controllers are collocated in an NOC or data center
- N+1 redundancy configuration uses Layer 3 intercontroller roaming, maintaining traffic on the same subnet for more efficiency.

**Answer: B**

**Explanation:**

With such an arrangement there is no complex mesh of access points & controllers.

**Reference:**

<http://www.cisco.com/web/learning/le31/le46/cln/qlm/CCDA/design/understanding-wirelessnetwork-controller-technology-3/player.html>

**Question: 6**

Which of these statements is true concerning the data center access layer design?

- The access layer in the data center is typically built at Layer 3, which allows for better shaping of services across multiple servers.
- With Layer 2 access, the default gateway for the servers can be configured at the access or aggregation layer.
- A dual-homing NIC requires a VLAN or trunk between the two access switches to support the dual IP address on the two server links to two separate switches.
- The access layer is normally not required, as dual homing is standard from the servers to the aggregation layer.

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**Answer: B**

**Explanation:**

With Layer 2 / 3, capabilities in-built access layer switches can have data & voice VLANs with interfaces; this is helpful in improving routing convergence.

**Reference:**

[http://www.cisco.com/application/pdf/en/us/guest/netso/ns432/c649/ccmigration\\_09186a00805f\\_cbf.pdf](http://www.cisco.com/application/pdf/en/us/guest/netso/ns432/c649/ccmigration_09186a00805f_cbf.pdf)

**Question: 7**

Which one of these statements should the designer keep in mind when considering the advanced routing features?

- A. one-way router redistribution avoids the requirement for state or default routes.
- B. Redistribution, summarization, and filtering are most often applied between the campus core and enterprise edge.
- C. Filtering only occurs on the routing domain boundary using redistribution.
- D. Summarize routes at the core toward the distribution layer.
- E. The hierarchical flexibility of IPv6 addressing avoids the requirements for routing traffic reduction using aggregation.

**Answer: E**

**Explanation:**

Answer A is incorrect as a default route is still required

Answer B & D are incorrect as Redistribution, summarization, and filtering are used in the Distribution Layer Cisco Press CCDA 640-864 Official Certification Guide Fourth Edition, Chapter 1, Page 36 – 37

Answer C is incorrect as route filter can occur at either a routing domain boundary or at a routing redistribution point. Cisco Press CCDA 640-864 Official Certification Guide Fourth Edition, Chapter 11 Answer E is correct as IPv6 allow the aggregation (summarization) of routing prefixes to reduction of the number of routes in the global routing table. Cisco Press CCDA 640-864 Official Certification Guide Fourth Edition, Chapter 9

**Note:**

Core Layer The core layer is the network’s high-speed switching backbone that is crucial to corporate communications. It is also referred as the backbone. The core layer should have the following characteristics:

**Distribution Layer**

The network’s distribution layer is the isolation point between the network’s access and core layers. The distribution layer can have many roles, including implementing the following functions: You can use several Cisco IOS Software features to implement policy at the distribution layer:

**Route Filtering**

Filtering of routes can occur on either a redistribution point or in the routing domain to prevent some parts of the network from accessing other sections of the network.

Filtering at a redistribution point provides the following:

**Global Aggregatable IPv6 Address**

Global aggregatable unicast addresses allow the aggregation of routing prefixes. This allows a reduction of the number of routes in the global routing table. These addresses are used in links to aggregate (summarize) routes upwards to the core in large organizations or to ISPs. Global

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aggregatable addresses are identified by the fixed prefix of 2000:/3. As shown in Figure 9-5, the format of the global aggregatable IPv6 address is a global routing prefix starting with binary 001, followed by the subnet ID and then the 64-bit interface identifier (ID). The device MAC address is normally used as the interface ID.

**Question: 8**

Which two statements about designing the Data Center Access layer are correct? (Choose two)

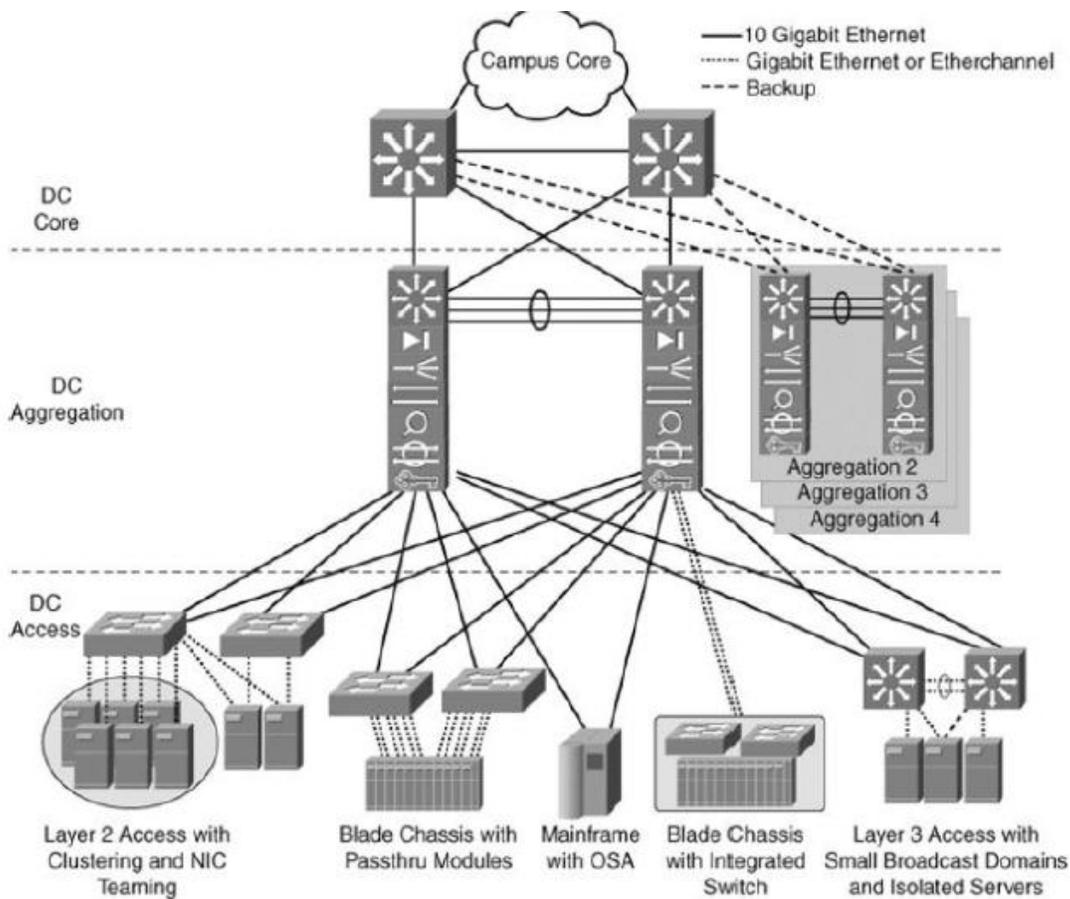
- A. Multiport NIC servers should each have their own IP address
- B. Layer 3 connectivity should never be used in the access layer
- C. Layer 2 connectivity is primarily implemented in the access layer
- D. Multiport NIC servers should never be used in the access layer
- E. Layer 2 clustering implementation requires servers to be Layer 2 adjacent

**Answer: C, E**

**Explanation:**

User access is primarily layer 2 in nature; layer 2 clustering is possible only in layer 2  
Here is the explanation from the Cisco press CCDA certification guide

**Figure 4-8. Enterprise Data Center Infrastructure Overview**



**Defining the DC Access Layer**

The data center access layer's main purpose is to provide Layer 2 and Layer 3 physical port density for various servers in the data center. In addition, data center access layer switches

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Citrix	Exin	Huawei	Legato	Nortel	See-Beyond	Vmware
CIW	ExtremeNetworks	Hyperion	Lotus	Novell	SNIA	

and many others.. See complete list Here

