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Exam : **300-101**

Title : Implementing Cisco IP Routing

Version : DEMO

1.Which three problems result from application mixing of UDP and TCP streams within a network with no QoS? (Choose three.)
A. starvation
B. jitter
C. latency
D. windowing
E. lower throughput
Answer: ACE
Explanation:
It is a general best practice not to mix TCP-based traffic with UDP-based traffic (especially streaming video) within a single service provider class due to the behaviors of these protocols during periods of congestion. Specifically, TCP transmitters will throttle-back flows when drops have been detected. Although some UDP applications have application-level windowing, flow control, and retransmission capabilities, most UDP transmitters are completely oblivious to drops and thus never lower transmission rates due to dropping. When TCP flows are combined with UDP flows in a single service provider class and the class experiences congestion, then TCP flows will continually lower their rates, potentially giving up their bandwidth to dropoblivious UDP flows. This effect is called TCP-starvation/UDP-dominance. This can increase latency and lower the overall throughput. TCP-starvation/UDP-dominance likely occurs if (TCP-based) mission-critical data is assigned to the same service provider class as (UDP-based) streaming video and the class experiences sustained congestion. Even if WRED is enabled on the service provider class, the same behavior would be observed, as WRED (for the most part) only affects TCP-based flows. Granted, it is not always possible to separate TCP-based flows from UDP-based flows, but it is beneficial to be aware of this behavior when making such application-mixing decisions.
Reference: http://www.cisco.com/warp/public/cc/so/neso/vpn/vpnsp/spqsd_wp.htm

2.Which statement about the use of tunneling to migrate to IPv6 is true?
A. Tunneling is less secure than dual stack or translation.
B. Tunneling is more difficult to configure than dual stack or translation.
C. Tunneling does not enable users of the new protocol to communicate with users of the old protocol without dual-stack hosts.
D. Tunneling destinations are manually determined by the IPv4 address in the low-order 32 bits of IPv4-compatible IPv6 addresses.
Answer: C
Explanation:
Using the tunneling option, organizations build an overlay network that tunnels one protocol over the other by encapsulating IPv6 packets within IPv4 packets and IPv4 packets within IPv6 packets. The advantage of this approach is that the new protocol can work without disturbing the old protocol, thus providing connectivity between users of the new protocol. Tunneling has two disadvantages, as discussed in RFC 6144: Users of the new architecture cannot use the services of the underlying infrastructure.
Tunneling does not enable users of the new protocol to communicate with users of the old protocol without dual-stack hosts, which negates interoperability.
Reference: http://www.cisco.com/c/en/us/products/collateral/ios-nx-os-software/enterprise-ipv6-solution/white_paper_c11-676278.html

3.Which two actions must you perform to enable and use window scaling on a router?(Choose two.)
A. Execute the command ip tcp window-size 65536.
B. Set window scaling to be used on the remote host.
C. Execute the command ip tcp queuemax.
D. Set TCP options to "enabled" on the remote host
E. Execute the command ip tcp adjust-mss.
Answer: AB
Explanation:
The TCP Window Scaling feature adds support for the Window Scaling option in RFC 1323, TCP Extensions for High Performance. A larger window size is recommended to improve TCP performance in network paths with large bandwidth-delay product characteristics that are called Long Fat Networks (LFNs). The TCP Window Scaling enhancement provides that support. The window scaling extension in Cisco IOS software expands the definition of the TCP window to 32 bits and then uses a scale factor to carry this 32-bit value in the 16-bit window field of the TCP header. The window size can increase to a scale factor of 14. Typical applications use a scale factor of 3 when deployed in LFNs. The TCP Window Scaling feature complies with RFC 1323. The larger scalable window size will allow TCP to perform better over LFNs. Use the ip tcp window-size command in global configuration mode to configure the TCP window size. In order for this to work, the remote host must also support this feature and its window size must be increased.
Reference: http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipapp/configuration/12-4t/iap-12-4t-book/iaptcp. html#GUID-BD998AC6-F128-47DD-B5F7-B226546D4B08

4.A network administrator executes the command clear ip route.
Which two tables does this command clear and rebuild? (Choose two.)
A. IP routing
B. FIB
C. ARP cache
D. MAC address table
E. Cisco Express Forwarding table
F. topology table
Answer: AB
Explanation:
To clear one or more entries in the IP routing table, use the following commands in any mode:
Reference:
http://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus5000/sw/unicast/5_0_3_N1_1/Cisco_n5k_layer3_ucast_cfg_rel_503_N1_1/l3_manage-routes.html

Command	Purpose
clear ip route {* | { route | prefix/length }[next-hop interface]} [**vrf** vrf-name] **Example:** switch(config)# clear ip route 10.2.2.2	Clears one or more routes from both the unicast RIB and all the module FIBs. The route options are as follows: • *–All routes. • route –An individual IP route. • prefix/length –Any IP prefix. • next-hop –The next-hop address • interface –The interface to reach the next-hop address. The *vrf-name* can be any case-sensitive, alphanumeric string up to 32 characters.

5.Under which condition does UDP dominance occur?
A. when TCP traffic is in the same class as UDP
B. when UDP flows are assigned a lower priority queue
C. when WRED is enabled
D. when ACLs are in place to block TCP traffic
Answer: A
Explanation:
Mixing TCP with UDP
It is a general best practice to not mix TCP-based traffic with UDP-based traffic (especially Streaming-Video) within a single service-provider class because of the behaviors of these protocols during periods of congestion. Specifically, TCP transmitters throttle back flows when drops are detected. Although some UDP applications have application-level windowing, flow control, and retransmission capabilities, most UDP transmitters are completely oblivious to drops and, thus, never lower transmission rates because of dropping. When TCP flows are combined with UDP flows within a single service-provider class and the class experiences congestion, TCP flows continually lower their transmission rates, potentially giving up their bandwidth to UDP flows that are oblivious to drops. This effect is called TCP starvation/UDP dominance.
TCP starvation/UDP dominance likely occurs if (TCP-based) Mission-Critical Data is assigned to thesame service-provider class as (UDP-based) Streaming-Video and the class experiences sustainedcongestion. Even if WRED is enabled on the service-provider class, the same behavior would be observed because WRED (for the most part) manages congestion only on TCP-based flows.
Reference: http://www.cisco.com/c/en/us/td/docs/solutions/Enterprise/WAN_and_MAN/QoS_SRND/QoSSRNDBook/VPNQoS.html