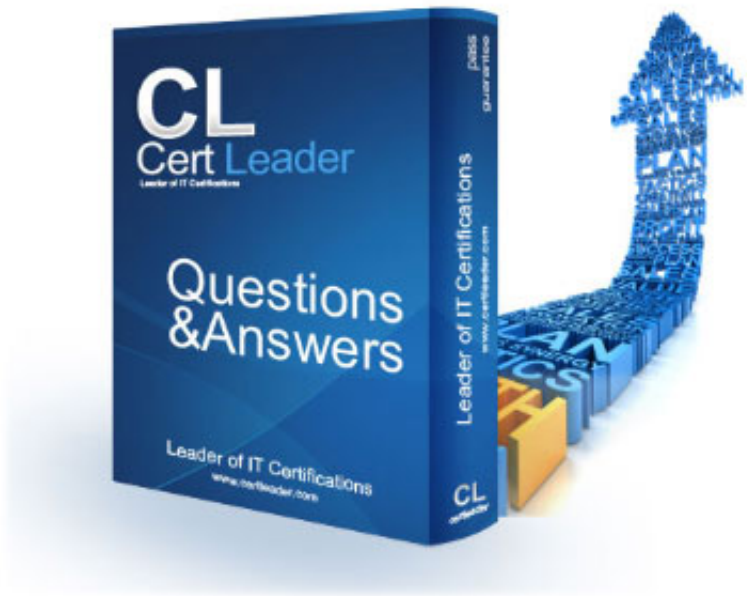
400-101 - CCIE Routing and Switching (v5.0)

http://www.certleader.com/400-101-dumps.html



1. Which two statements about MAC ACLs are true? (Choose two.)

A. They support only inbound filtering.

B. They support both inbound and outbound filtering.

C. They are configured with the command mac access-list standard.

D. They can filter non-IP traffic on a VLAN and on a physical interface.

Answer: A,D

Explanation:

MAC ACL, also known as Ethernet ACL, can filter non-IP traffic on a VLAN and on a physical Layer 2 interface by using MAC addresses in a named MAC extended ACL. The steps to configure a MAC ACL are similar to those of extended named ACLs. MAC ACL supports only inbound traffic filtering.

Reference: http://www.ciscopress.com/articles/article.asp?p=1181682&seqNum=4

2. What two values are required to implement an EIGRP named configuration? (Choose two.)

A. virtual-instance-name

B. address-family

C. router-id

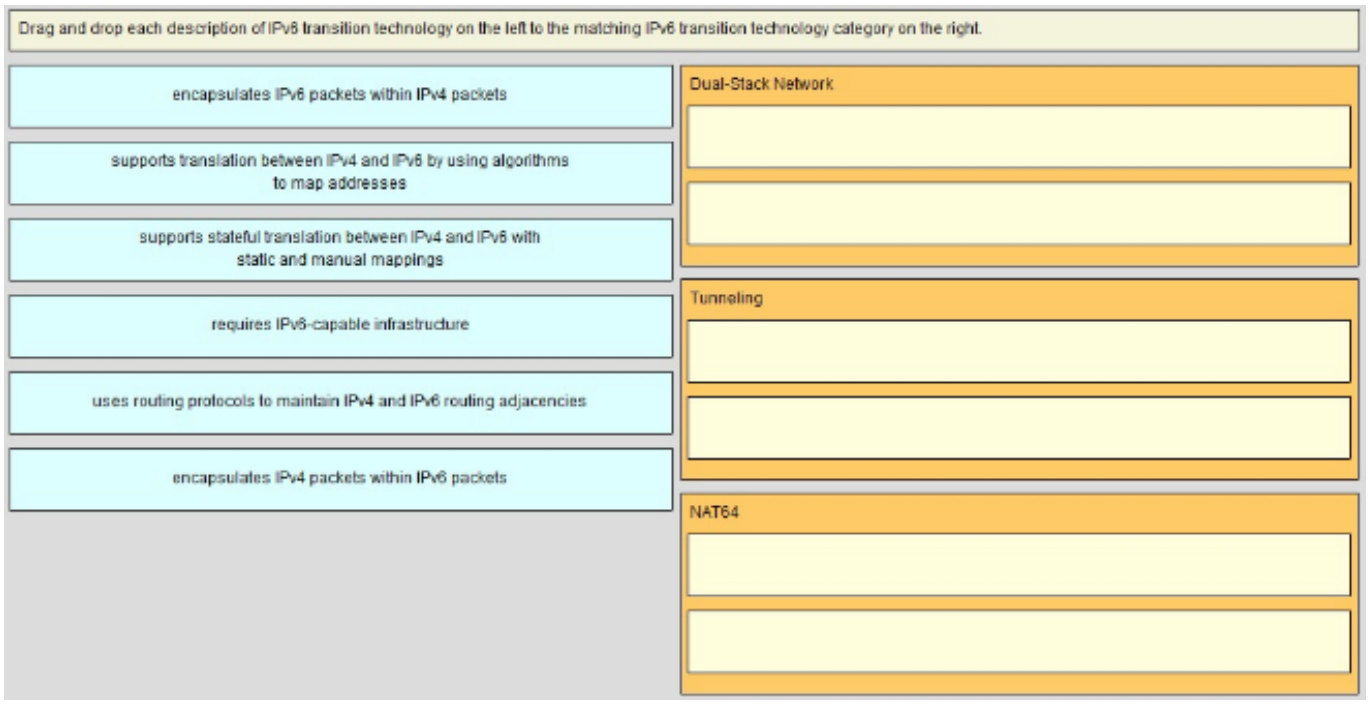
D. subnet-mask

E. process-id

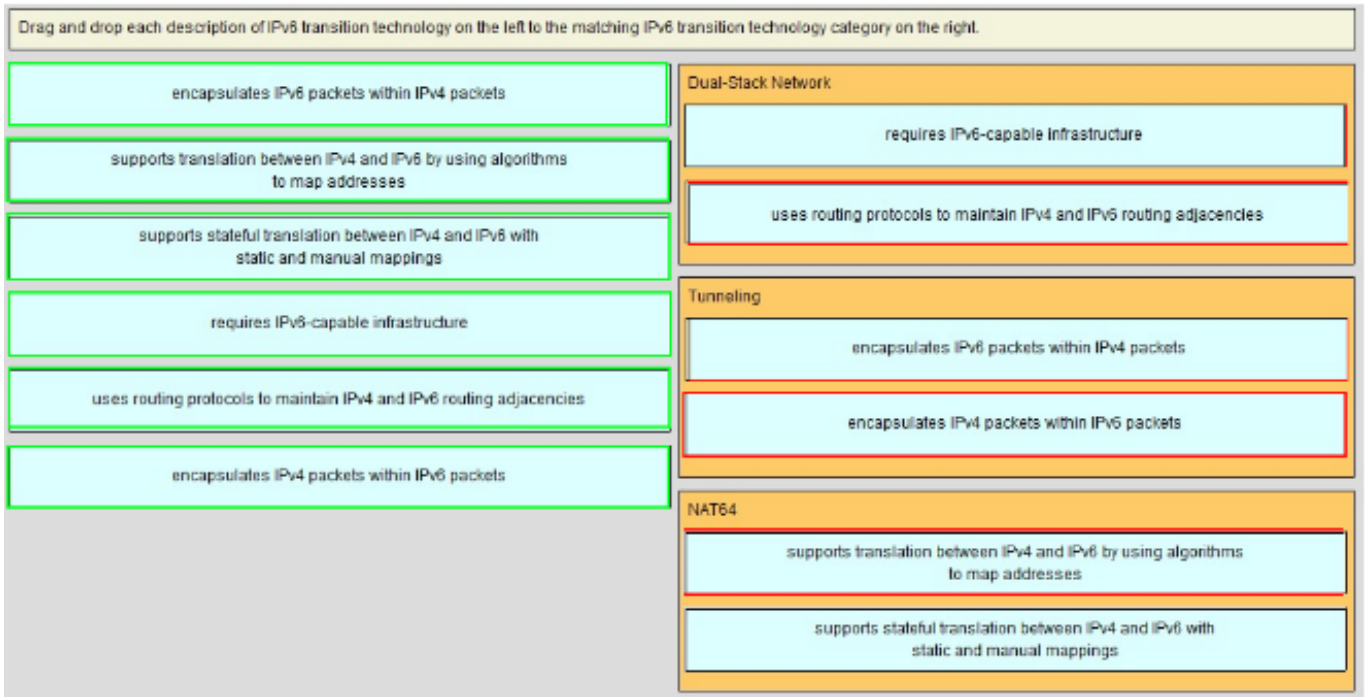
Answer: A,B

3. DRAG DROP

Drag and drop each description of IPv6 transition technology on the left to the matching IPv6 transition technology category on the right.



Answer:



4. DRAG DROP

Drag and drop the IPv6 multicast feature on the left to its corresponding function on the right.

PIMv2	communicates multicast group membership source awareness
MLDv1	uses only shared tree forwarding
MLDv2	communicates multicast group membership states from the
PIM-SSM	provides intradomain multicast forwarding for all underlying unicast routing protocols
PIM Bi-dir	aids IPv6 multicast deployment
IPv6 multicast over IPv4 tunnels	defined for interdomain use to support broadcast applications

Answer:

PIMv2	MLDv2
MLDv1	PIM Bi-dir
MLDv2	MLDv1
PIM-SSM	PIMv2
PIM Bi-dir	IPv6 multicast over IPv4 tunnels
IPv6 multicast over IPv4 tunnels	PIM-SSM

5. Refer to the exhibit.

```
ip route 10.0.0.0 255.255.255.0 192.168.192.9
ip default-network 172.16.199.9
```

The device with this configuration is unable to reach network 172.31.31.0/24. The next hop router has been verified to have full connectivity to the network. Which two actions can you take to establish connectivity to the network? (Choose two.)

A. Create a static route to 172.16.199.0 using the address of the next hop router.

B. Create a default route to the link address of the next hop router.

C. Create a static route to the loopback address of the next hop router.

D. Create a default route to 172.16.199.9.

E. Modify the existing static route so that the next hop is 0.0.0.0.

F. Replace the ip default-network command with the ip default-gateway command.

Answer: A,B

Explanation:

Unlike the ip default-gateway command, you can use ip default-network when ip routing is enabled on the Cisco router. When you configure ip default-network the router considers routes to that network for installation as the gateway of last resort on the router.

For every network configured with ip default-network, if a router has a route to that network, that route is flagged as a candidate default route. However, in this case if the router does not a route to the drfault network of 172.16.199.9, then you would need to ensure that this route exisits by creating a static route to 172.16.199.0 using the address of the next hop router, or simply create a default route using the address of the next hop router.

6. In which type of EIGRP configuration is EIGRP IPv6 VRF-Lite available?

A. stub

B. named mode

C. classic mode

D. passive

Answer: B

Explanation:

The EIGRP IPv6 VRF Lite feature provides EIGRP IPv6 support for multiple VRFs. EIGRP for IPv6 can operate in the context of a VRF. The EIGRP IPv6 VRF Lite feature provides

separation between routing and forwarding, providing an additional level of security because no communication between devices belonging to different VRFs is allowed unless it is explicitly configured. The EIGRP IPv6 VRF Lite feature simplifies the management and troubleshooting of traffic belonging to a specific VRF. The EIGRP IPv6 VRF Lite feature is available only in EIGRP named configurations.

Reference: http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6/configuration/15-2mt/ipv6-15-2mt-book/ip6-eigrp.html#GUID-92B4FF4F-2B68-41B0-93C8-AAA4F0EC1B1B

7. Which three values can you use to configure an ERSPAN destination session? (Choose three.)

A. VLAN ID

B. source IP address

C. destination IP address

D. ID number

E. VRF

F. session name

Answer: B,D,E

8. Refer to the exhibit.

```
interface GigabitEthernet0
 ip vrf forwarding Mgmt-intf
 ip address 1.1.1.1 255.255.255.0

ip access-list extended telnet-acl
 permit tcp any 1.1.1.1 0.0.0.0 eq 23 log

line vty 0 4
 access-class telnet-acl in
 transport input telnet
```

Why is the router not accessible via Telnet on the GigabitEthernet0 management interface?

A. The wrong port is being used in the telnet-acl access list.

B. The subnet mask is incorrect in the telnet-acl access list.

C. The log keyword needs to be removed from the telnet-acl access list.

D. The access class needs to have the vrf-also keyword added.

Answer: D

Explanation:

The correct command should be “access-class telnet-acl in vrf-also”. If you do not specify the vrf-also keyword, incoming Telnet connections from interfaces that are part of a VRF are rejected.

9. You are installing a new device to replace a device that failed. The configuration of the failed device is stored on a networked server, and the new device has an RXBOOT image installed. Under which condition does the streamlined Setup mode fail?

A. The last four bits of the configuration register are not equal to the decimal value 0 or 1.

B. The startup configuration file was deleted.

C. Bit 6 is set in the configuration register.

D. The startup configuration is corrupt.

Answer: A

Explanation:

The lowest four bits of the configuration register (bits 3, 2, 1, and 0) form the boot field. The boot field determines if the router boots manually, from ROM, or from Flash or the network. To change the boot field value and leave all other bits set to their default values, follow these guidelines:

. If you set the configuration register boot field value to 0x0, you must boot the operating system manually with the boot command.

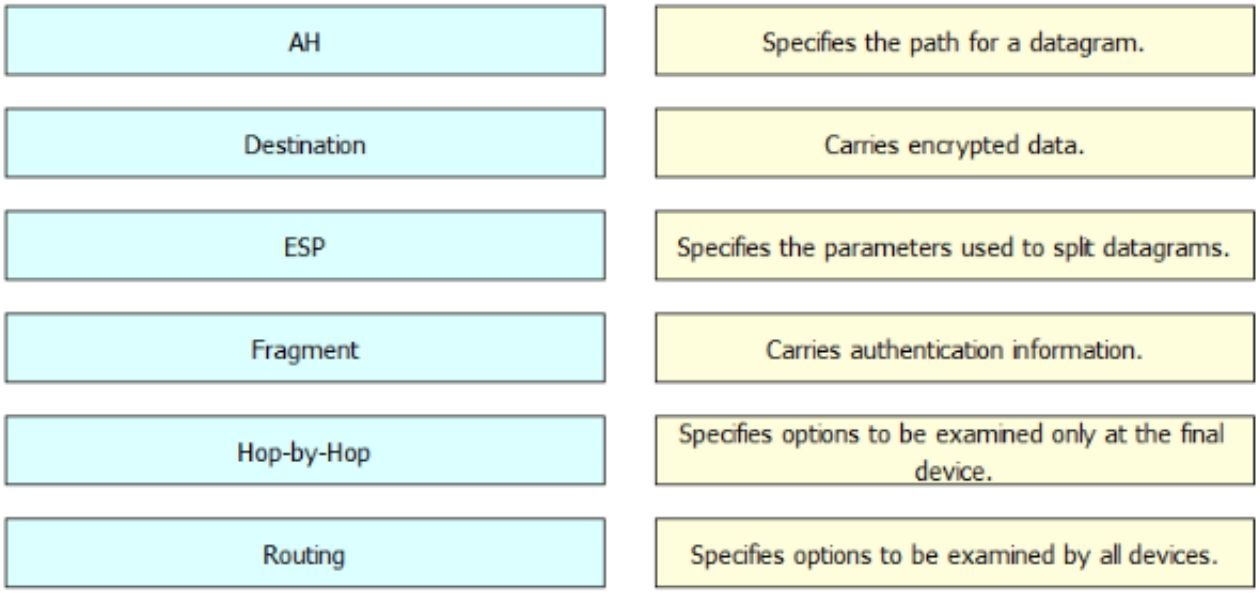
. If you set the configuration register boot field value to 0x1, the router boots using the default ROM software.

. If you set the configuration register boot field to any value from 0x2 to 0xF, the router uses the boot field value to form a default boot filename for booting from a network server. For more information about the configuration register bit settings and default filenames, refer to the appropriate router hardware installation guide.

Reference: http://www.cisco.com/c/en/us/td/docs/ios/12_2/configfun/command/reference/ffun_r/frf010. html

10. DRAG DROP

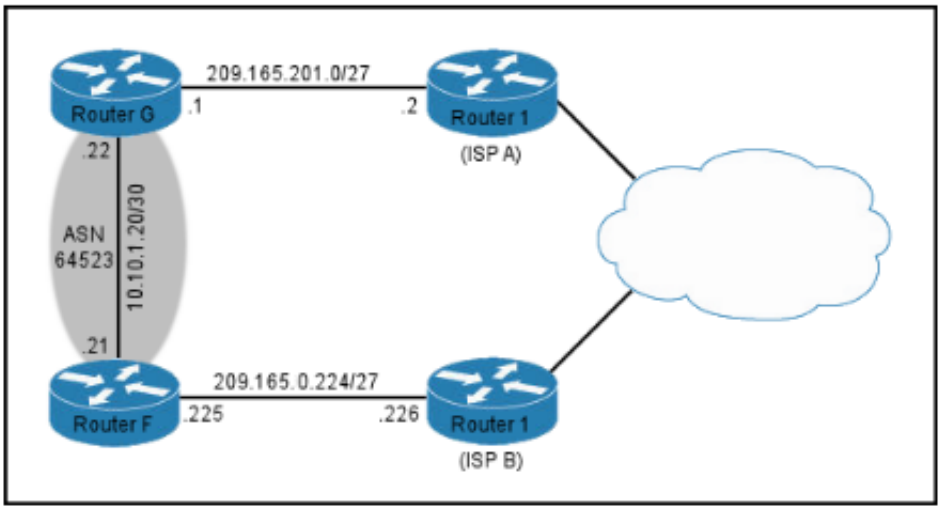
Drag each IPv6 extension header on the left to its corresponding description on the right.



Answer:

AH	Routing
Destination	ESP
ESP	Fragment
Fragment	AH
Hop-by-Hop	Destination
Routing	Hop-by-Hop

11. Refer to the exhibit.



ASN 64523 has a multihomed BGP setup to ISP A and ISP B. Which BGP attribute can you set to allow traffic that originates in ASN 64523 to exit the ASN through ISP B?

A. origin

B. next-hop

C. weight

D. multi-exit discriminator

Answer: D

Explanation:

MED is an optional nontransitive attribute. MED is a hint to external neighbors about the preferred path into an autonomous system (AS) that has multiple entry points. The MED is also known as the external metric of a route. A lower MED value is preferred over a higher value. Example at reference link below:

Reference: http://www.cisco.com/c/en/us/support/docs/ip/border-gateway-protocol-bgp/13759-37.html

12. A network engineer is extending a LAN segment between two geographically separated data centers. Which enhancement to a spanning-tree design prevents unnecessary traffic from crossing the extended LAN segment?

A. Modify the spanning-tree priorities to dictate the traffic flow.

B. Create a Layer 3 transit VLAN to segment the traffic between the sites.

C. Use VTP pruning on the trunk interfaces.

D. Configure manual trunk pruning between the two locations.

Answer: C

13. What is the function of NSF?

A. forward traffic simultaneously using both supervisors

B. forward traffic based on Cisco Express Forwarding

C. provide automatic failover to back up supervisor in VSS mode

D. provide nonstop forwarding in the event of failure of one of the member supervisors

Answer: D

14. Which statement about the EIGRP RTO is true?

A. It is six times the SRTT.

B. It is the time that it normally takes for an update to be received by a peer.

C. It is the time that it normally takes to receive a reply to a query.

D. It is the average time that it takes for a reliable packet to be acknowledged.

Answer: A

Explanation:

The RTO is typically six times the SRTT, the value may vary from a minimum of 200 microseconds (ms) to a maximum of 5 seconds (s).

Reference: EIGRP for IP: Basic Operation and Configuration, Alvaro Retana, Russ White, Don Slice - 2000

15. Which three modes are valid PfR monitoring modes of operation? (Choose three.)

A. route monitor mode (based on BGP route changes)

B. RMON mode (based on RMONv1 and RMONv2 data)

C. passive mode (based on NetFlow data)

D. active mode (based on Cisco IP SLA probes)

E. fast mode (based on Cisco IP SLA probes)

F. passive mode (based on Cisco IP SLA probes)

Answer: C,D,E

Explanation:

Modes are:

Mode monitor passive

Passive monitoring is the act of PfR gathering information on user packets assembled into flows by Netflow. Passive monitoring is typically only recommended in Internet edge deployments because active probing is ineffective because of security policies that block probing. PfR, when enabled, automatically enables Netflow on the managed interfaces on the Border Routers. By aggregating this information on the Border Routers and periodically reporting the collected data to the Master Controller, the network prefixes and applications in use can automatically be learned.

Mode monitor active

Active monitoring is the act of generating Cisco IOS IP Service Level Agreements (SLAs) probes to generate test traffic for the purpose of obtaining information regarding the characteristics of the WAN links. PfR can either implicitly generates active probes when passive monitoring has identified destination hosts, or the network manager can explicitly configured probes in the PfR configuration. When jitter probes are used (common use case), Target Discovery is used to learn the respond address and to automatically generate the probes.

Mode monitor Fast

This mode generates active probes through all exists continuously at the configured probe frequency. This differs from either active or both modes in that these modes only generate probes through alternate paths (exits) in the event the current path is out-of-policy.

Reference: http://docwiki.cisco.com/wiki/PfR:Technology_Overview#Mode_monitor_passive

16. Which three responses can a remote RADIUS server return to a client? (Choose three.)

A. Reject-Challenge

B. Access-Reject

C. Accept-Confirmed

D. Access-Accept

E. Access-Challenge

F. Reject-Access

Answer: B,D,E

17. Which two BGP attributes are optional, non-transitive attributes? (Choose two.)

A. AS path

B. local preference

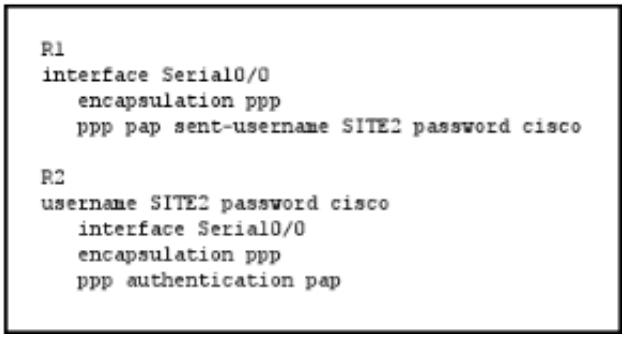
C. MED

D. weight

E. cluster list

Answer: C,E

18. Refer to the exhibit.



```
R1
interface Serial0/0
   encapsulation ppp
   ppp pap sent-username SITE2 password cisco

R2
username SITE2 password cisco
   interface Serial0/0
   encapsulation ppp
   ppp authentication pap
```

With these configurations for R1 and R2, which statement about PPP authentication is true?

A. Authentication fails because R1 is missing a username and password.

B. R2 responds with the correct authentication credentials.

C. R2 requires authentication from R1.

D. R1 requires authentication from R2.

Answer: C

Explanation:

Only R2 is configured with the “PPP authentication PAP” command so it requires authentication from R1, but R1 does not require authentication from R2.

19. Which two statements about the default behavior of IS-IS are true? (Choose two.)

A. The default IS-IS router type is L1/L2.

B. The default IS-IS metric type is wide.

C. The default IS-IS interface circuit type is L1/L2.

D. By default, two IS-IS routers must use the same hello interval and hold timer in order to become neighbors.

Answer: A,C

20. Which two mechanisms can be used to eliminate Cisco Express Forwarding polarization? (Choose two.)

A. alternating cost links

B. the unique-ID/universal-ID algorithm

C. Cisco Express Forwarding antipolarization

D. different hashing inputs at each layer of the network

Answer: B,D

Explanation:

This document describes how Cisco Express Forwarding (CEF) polarization can cause suboptimal use of redundant paths to a destination network. CEF polarization is the effect when a hash algorithm chooses a particular path and the redundant paths remain completely unused.

How to Avoid CEF Polarization

. Alternate between default (SIP and DIP) and full (SIP + DIP + Layer4 ports) hashing inputs configuration at each layer of the network.

. Alternate between an even and odd number of ECMP links at each layer of the network.The CEF load-balancing does not depend on how the protocol routes are inserted in the routing table. Therefore, the OSPF routes exhibit the same behavior as EIGRP. In a hierarchical network where there are several routers that perform load-sharing in a row, they all use same algorithm to load-share.

The hash algorithm load-balances this way by default:

1: 1

2: 7-8

3: 1-1-1

4: 1-1-1-2

5: 1-1-1-1-1

6: 1-2-2-2-2-2

7: 1-1-1-1-1-1-1

8: 1-1-1-2-2-2-2-2

The number before the colon represents the number of equal-cost paths. The number after the colon represents the proportion of traffic which is forwarded per path.

This means that:

For two equal cost paths, load-sharing is 46.666%-53.333%, not 50%-50%.

For three equal cost paths, load-sharing is 33.33%-33.33%-33.33% (as expected).

For four equal cost paths, load-sharing is 20%-20%-20%-40% and not 25%-25%-25%-25%.

This illustrates that, when there is even number of ECMP links, the traffic is not load-balanced.

.Cisco IOS introduced a concept called unique-ID/universal-ID which helps avoid CEF polarization. This algorithm, called the universal algorithm (the default in current Cisco IOS versions), adds a 32-bit router-specific value to the hash function (called the universal ID - this is a randomly generated value at the time of the switch boot up that can can be manually controlled). This seeds the hash function on each router with a unique ID, which ensures that the same source/destination pair hash into a different value on different routers along the path. This process provides a better network-wide load-sharing and circumvents the polarization issue. This unique -ID concept does not work for an even number of equal-cost paths due to a hardware limitation, but it works perfectly for an odd number of equal-cost paths. In order to overcome this problem, Cisco IOS adds one link to the hardware adjacency table when there is an even number of equal-cost paths in order to make the system believe that there is an odd number of equal-cost links.

Reference: http://www.cisco.com/c/en/us/support/docs/ip/express-forwarding-cef/116376-technote-cef-00.html

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