QUESTION 1
Which of the following markers can be set by Committed Access Rate (CAR)? (Choose all that apply.)
A.DSCP bits
B.QoS Group
C.ATM CLP bit
D.FrameRelayDEbit
E.IP precedence bits

Answer: A, B, E

Explanation:

QoS Mechanism	Available markers
Committed Access Rate (CAR)	IP precedence DSCP QoS group MPLS experimental bits
QoS Policy Propagation through BGP (QPPB)	IP precedence QoS group
Policy-based Routing (PBR)	IP precedence QoS group
Class-based Marking	IP precedence DSCP QoS group MPLS experimental bits ATM CLP bit Frame Relay DE bit 802.1Q/ISL cos/priority

Source:Cisco IP QoS Introduction, Page 64

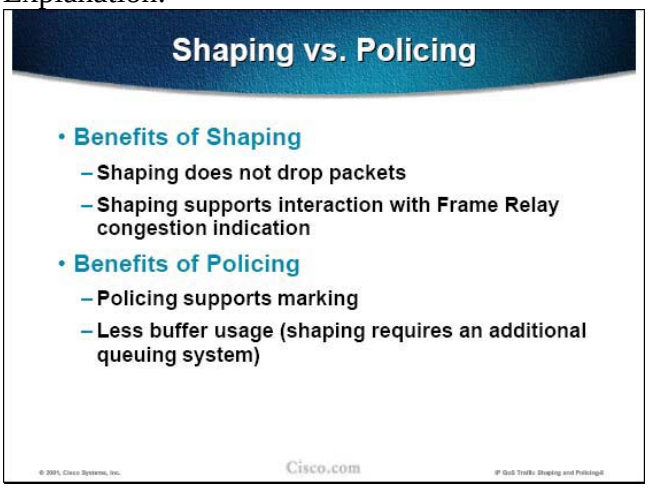
QUESTION 2
What makes the DiffServ model more scalable than the IntServ model? (Choose all that apply.)
A.DiffServ makes use of per-aggregate QoS instead of per-flow QoS.
B.DiffServ makes use of hop-by-hop signaling which allows DiffServ to scale to a larger number of application flows.
C.DiffServ is capable of implementing admission control either locally on the routers or be offloaded to a central policy server using the COPS protocol.
D.DiffServ routers are not compelled to track the state information for each individual flow.

Answer: A, D
Incorrect:
B.No hop-by-hop signaling uses per-hop behavior
C. This is a feature of both models
Sources:CiscoIP QoS Introduction
http://www.cisco.com/en/US/tech/ CK5 43/ CK7 66/technologies_white_paper09186a00800a3e2f.shtml

---

QUESTION 3
The newly appointed Certkiller trainee technician wants to know what the benefits of using traffic shaping to implement network rate limiting is.What will your reply be?(Choose all that apply.)
A.Traffic shaping is an effective tool for rate-limiting VoIP traffic.
B.It will not increase packet loss.
C.It will not add to packet transit delays.
D.Traffic shaping can interact with congestion mechanisms embedded in Frame Relay.
E.Traffic shaping can be used on inbound and outbound traffic on a router.

Answer: B, D
Incorrect:
A.Shaping adds variable delay to traffic, possibly causing jitter
C.A shaper typically delays excess traffic using a buffer
E. This is a feature of policing

Explanation:


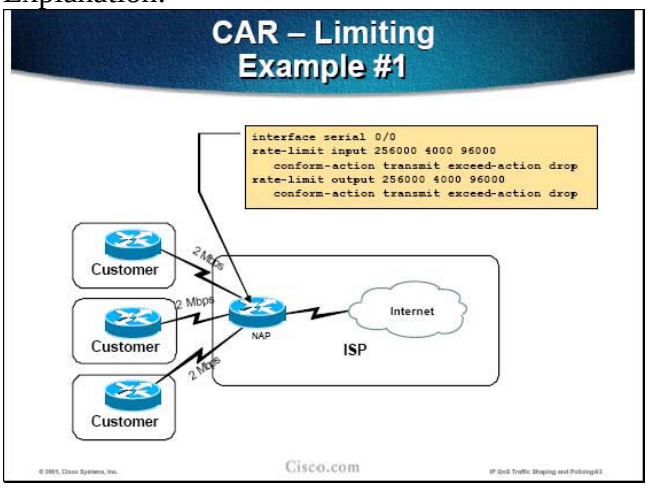
Source:Cisco IP QoS Traffic Shaping and Policing

QUESTION 4
Study the Exhibit below carefully:
Router# show interfaces hssi 0/0/0 rate-limit
Hssi0/0/0 45Mbps to R1
Input
matches: all traffic
params: 20000000 bps, 24000 limit, 24000 extended limit
last packet: 8680ms ago, current burst: 0 bytes
last cleared00:03:59ago, conformed 0 bps, exceed 0 bps
Output
matches: all traffic
params: 20000000 bps, 24000 limit, 24000 extended limit
last packet: 8680ms ago, current burst: 0 bytes
last cleared00:03:59ago, conformed 0 bps, exceed 0 bps
According to the exhibit, the router has been configured with Committed Access Rate (CAR) to rate limit traffic.

What data rate has the traffic been limited to?
A.192 Kbps
B.2400 Kbps
C.4,5 Mbps
D.20 Mbps
E.40 Mbps

Answer: D

Explanation:

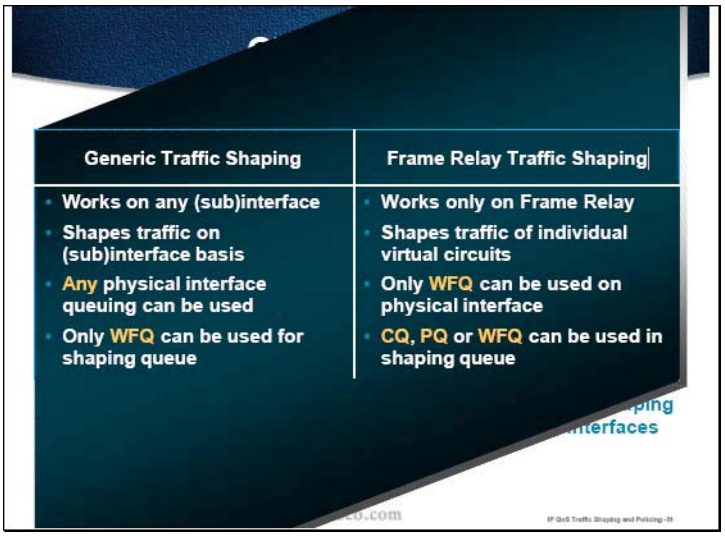


In the configuration example, CAR is applied on the input and output of a customer interface on the provider edge router. Traffic is policed to 256 Kbps on input and output, with some bursting allowed. All exceeding traffic is dropped at the provider edge.
The result of the configuration is that traffic to and from the customer is limited to the average rate of approximately 256kbps (256000 in the configuration) with sustained bursts of approximately 32kbps (4kBps or 4000 in the configuration).
Initial bursts at line speed can last up to 3 seconds because the token bucket can hold up to 96000 tokens (bytes) which equals 768000 bits (3 x 256000 bits).
Source:CiscoIP QoS Traffic Shaping and Policing, Page 4-91

QUESTION 5
The newly appointed Certkiller trainee technician wants to know which type of software queuing mechanism is Frame Relay Traffic Shaping implemented with on the physical interface. What will your reply be?
A.Priority Queuing (PQ)
B.Custom Queuing (CQ)
C.FIFO
D.Weighted Fair Queuing (WFQ)
E.IP Real Time Transport Protocol (RTP) Priority

Answer: D

Explanation:



The figure compares GTS to FRTS, based on their main differences. Generic Traffic Shaping:

Works on any (sub) interface type

Shapes traffic on that (sub)interface basis

Can use any physical interface queuing (FIFO, PQ, CQ or WFQ)

Only uses WFQ as the shaping queue (that is, on the input of the shaper)

In contrast, Frame Relay Traffic Shaping:

Works only on Frame Relay (sub) interfaces

Shapes traffic inside individual FR Virtual Circuits

Only permits WFQ as the physical interface queuing method

Can use any queuing method as the shaping queue (that is, on the input of the shaper)

Source:CiscoIP QoS Traffic Shaping and Policing, Page 4-47

QUESTION 6

Why is it beneficial to make use of Enhanced LMI (ELMI) on Cisco networks?

A.ELMI is responsible for providing virtual provisioning tools at the edge of the Frame Relay network.

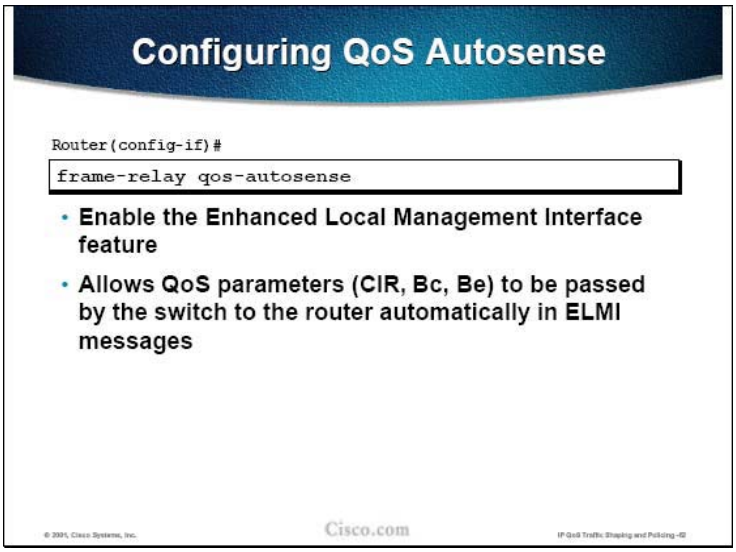
B.ELMI permits routers to dynamically download QoS information from Cisco switches for use in traffic shaping or for congestion management purposes.

C.ELMI provides the router the ability to use additional QoS tools including rate limiting with CAR and the Modular QoS Command Line Interface (MQC).

D.ELMI allows the router to deliver packets at the line rate of the Frame Relay interface, regardless of the condition of the Frame Relay network.

Answer: B

Explanation:



Theframe-relay qos-autosensecommand enables:

ELMI on the router

The router to learn QoS parameters from the switch over the ELMI protocol

Source: Cisco IP QoS Traffic Shaping and Policing, Page 4-58

QUESTION 7

Which of the following statements are true when you compare DSCP and IP Precedence to each other? (Choose all that apply.)

A.DSCP is backwards compatible with IP Precedence.

B.DSCP cannot be easily mapped into QoS because of its expanded classification options.

C.DSCP is more granular the IP Precedence, since more marking combinations are available.

D.DSCP appears stubby when compared IP Precedence, since devices make use of DSCP as defined in RFC exclusively.

E.DSCP is 6 bits long and IP Precedence is 3 bits long.

F.DSCP is more restrictive than IP Precedence, since devices are only allowed to use DSCP as defined in RFCs.

Answer: A, C, E

Explanation:

A)DSCP is backward compatible with IP Precedence (Class Selector Code point, RFC 1812) but not with the ToS byte definition from RFC 791 ("DTR" bits)

Reference: Introduction to IP QoS (Course) p.45

QUESTION 8

Which MQC command would you use to perform marking properly?

A.precedence 5

B.ip precedence 5

C.set ip precedence 5

D.set ip mark precedence 5

E.mark ip precedence 5

Answer: C

Explanation:
IP precedence is encoded into the three high-orderbits of the ToS field in the IP header. It supports eight classes of which two are reserved and should not be used for user-defined classes (IP precedence 6 and 7). IP precedence 0 is the default value and is usually used for the best-effort class. The set ip precedence command marks packets of a class with the specified precedence value.
Reference: Introduction to IP QoS (Course) p.9-104

QUESTION 9
Which of the following statements aptly describes a network well designed for QoS?
A.Packets are classified at each router, based on as many detail as possible, typically using extended IP ACLs to match the packets for classification.
B.Packets are classified at each router, based on socket address only, typically using extended IP ACLs to match the packets for classification.
C.Packets are classified and marked, close to the edge of the network. The packets are treated differently based on this marking at the routers in the middle of the network.
D.Packets are classified based on different parameters, but close to the edge of the network. The packets are automatically characterized based on flow at the routers.
E.Packets are classified based on socket address, at the router closest to the source of the traffic. The packets are automatically characterized based on flow at the routers.

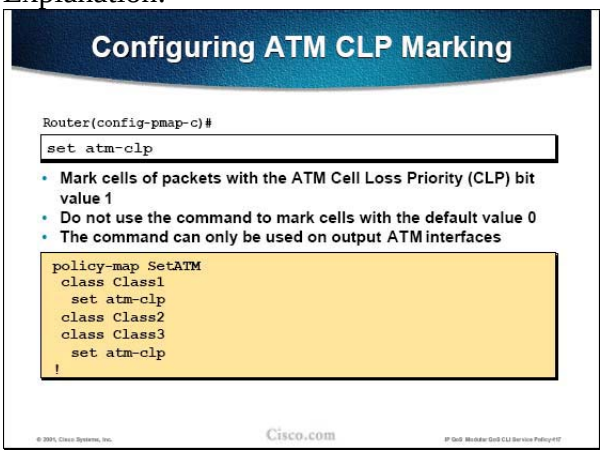
Answer: C

Explanation:
To achieve the same level of quality in both directions the packets going to and coming from the customer network must first be classified and marked.
Classification and marking packets going to the customer network is a more difficult task because:
1)Classifying and marking must be performed on all edge routers.
2)Classifying and marking requires the identification of the customer network. Using PBR, CAR, CB-Policing or CB-Marking does not scale because it involves the use of access lists (this is especially difficult if customer networks are dynamically learned via BGP).
Reference: Introduction to IP QoS (Course) p.2-35

QUESTION 10
The newly appointed Certkiller trainee technician wants to know which bit in the ATM header can be marked by the Class Based Marker to extend IP QoS policy into an ATM network.What will your reply be?
A.DE
A.PTI
B.FECN
C.CLP
D.BECN

Answer: D

Explanation:



The ATM CLP Setting feature somewhat allows users to extend their IP QoS policies into an ATM network by setting the ATM CLP bit in ATM cells based on the IP Precedence value of the packets being sent. As congestion occurs in the ATM network, cells with the CLP bit set are more likely to be dropped, resulting in improved network performance for high priority traffic and applications. Theset atm-clpcommand marks packets of a class with the ATM CLP bit as a part of an input or output policy.
Source:CiscoIP QoS Modular QoS CLI Service Policy, Page 9-110

QUESTION 11
How many possible meaningful values are defined in the DSCP in a Differentiated Services environment?
A.3
B.8
C.16
D.32
E.64
F.128

Answer: E

Explanation:
DSCP supports more classes (64) than IP precedence (8)
Reference: Introduction to IP QoS (Course) p.36

QUESTION 12
Which of the following features will allow the marking of packets according to the Cisco QoS Framework? (Choose all that apply.)
A.MQC
B.CQ
C.PQ
D.CAR
E.WRED

Answer: A, D

Explanation:

The Modular Quality of Service Command Line Interface (MQC) was introduced to allow any supported classification to be used with any QoS mechanism.
Some mechanisms have the capability to mark packets based on classification and/or metering (e.g. CAR, class-based marking, etc.)
Reference: Introduction to IP QoS (Course) p.61

QUESTION 13
Which of the following can be classified as Call Admission Control methods? (Choose all that apply.)
A.GTS
B.Advanced Busyout Monitor
C.RSVP
D.NBAR
E.Max Connections
F.AVBO.

Answer: B, C, E

QUESTION 14
What are the benefits, as listed in the DQOS course, forEnterpriseNetworks when QoS is implemented? (Choose all that apply.)
A.It decreases propagation delay.
B.It provides predictable response times.
C.It prevents the need to increase bandwidth.
D.It supports dedicated bandwidth per application.
E.It maximizes loss during bursty congestion.

Answer: B, D

Explanation:
QoS attemts to solve network traffic performance issues, although QoS is not a cure-all. To improve network performance, QoS features affect a network by manipulation the following network characteristics:
1) Bandwidth
2) Delay
3) Jitter (delay variation)
4) Packet loss
Rerference: Cisco Press - DQOS Exam Certification Guide p.9

QUESTION 15
Which of the following is most likely to occur for voice in the absence of QoS? (Choose all that apply.)
A.choppy speech
B.words out oforderdue to recovery
C.disconnect calls
D.unsynchronized voice patterns
E.softer volume speech

Answer: A, C

Explanation:
The following most likely occurs for voice in absence of QoS:
difficult to know when the other caller has finished talking.
Rerference: Cisco Press - DQOS Exam Certification Guide p.765

QUESTION 16
Auto QoS is which type of Cisco IOS command?
A.interface
B.global
C.policy-map
D.service-map
E.serial interface only

Answer: A

Explanation:
To install the quality-of-service (QoS) class maps and policy maps created by the AutoQoS for theEnterprise feature, use the auto qos command in interface configuration mode. To remove the QoS policies, use the no form of this command.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps5207/products_command_reference_chapter09186a00801a7ede.ht

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QUESTION 17
Which two components are associated with the DiffServ model? (Choose two.)
A.hop-by-hop signaling
B.per-hop behavior
C.RSVP
D.Hard QoS
E.DSCP use of class selector

Answer: B, E

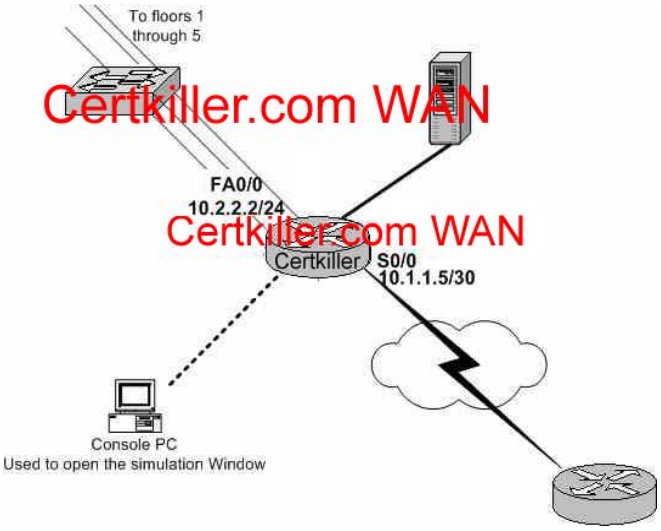
Explanation:
The Differentiated Services (DiffServ) model describes services associated with traffic classes. Traffic classes are identified by the value of the DiffServ Code Point (DSCP replaces IP precedence in the ToS field of the IP header).
The main goal of the DiffServ model are to provide scalability and a similar level of QoS to the Int Serv model, without having to do it on a per-flow basis. The network simply identifies a class (not application) and applies the appropriate per-hop behavior (QoS mechanism)
Reference: Introduction to IP QoS (Course) p.34
Not A:DiffServ does not have signaling

QUESTION 18
What is true about a DSCP marked packet when it reaches an IP precedence based device?

A.The eight DSCP bits are all set to zero.
B.The last three bits of the DSCP are set to 101.
C.The 8 DSCP AF classes will be mapped into the 8 levels of IP precedence.
D.Bits 7-5 of DSCP have the same position and meaning as IP precedence.

Answer: D
Reference: Cisco Press - DQOS Exam Certification Guide p.120

QUESTION 19
Simulation Exhibit:



You are working as a network administrator at Certkiller .com. You are required to configure the Certkiller 1 WAN edge router: you must configure the appropriate MQC based queuing mechanism for the outbound traffic to the WAN (S0/0) so that the following bandwidth requirements will be met. A strict priority queue with a 168 Kbps bandwidth guarantee for the class voice is reserved, a minimum bandwidth guarantee of 30 Kbps is configured for the class interactive, a minimum bandwidth guarantee of 16 Kbps for class bulk, and the default class is configured for WFQ with no bandwidth guarantee.
In addition, also limit the bulk traffic class to an average rate of 24 Kbps by buffering excess traffic (use the IOS default Bc and Be).
In addition, also limit the bulk traffic class to an average rate of 24 Kbps by buffering excess traffic (use the IOS default Bc and Be).
* Use a policy-map called "IIq-policy" and reference the existing class-maps already configured on the Certkiller 1 router.
Traffic Class NameBandwidth Guarantee
voice168 Kbps maximum (use the IOS default burst value)
interactive30 Kbps minimum
bulk16 Kbps minimum (For the bulk traffic class, also limit the traffic to an average rate of 24 Kbps by buffering excess traffic (use the IOS default Bc and Be))
class-defaultWeighted Fair Queue with no bandwidth guarantee
Simulation Output exhibit #1:

```
Certkiller1#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, * - candidate default
       U - per-user static route, o - ODR

Gateway of last resort is not set

    10.0.0.0/24   is subnetted, 1 subnets
C       10.2.2.0  is directly connected, FastEthernet0/0
Certkiller1#
Certkiller1#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/0        10.2.2.2        YES manual   up                  up

FastEthernet0/1        unassigned      YES NVRAM    administratively down down

Serial0/0              10.1.1.5        YES manual   up                  up

Certkiller1#
```


Simulation Output exhibit #2:

```
Certkiller1#show runn
Building configuration...
Current configuration:
!
version 12.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
!
!
logging queue-limit 100
!
ip subnet-zero
!
ip cef
!
!
!
class-map match-any voice
 match ip dscp ef cs3 af31
class-map match-any bulk
 match protocol ftp
 match ip dscp af11
class-map match-any interactive
 match protocol citrix
 match ip dscp af21
!
!
!
!
```



```
interface FastEthernet0/1
 ip address 10.2.2.2 255.255.255.0
 speed auto
 duplex auto
!
interface FastEthernet0/1
 no ip address
 speed auto
 duplex auto
shutdown
interface Serial0/0
 bandwidth 384
 ip address 10.1.1.5 255.255.255.252
 encapsulation ppp
!
!
ip http server
ip classless
!
!
!
!
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
!
!
!
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
 transport input none
line aux 0
line vty 0 4
 session-timeout 60
 password cisco
 login
!
end
Certkiller1#_
```

Answer:
Certkiller 1(config)#policy-map llq-policy
Certkiller 1(config-pmap)#class voice
Certkiller 1(config-pmap-c)#priority 168
Certkiller 1(config-pmap-c)#class interactive
Certkiller 1(config-pmap-c)#bandwidth 30
Certkiller 1(config-pmap-c)#class bulk
Certkiller 1(config-pmap-c)#bandwidth 16
Certkiller 1(config-pmap-c)#shape average 2400
Certkiller 1(config-pmap-c)#class class-default
Certkiller 1(config-pmap-c)#fair-queue
Certkiller 1(config-pmap-c)#interface serial 0/0
Certkiller 1(config-if)#service-policy output llq-policy
Certkiller 1(config-if)#end
Certkiller 1#copy running-config startup-config

Explanation:
policy-map llq-policy (Not: iiq-policy)
shape average 24000 (not shape peak 24(shape in bps not kbps) and shape to average not peak)
Note:Uncertainty:
Actual exam problems:
1. Unable to use the command: fair-queue
Note: There is no need to use the ip nbar protocol-discovery command as the question doesn't state to configure NBAR.

QUESTION 20
Command exhibit: mis qos trust pass-through dscp
Your apprentice Jack King is configuring a Catalyst 2950 Switch. What is the purpose of the command she is submitting (see exhibit)?
A.The command configures a port to trust the incomingCoSand not modify the incoming DSCP when sending the frame out.
B.The command configures a port to trust the incomingCoSand to generate the internal DSCP based on the incomingCoS. The internalr DSCP will then determine the gress DSCP.
C.The command configures a port to trust the incomingCoSand DSCP values.
D.The command configures a port to trust the incomingCoSand to generate the internal DSCP based on the incoming DSCP. The internal DSCP will then determine the egress DSCP.
E.The command configures a port to trust the incomingCoSand bypass theCoS-to-DSCPmaps for generating the internal DSCP.
F.The command configures a port to trust the incomingCoSand bypass the DSCP-to-CoS maps for generating the egress CoS.

Answer: A

Explanation:
When the switch is in pass-through mode, it uses theCoSvalue of incoming packets without modifying the

DSCP value and sends the packets from one of the four egress queues. By default, pass-through mode is disabled. The switch assigns aCoSvalue of 0 to all incoming packets without modifying the packets. The switch offers best-effort service to each packet regardless of the packet contents or size an dends it from a single egress queue.
To disable pass-through mode, use the no mls qos trust pass-ghrough dscp interface configuration command.
Reference:
http://www.cisco.com/en/US/products/hw/switches/ps5213/products_configuration_guide_chapter09186a00802c3

QUESTION 21
Which of the following tasks are necessary when configuring Service Assurance Agent (SAA agent)? (Choose all that apply.)
A.You must schedule the operation
B.You must configure the data collection frequency
C.You must configure the operation type
D.You must configure a collection probe on the router
E.You must configure timer parameters for the SAA agent

Answer: A, C

Explanation:
To configure a new SAA operation, perform the following steps, beginning in in global configuration mode:
Step 1Enter RTR configuration mode using the rtrop-numbercommand. Theop-numberargument specifies an identification number for the operation you will be configuring.
Step 2Use one of thetypecommands to specify which type of operation you are configuring.
Step 3(Optional) Configure characteristics for the operation, one characteristic per line, using the commands found in"Configuring SAA Operation Characteristics" section.
Step 4Typeexitto return to global configuration mode.
Step 5(Optional) Set reaction conditions for the operation, as explained in the"Reaction Thresholds" section.
Step 6Schedule the operation start-time, as explained in the"Scheduling the Operation" section.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_configuration_guide_chapter09186a00800ca6

QUESTION 22
The SSA agent is used to measure which of the followingSLAmetrics? (Choose all that apply.)
A.jitter
B.interface utilization
C.packet loss
D.response time
E.client response
F.router buffer allocation

Answer: A, C, D

Explanation:
The SAA allows you to measure and monitor the following:
SLAmetrics such as round-trip response time and availability.
Voice-over-IP (VoIP) metrics such as jitter, packet loss, and availability of synthetic VoIP traffic.
Web metrics and applications.
Quality of Service (QoS) and accuracy metrics such as IP packet precedence levels.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1830/products_feature_guide09186a0080087a78.html

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QUESTION 23
Which of the following is part of SMS? (Choose all that apply.)
A.QDM
B.CiscoWorks2000 Resource Manager Essentials
C.RSVP COPS Server
D.Service Level Manager
E.CiscoViewCiscoWorks 2000 Management Server
F.All of the above

Answer: B, D, E

Explanation:
SMS includes two main components. First, the Service Level Manager (SLM) is software that runs on the same host as CiscoWorks2000. SLM provides information to the end user of SMS, and generates the configuration of the probes based on end-user input. SMS collection Managers (CMs) are software agents that run on computers spread around the network for scaling purposes, or a CM can reside on the SLM server for small installations.
Reference: Cisco Press - DQOS Exam Certification Guide p.667

QUESTION 24
You are using IP to ATM CoS. Which action can be configured to be automatically taken should a VC in a VC bundle fail?
A.The VC can be remapped to a different bundle.
B.The VC can be declared down and an alternate route requested.
C.The circuit data can be transferred or "bumped" to a lower priority VC.
D.The circuit data can be divided equally between the remaining VCs in the bundle.

Answer: C

Explanation:
In the event of failure, the router responds with one of two methods. The first method dynamically assigns the traffic bound on the failed VC to an alternative VC, which is termedcircuit bumping. Bumped traffic is then shared on an existing in-service VC. Traffic typically would be bumped from a higher class to a lower one, although it does not have to be. For example, should the premium, or first class, data circuit become unavailable, then all premium users would share the second class or general circuit. Preference would then be given to the premium traffic within this shared circuit.
Reference:

http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_configuration_guide_chapter09186a00800ca6c4.ht

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QUESTION 25
How is IP to ATM CoS supported in a single VC?
A.The IP Precedence bits are mapped into the unused upper bits of the VPI field.
They are treated accordingly as they are switched through the ATM network.
B.The router at the edge of the ATM network sets the ATM CLP based on the IP Precedence bits.
Lower priority packets are transported in lower priority cells.
They are treated accordingly as they are switched through the ATM network.
C.WRED/DWRED is used in the routers at the edge of the ATM network.
Based on the IP Precedence bits, IP traffic is subjected to different drop probabilities (and therefore priorities) as IP traffic coming into a router competes for bandwidth on the ATM VC.
D.PQ-WFQ is used in the routers at the edge of the ATM network.
Based on the IP Precedence bits, IP traffic is then properly queued and de-queued as IP traffic competes for bandwidth on the ATM VC.

Answer: C

Explanation:
Enhanced ATM port adapters (PA-A3) provide the ability to shape traffic on each VC according to the ATM service category and traffic parameters employed. When you use the IP to ATM CoS feature, congestion is managed entirely at the IP layer by WRED running on the routers at the edge of the ATM network.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_configuration_guide_chapter09186a00800ca6c4.ht

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QUESTION 26
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know which LFI mechanism has an option for fragmentation by the Frame Relay DTE, with the switch reassembling the fragments. What will your reply be?
A.FRF .3
B.FRF .9
C.FRF .11 Annex C
D.FRF.12
E.FRF.6

Answer: D

Explanation:
There are three LFI mechanisms implemented in Cisco IOS:
1)Multilink PPP with Interleaving is by far the most common and widely used form of LFI.
2)FRF.12 Frame Relay LFI is used with Frame Relay data connections.
3)In an ATM network, using separate PVC carrying voice and data can be used to interleave packets when they are output on an interface.
Reference: Introduction to IP QoS (course) p.6-47

QUESTION 27
Which of the following statements are valid when considering the need for link efficiency tools such as fragmentation and compression? (Choose all that apply.)
A.Fragmentation allows voice CAC mechanism to increase call volume.
B.While adding bandwidth to counter congestion, reducing load on a link by compression increases available bandwidth.
C.Variable sized packets create extra processing overhead for most IOS queuing mechanism, but fragmentation creates uniformity, thus decreasing queuing delay.
D.Based on link speed, some single packets are large enough that their serialization delay causes intolerable delay for voice or video.
E.All of the above.

Answer: B, D

QUESTION 28
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know in which configuration mode the following MQC command can be used. What will your reply be?
match ip dscp af41?
A.interface configuration mode
B.service policy configuration mode
C.class map configuration mode
D.policy map configuration mode
E.none of the above

Answer: C

Explanation:
Router(config-cmap)#match ip dscpdscp [dcscp ...]
1)Select up to eight DSCP values or names
2)All packets marked with one of the selected DSCP values are matched by this class map.
Reference: Introduction to IP QoS (course) p.8-21

QUESTION 29
What is a key benefit of using the Cisco Modular QoS Command Line Interface (MQC)?
A.Provides performance metrics for QoS configurations.
B.Eliminates the need for map classes to perform traffic classification.
C.Allows users to specify traffic classes independently from QoS polices.
D.Allows QoS policy information to be automatically distributed throughout the network.
E.Provides an integrated testing mechanism for traffic classification and QoS policy configurations.

Answer: C

Explanation:
Modular Quality of Service (QoS) Command-Line Interface (CLI) is a feature that allows users to specify a traffic class independently of QoS policies.

Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800bd9

QUESTION 30
What is the effect of enabling Weighted Fair Queuing (WFQ) on low-speed router interface?
A.Delay is guaranteed for high-priority traffic types.
B.Bandwidth is guaranteed for different traffic queues.
C.Fixed-size queues are pre-allocated for different traffic flows.
D.Low-bandwidth traffic receives priority over high-bandwidth traffic.

Answer: D

Explanation:
WFQ queuing algorithm should fairly share the bandwidth among flows by:
-reducing response time for interactive flows by scheduling them to the front of the queue
- preventing high volume conversations from monopolizing an interface
Imlementation: Messages are sorted into conversations (flows) and transmitted by theorderof the last bit crossing its channel
Unfairness is reinstated by introducing "weight" (IP precedence) to give proportionately more bandwidth to flows with higher weight.
Reference: Introduction to IP QoS p.3-55

QUESTION 31
What is the function of Modular QoS Command Line Interface (MQC) classification?
A.to identify traffic independently of QoS polices
B.to mark traffic based on the Class Latency index (CLI)
C.to route traffic based on the multiple QoS policies
D.to group QoS configuration commands into modules to ease configuration
E.To aggregate traffic onto one QoS classification for operational efficiency (CPU and Memory)

Answer: A

Explanation:
Modular Quality of Service (QoS) Command-Line Interface (CLI) is a feature that allows users to specify a traffic class independently of QoS policies.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800bd9

QUESTION 32
On a Cisco switch, CDP v2 must be enabled for which AutoQoS configuration to function properly?
A.WTT queuing
B.trust boundary
C.fr-atm
D.ciscosoflphone

Answer: B

QUESTION 33
What three actions can reduce packet sizes on WAN links supporting converged VoIP and data? (Choose three)
A.Configure LFI to an average packet size for all traffic on the WAN link
B.Configure compressed RTP headers
C.Configure software payload compression
D.Configure hardware payload compression
E.Configure LFI to the same size as the voice packets.

Answer: B, C, E

QUESTION 34
What will happen when class-based header compression is configured without specifying RTP or TCP?
A.Only TCP headers will be compressed
B.Only RTP headers will be compressed
C.The unrecognized command warning is returned.
D.RTP and TCP headers will be compressed

Answer: D
CiscoPress QOS Study Guide page 474

QUESTION 35
What are the benefits, as listed in the DQOS course, forEnterpriseNetworks when QoS is implemented? (Choose all that apply.)
A.It sets traffic priorities across the network.
B.It allows better LAN performance through Per QOS Spanning Tree (PQST).
C.It minimizes loss during bursty congestion.
D.It allows for the disconnection of calls.
E.It reduces the amount of data sent through the network using Content Distribution Networking (CDN).

Answer: A, C

Explanation:
QoS attempts to solve network traffic performance issues, although QoS is not a cure-all. To improve network performance, QoS features affect a network by manipulating the following network characteristics:
1)Bandwidth
2)Delay
3)Jitter (delay variation)
4)Packet loss
By the means of priorities QoS minimizes delay of packets.
Reference: Cisco Press - DQOS Exam certification Guide p.8

QUESTION 36
In which way does the Integrated Services model differ from the Differentiated Services model?
A.Integrated Services is more scalable than Differentiated Services.
B.Integrated Services provides traffic preferences, but no guaranteed delivery.
C.Integrated Services uses RSVP to signal the requested level of service, whereas Differentiated Services does not use any signaling.
D.Integrated Services does not make use of any signals whereas Differentiated Services uses signals to request level of services.
E.Integrated Services uses IP Precedence whereas Differentiated Services uses the DSCP.

Answer: C

Explanation:
Integrated Services model is introduced to supplement the best-effort delivery by setting aside some bandwidth for applications that require bandwidth and delay guarantees. The Integrated Services model expects applications to signal their requirements to the network. Resource Reservation Protocol (RSVP) is used to signal QoS requirements to the network.
Differentiated Services model is added to provide more scalability in providing QoS to IP packets. The main difference is that the network recognizes packets (no signalin is needed) and provides the appropriate services to them.
Reference: Introduction to IP QoS p.18

QUESTION 37
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know what are the best practices when designing a network for QoS. What will your reply be? (Choose all that apply.)
A.To color close to the application
B.To perform marking at WAN edge routers prior to packets exiting a WAN port.
C.To create a trust boundary as close as possible to the network edge.
D.To reclassify QoS settings near to the edge when devices seem dodgy and untrustworthy.
E.All of the above.

Answer: A, C, D

QUESTION 38
A CE to PE Frame Relay link is supporting VoIP and data traffic. When managed CE services are being used, which QoS mechanisms should typically be configured? (Choose four)

A. Frame Relay Traffic Shping (FRTS) on both the CE and PE
B. FRF 12 on both the CE and PE
C. WRED for all traffic classes on both the CE and PW
D. LLW on the CE and PE
E. class-based policing on the CE ingress for traffic to the customer
F. class-based policing ono the PC ingress for traffic to the customer

Answer: A, B, E, F

QUESTION 39
How does CB-Shaping adapt the shaping rate when BECNs are received?
A.The shape-adaptive min-rate command adapts the shaping rate when FECN bits are received
B.Each BECN bit causes the shaping rate to be reduced by three-quarters of the previous rate, but not below the min-rate
C.When FECN bits are received, it causes the transmit shaping rate to be reduced by one-half, but not below the min-rate
D.The shaping rate will increase slowly once there have been 16 intervals of no FECNs.

Answer: B
Page 338, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 40
Which term describes the amount of time it takes to place all of the bits in a packet onto a wire?

A. queuing delay
B. processing delay
C. propagation delay
D. serializationdelay
E. prioritization delay
F. optimization delay

Answer: D
Page 15, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 41
How is AutoQoS related to MQC?

A. AutoQoS implements classes and policies defined earlier in MQC
B. duplicates policies defined in MQC from one device to another
C. generates MQC classes and policy map templates
D. runs an interactive script to guide the administrator through MQC

Answer: C
Page 2, Cisco AutoQoS White Paper,
http//www.cisco.com/en/US/tech/ CK5 43/ CK7 59/technologies_white_paper09186a00801348bc.shtml

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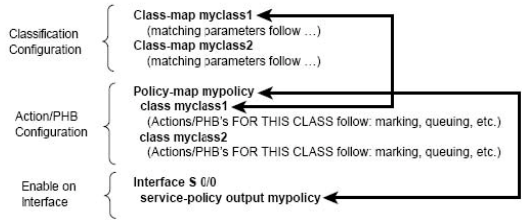
QUESTION 42
The newly appointed Certkiller trainee technician wants to know what steps are used to implement QoS using Modular QoS Command Line Interface (MQC).What will your reply be?(Choose all that apply.)
A.Select an output queuing strategy using a queue map.
B.Attach the QoS traffic policy to an interface in the inbound or outbound direction.
C.Configure marking options using a route map.

D.Configure classification options using a class map.
E.Configure a QoS traffic policy by associating a QoS traffic class with a QoS feature.

Answer: B, D, E

Explanation:
Figure 3-9 *MQC Commands and Their Correlation*



Implementing QoS by using the MQC consists of three steps:
Step 1Configuring classification by using theclass-mapcommand
Step 2Configuring traffic policy by associating the traffic class with one or more QOS features using the policy-mapcommand
Step 3Attaching the traffic policy to inbound or outbound traffic on interfaces,
Sources:Cisco DQOS Exam Certification Guide, Pages 176, 177
CiscoIP QoS-Modular QoS CLI Classification, Page 8-5

QUESTION 43
What happens to traffic that does not have a match when using a Modular QoS Command Line Interface (MQC)?
A.It is ignored by the MQC
B.It is dropped (implicit deny all)
C.It is placed in the default class
D.It is process switched through the router

Answer: C

Explanation:
Modular Quality of Service Command-Line Interface (MQC)
The MQC is a command-line interface (CLI) structure that allows you to create traffic policies and attach these policies to interfaces.
In the MQC, theclass-mapcommand is used to define a traffic class (which is then associated with a traffic policy). The purpose of a
traffic class is to classify traffic.
The Modular quality of service (QoS) CLI structure consists of the following three processes:
*Defining a traffic class with theclass-mapcommand.
*Creating a traffic policy by associating the traffic class with one or more QoS features (using thepolicy-map command).
*Attaching the traffic policy to the interface with theservice-policycommand.
A traffic class contains three major elements: a name, a series ofmatchcommands, and, if more than onematchcommand exists in the
traffic class, an instruction on how to evaluate thesematchcommands. The traffic class is named in theclass-map

is, if you enter theclass-map ciscocommand while configuring the traffic class in the CLI, the traffic class would be named "cisco".
Thematchcommands are used to specify various criteria for classifying packets. Packets are checked to determine whether they match
the criteria specified in thematchcommands. If a packet matches the specified criteria, that packet is considered a member of the class
and is forwarded according to the QoS specifications set in the traffic policy. Packets that fail to meet any of the matching criteria are
classified as members of the default traffic class.
Source:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1839/products_feature_guide09186a0080110bcd.html

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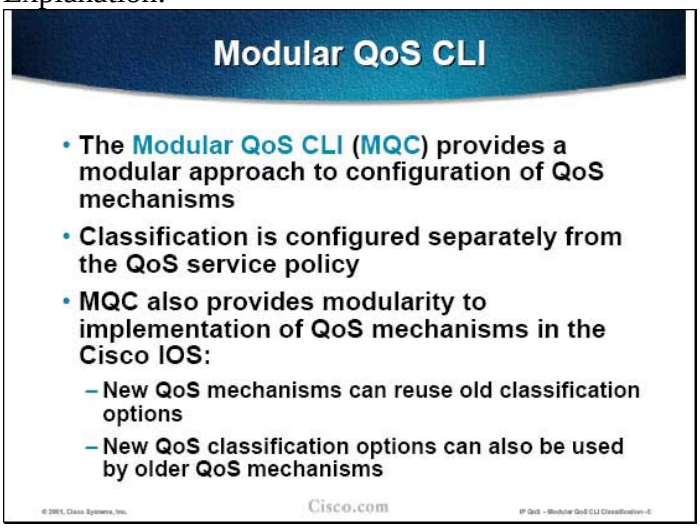
QUESTION 44
What functions do policies fulfill in the Modular QoS Command Line Interface (MQC)?
A.It is used to bind policies to the interfaces.
B.It is used to define the policies for classifying data.
C.It is used to bind traffic classifications to QoS policies.
D.It is used to apply end-to-end policies in network devices.

Answer: C

Explanation:



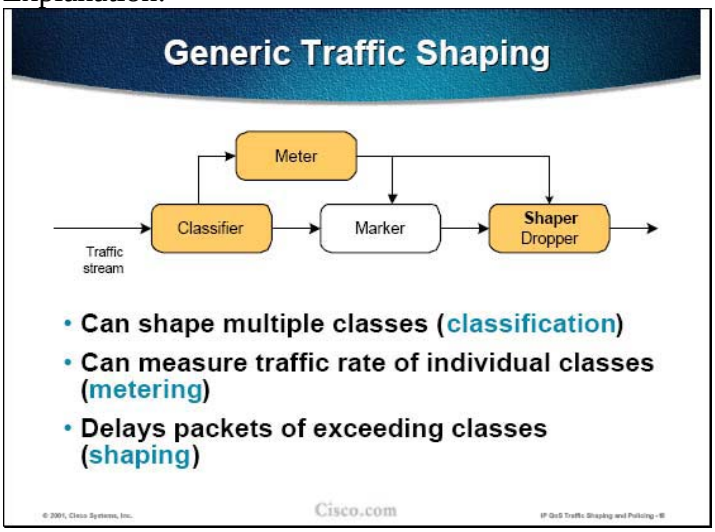
The Quality of Service mechanisms that have been added to the Cisco IOS all had
their own set of classification options. For example:
- Access lists
- QoS group
- DSCP
- Rate limit access list
- Access lists
- Packets size
- Fragment
- TCP or UDP port number

The Modular Quality of Service Command Line Interface (MQC) was introduced to allow any supported classification to be used with any QoS mechanism.
The separation of classification from the QoS mechanism allows new IOS versions to introduce new QoS mechanisms and reuse all available classification options. On the other hand, old QoS mechanisms can benefit from new classification options.
Another important benefit of the MQC is the reusability of configuration. MQC allows the same QoS policy to be applied to multiple interfaces. CAR, for example, required entire configurations to be copy-pasted between interfaces and modifying configurations was tiresome.
The Modular QoS CLI, therefore, is a consolidation of all the QoS mechanisms that have so far only been available as standalone mechanisms.
This module focuses on the classification element of the Modular QoS CLI.
Source:CiscoIP QoS-Modular QoS CLI Classification, Pages 8-3, 8-4

QUESTION 45
How is congestion managed through the use of Generic Traffic Shaping (GTS)?
A.Strict priority is maintained for classified traffic and is policed through packet discard.
B.Random Early Detection is used to selectively drop packets and avoid congestion.
C.Outbound traffic is constrained to a particular bit rate using a token bucket mechanism.
D.Call Admission Control is performed on classified traffic to ensure allocated bandwidth is not exceeded.
E.Using multiple traffic queues that are services in a round robin fashion promotes fairness and reduces congestion.

Answer: C

Explanation:



Generic Traffic Shaping (GTS) shapes traffic by reducing the outbound traffic flow to avoid congestion. This is achieved by constraining traffic to a particular bit rate using the token bucket mechanism. GTS is applied on a per-interface basis and can use access lists to select the traffic to shape. It works with a variety of Layer-2 technologies, including Frame Relay, ATM, Switched Multi-megabit Data Service (SMDS) and Ethernet.
As shown in the block diagram, GTS performs three basic functions:

nClassification of traffic, so that different traffic classes can have different policies applied to them
nMetering, using a token-bucket mechanism, to distinguish between conforming and exceeding traffic
nShaping, using buffering, to delay exceeding traffic and shape it to the configured rate limit
Source:Cisco IP QoS Traffic Shaping and Policing, Page 4-15

QUESTION 46
Exhibit:
interface Hssi0/0/0
description 45Mbps to R2
rate-limit output access-group 101 20000000 24000 32000
conform-action set-prec-transmit 5
exceed-action set-prec-transmit 0
rate-limit output access-group 102 10000000 24000 32000
conform-action set-prec-transmit 5
exceed-action drop
rate-limit output 8000000 16000 24000
conform-action set-prec-transmit 5 exceed-action drop
ip address 10.1.0.9 255.255.255.0
!
access-list 101 permit tcp any any eq www
access-list 102 permit tcp any any eq ftp
What happens to WWW traffic sent out to the HSSI interface?
A.WWW traffic rate limited to 80 MB.
Traffic exceeding the rate policy is dropped.
B.WWW traffic is limited to 10 MB.
Conforming traffic is sent as IP Precedence 5.
Traffic exceeding the rate policy is dropped.
C.WWW traffic is limited to 20 MB.
Conforming traffic is sent as IP Precedence 5.
Traffic exceeding the rate policy is sent with best effort priority,
D.WWW traffic is limited to 20 MB.
Conforming traffic is marked as IP Precedence 5 and the next rare limit statement is executed.
Traffic exceeding the rate policy is sent with best effort priority.

Answer: C

QUESTION 47
When configuring Frame Relay Traffic Shaping (FRTS) on Cisco routers, how are traffic rates and shaping parameters defined?
A.FRTS parameters are configured using a policy map.
B.A Frame Relay map class is used to define these parameters.
C.These parameters are configured on the Frame Relay interface.
D.All FRTS parameters should be configured using the Modular QoS Command Line Interface (MQC).

E.The traffic rate is defined on the interface and the remaining QoS parameters are defined using either a QoS Group or a policy map.

Answer: B

Explanation:
Enabling FRTS on an interface enables both traffic shaping and per-VC queuing on all the interface's PVCs and SVCs. Traffic shaping enables the router to control the circuit's output rate and, if configured, to react to conjection notification information. Queuing enables per-VC scheduling of traffic to be shaped.
Configuring FRTS involves:
1)Defining the shaping parameters with the map-class command
2)Enabling FRTS on the physical interface
3)Applying the shaping parameters to all, or selected, VCs on that interface.
Reference: Introduction to IP QoS (course) p.4-48

QUESTION 48
router(config-pcmap-c)#random-detect dscp-based
router(config-pcmap-c)#random-detect dscp af31 10 20 30
Given the router config, which two are true?

A. when the average queue size reaches 30 packets in depth, 1 out of 10 packets will be dropped
B. when the average queue size > 30, all packets will be tail-dropped
C. WRED will not drop any packets until the average queue length reaches 10
D. when the average queue size reached the max threshold, one out of every 30 packets will be dropped
E. All DSCP AF3x classes will use this profile unless otherwise specified

Answer: C, D
Page 443, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 49
Command exhibit: mis qos trust pass-through dscp
Your apprentice Jack King is configuring a Catalyst 2950 Switch. What is the purpose of the command she is submitting (see exhibit)?
A.The command configures a port to trust the incomingCoSand not modify the incoming DSCP when sending the frame out.
B.The command configures a port to trust the incomingCoSand to generate the internal DSCP based on the incomingCoS. The internalr DSCP will then determine the gress DSCP.
C.The command configures a port to trust the incomingCoSand DSCP values.
D.The command configures a port to trust the incomingCoSand to generate the internal DSCP based on the incoming DSCP. The internal DSCP will then determine the egress DSCP.
E.The command configures a port to trust the incomingCoSand bypass theCoS-to-DSCPmaps for generating the internal DSCP.
F.The command configures a port to trust the incomingCoSand bypass the DSCP-to-CoS maps for generating the egress CoS.

Answer: A

Explanation:
When the switch is in pass-through mode, it uses theCoSvalue of incoming packets without modifying the DSCP value and sends the packets from one of the four egress queues. By default, pass-through mode is disabled. The switch assigns aCoSvalue of 0 to all incoming packets without modifying the packets. The switch offers best-effort service to each packet regardless of the packet contents or size an dends it from a single egress queue.
To disable pass-through mode, use the no mls qos trust pass-ghrough dscp interface configuration command.
Reference:
http://www.cisco.com/en/US/products/hw/switches/ps5213/products_configuration_guide_chapter09186a00802c3

QUESTION 50
What are three benefits of using MQC for QoS configuration?
A.It allows the same QoS policy to be applied to multiple interfaces.
B.It provides support for up to 64 different class maps.
C.It allows any supported classification mechanism to be used with any QoS mechanism.
D.It allow for extensive marking capabilities to be applied to any service policy.
E.Classification is configured independently from the service policy.

Answer: A, C, E
Explanation
The Modular Quality of Service Command Line Interface (MQC) was introduced to allow any supported classification to be used with any QoS mechanism.
The separation of classification from the QoS mechanism allows new IOS versions to introduce new QoS mechanisms and reuse all available classification options. On the other hand, old QoS mechanisms can benefit from new classification options.
Another important benefit of the MQC is the reusability of configuration. MQC allows the same QoS policy to be applied to multiple interfaces.
Reference : Introduction to IP QoS p.8-3

QUESTION 51
Which 3 options may be used on Cisco Catalyst switches for classifying IP Packets? (Choose 3)
A.802.1Q
B.ISL CoS
C.Priority

Answer: A, B, C

QUESTION 52
Which three QoS markers can be set using class-based marking? (Choose three.)
A.discard-threshold
B.qos-group
C.mpls exp bits
D.cos

E.becn
F.fecn

Answer: B, C, D

Explanation:
Class-based Marking supports following markers:
1)IP precedence
2)DSCP
3)QoS group
4)MPLS expertimental bits
5)ATM CLP bit
6)FrameRelayDEbit
7)802.1Q/ISL cos/priority
Reference: IP QoS Introduction p.64

QUESTION 53
Based on Cisco's best practice recommendation, where should classification and marking be applied in a network?
A.in the core
B.at the access layer
C.at the distribution layer
D.as close to the source as possible
E.as close to the desalination as possible

Answer: D

Explanation:
Good QoS design calls for the marking of packets close to the source of the packet.
Reference: DQOS Exam Certification Guide p.849

QUESTION 54
You work as a network administrator at Certkiller .com. You are required to implement prioritizing, protection, and isolation of traffic based on marking.
Which mechanism should you deploy?
A.classification and marking
B.congestion management
C.congestion avoidance
D.metering
E.policing
F.shaping

Answer: B

Explanation:

Congestion management is needed here. It deals with prioritization, protection and isolation of traffic.
All this mechanisms are used for congestion avoidance.

QUESTION 55
When RED is used as a dropping mechanism to avoid a full queue, which problem is exhibited if the minimum threshold and the maximum threshold are too close in size?
A.Queues fill and tail-drop drops packets.
B.The mark probability denominator is set to zero.
C.The default average queue size is rest to 512 packets.
D.TCP global synchronization can occur.

Answer: D

Explanation:
When congestion occurs, dropping affect most of the TCP sessions, which simultaneously back-off and then restart again. This causes inefficient link utilization at the congestion point (TCP global synchronization).
Reference: Introduction to IP QoS p.5-4

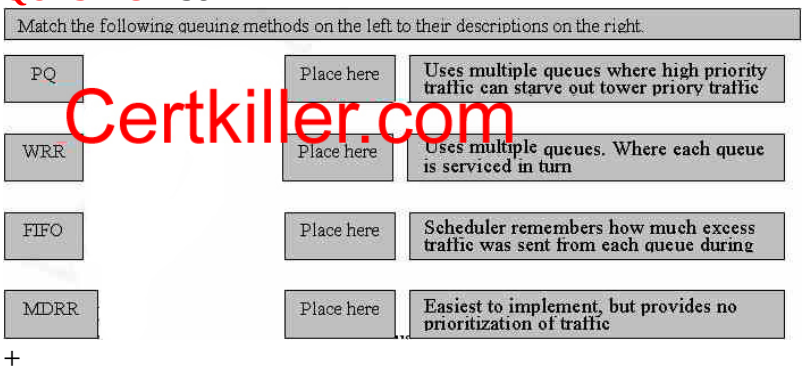
QUESTION 56
Which Cisco IOS feature must be enabled before configuring class-based marking?
A.FEC
B.netflow
C.CEF
D.QBBP
E.Tcp small-server
F.ip classless

Answer: C

QUESTION 57
When queue on the Catalyst 2950 can be configured as the expedite queue?
A.queue 1
B.queue 2
C.queue 3
D.queue 4

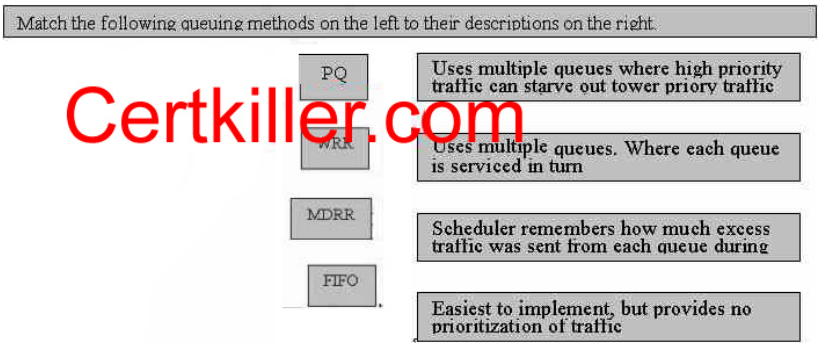
Answer: D

QUESTION 58



+

Answer:



QUESTION 59

Which three prerequisites must be met before using AutoQoS? (Choose three.)

A.Cisco Express forwarding (CEF) must be enabled at the interface or ATM PVC.

B.Preconfigured policy maps must exist for AutoQoS to operate correctly.

C.AutoQoS cannot be configured if a service policy is attached to an interface.

D.The no ip address command is required for all interfaces or subinterfaces with link speeds less than 768 kbps.

E.On all interfaces or subinterfaces, the correct bandwidth should be configured with the bandwidth command.

Answer: A, C, E

QUESTION 60

What are the three primary challenges when dealing with a converged network that QoS can help solve? (Choose three.)

A.delay

B.packet loss

C.server congestion

D.lack of bandwidth

E.port overutilization

Answer: A, B, D

Explanation:

QoS can solve following issues:

1)Lack of bandwidth - multiple flows are contesting for a limited amount of bandwidth
2)Too much delay - packets have to traverse many network devices and links that add up to the overall delay
3)Variable delay - sometimes there is a lot of other traffic which results in more delay
4)Drops - packets have to be dropped when a link is congested

---

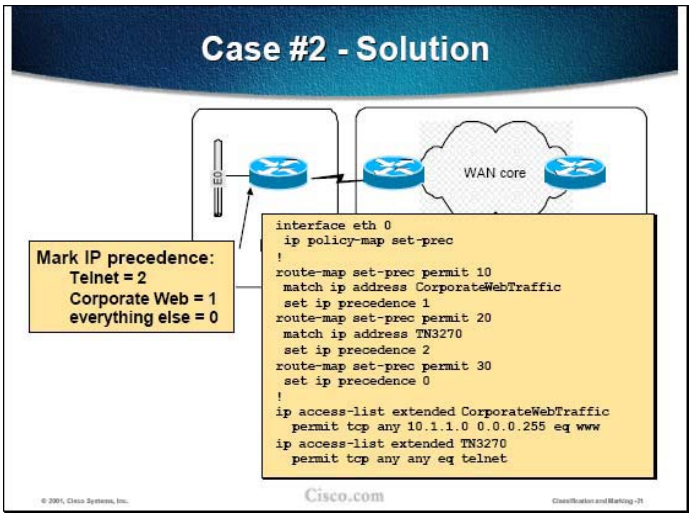
QUESTION 61
Based on the configuration, which two statements are true? (Choose two.)
A.The interactive traffic class will have a minimum bandwidth guarantee of 256 kbps.
B.The interactive traffic class will have a maximum bandwidth guarantee of 256 kbps.
C.If the interactive traffic class exceeds an average rate of 256 kbps. The traffic rate will be throttled down to 128 kbps.
D.This configuration allows class-based traffic shaping to lower the traffic rate in response to the BECN bit.
E.The interactive traffic class will have a min-rate (min-cir) of 128 kbps.

Answer: C, E
Saknar exhibit, se bild 2, excel föreslår D, E

QUESTION 62
Given the router configuration:
interface Ethernet 0
ip address 10.1.1.1 255.255.255.0
ip policy-map set-prec
!
route-map set-prec permit 10
match ip address 101
set ip precedence 1
!
route-map set-prec permit 20
set ip precedence 0
!
access-list 101 permit tcp any any eq telnet
!
According the configuration illustrated above which of the following statements is valid?
A.All telnet packets from the Ethernet 0 interface are marked with IP precedence 0.
B.All packets sourced locally by the router that goes out on the Ethernet 0 interface are marked with IP precedence 1.
C.All non-telnet traffic from the Ethernet 0 interface is marked with IP precedence 0.
D.All telnet packets sourced locally by the router that goes out on the Ethernet 0 interface are marked with IP precedence 1.

Answer: C

Explanation:

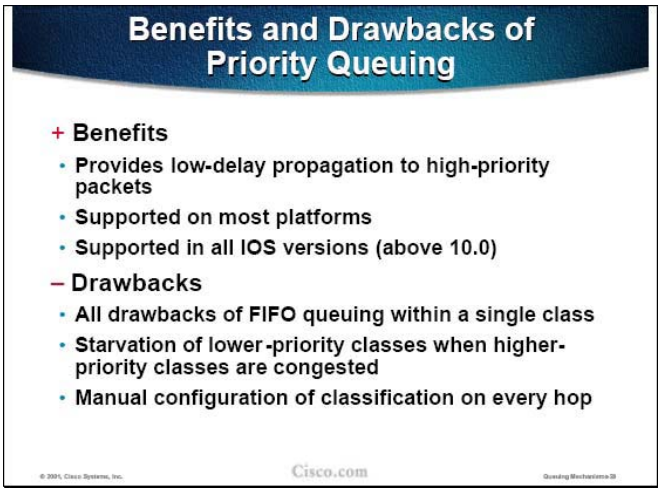


A route map is created with three statements, one for each application:
The first statement uses an access list to identify corporate web traffic (destination port 80). IP precedence 1 is applied to these packets.
The second statement uses another access list to identify outbound telnet sessions. IP precedence 2
is applied to these packets.
The last statement sets IP precedence 0 to all other packets.
Source:Cisco IP QoS Classification and Marking, Page 2-19

QUESTION 63
What is the result of properly configured Priority Queuing on Cisco IOS routers?
A.A starvation condition can occur where lower priority queues are never serviced.
B.Priority Queuing overhead can be too taxing on slow WAN links and might result in buffer exhaustion.
C.By default, unclassified packets are placed into the high priority output queue, which can affect high priority traffic.
D.The high priority queue has a default queue limit of 80, that can result in excessive packet loss.

Answer: A
Incorrect:
C.By default, unclassified packets are placed into the normal priority output queue.
D.The high priority queue has a default queue limit of 20.

Explanation:



As mentioned previously, Priority Queuing suffers from the same drawbacks as FIFO queuing, except it is localized to four classes. Each class can experience starvation, delay and jitter if one or more flows in the class cause congestion.
Furthermore, one higher-priority queue can cause all other queues to starve if it is congested.
Priority Queuing requires manual configuration of classification.
The main benefit of PQ is that it enables the user to create a class that is used for applications that require low delay (high queue).
Source:Cisco Queuing Mechanisms, Page 3-24

QUESTION 64
What is the default match strategy for a class map?
A.match none
B.match any
C.match some
D.match all
E.match one

Answer: D

Explanation:
There are two ways of processing conditions when there is more than one condition in a class map:
1)Match all - all conditions have to be met to bind a packet to the class
2)Match any - at least one condition has to be met to bind the packet to the class
The default match strategy of class maps is "Match all".
Reference: Introduction to IP QoS p.8-6

QUESTION 65
Which one of the following configurations provides a maximum bandwidth guarantee of 192 kbps for the real-time traffic class?
A.class real-time
bandwidth 192
B.class real-time
Priority 192

C.class real-time
Shape peak 192000
D.class real-time
Shape average 192000
E.class real-time
police 192000 conform-action transmit exceed-action drop

Answer: B

Explanation:
For real-time traffic class maximum bandwidth guarantee is configured using priority command.

QUESTION 66
The Tx Ring always uses which queuing method?
A.PQ
B.CQ
C.DRR
D.FIFO
E.WFQ
F.CBWFQ

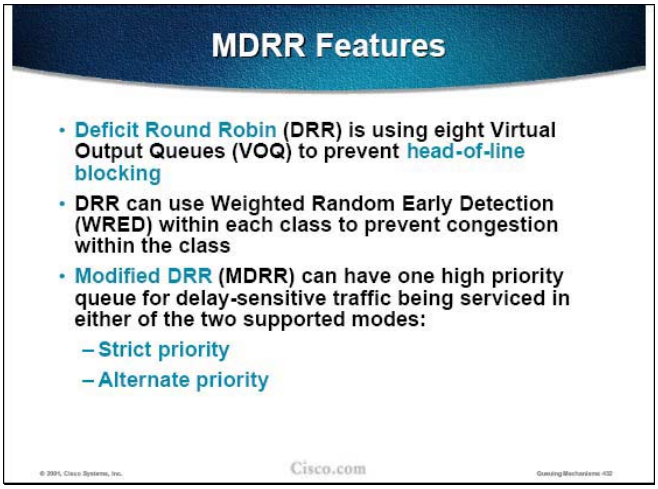
Answer: D

Explanation:
The following list summarizes the key points about TX Rings and TX Queues in relation to their effect on queuing:
1)The TX Queue/TX Ring always performs FIFO scheduling, and cannot be changed.
2)The TX Queue/TX Ring uses a single queue, per interface.
3)IOS shortens the interface TX Queue/TX Ring automatically when an output queuing method is configured.
4)The TX Ring/TX queue length can be configured to a different value.
Reference: DQOS Exam Certification Guide p.245

QUESTION 67
Modified Deficit Round Robin (MDRR) service algorithm is capable of supporting which of the following operating modes? (Choose all that apply.)
A.FIFO
B.weighted priority
C.strict priority
D.shared priority
E.alternate priority

Answer: C, E

Explanation:



DRR was the first implementation that was later improved by allowing one queue to be high priority.
Source:CiscoQueuing Mechanisms, Page 3-120

QUESTION 68
Which two procedures are required to configure AutoQoS on a Cisco router? (choose two)

A. Enable CEF globally
B. Configure map-class for AF traffic
C. Configure service-class for voice
D. Set the clock rate on the interface
E. Set the bandwidth statement on the interface

Answer: A, E
Page 163, Cisco QOS Exam Certification Guide (IP Telephony Self-Study), 2nd Edition,
http//www.ciscopress.com/title/1587201240

QUESTION 69
Which command is used to configure DSCP-based CB-WRED on an interface?

A. weighted-random dscp-based
B. random-queue dscp
C. random-detect dscp-based
D. weighted-queue dscp

Answer: C
Page 500, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 70
Within CBWFQ, what is the default dropping scheme used when a CBWFQ class queue reaches its configured queue limit?

A. WRR

B. tail drop
C. WRED
D. RED

Answer: B
Page 273, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 71
Which queuing method solves the problems created by inaccuate round-robin byte counting?

A. PQ
B. DRR
C. FIFO
D. MWRR

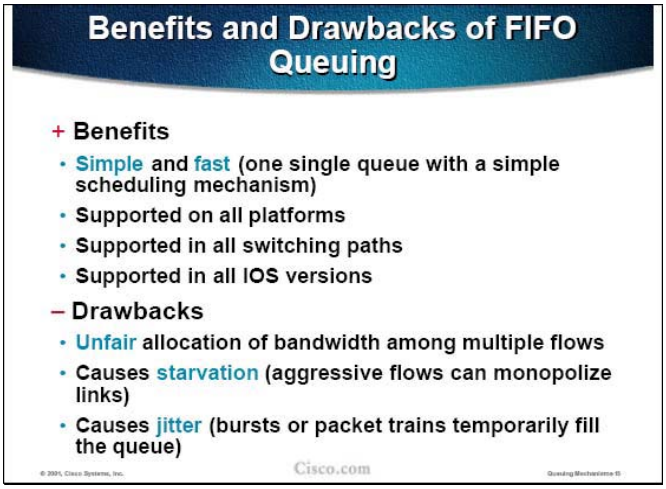
Answer: B

Explanation:
DRR can use Wighted Random Early Detection (WRED) within each class to prevent congestion within the class.
The scheduling of DRR is similar to that of Custom Queuing, except it is more accurate. DRR remembers the number of bytes it sent above the threshold in the previous roung (deficit).
Reference: Introduction to IP QoS p.3-123

QUESTION 72
Which of the following statements represents a disadvantage of FIFO queuing?
A.FIFO queuing produces excessive jitter.
B.FIFO queuing supports packets of queue size of 40 exclusively.
C.FIFO queuing can only support packet classification based upon traffic flows.
D.FIFOI queuing is only available on interfaces that operate at 2 Mbps or higher.

Answer: A
Incorrect:
D:Disable WFQ to enable FIFO on interfaces that have less than 2Mbps of bandwidth

Explanation:

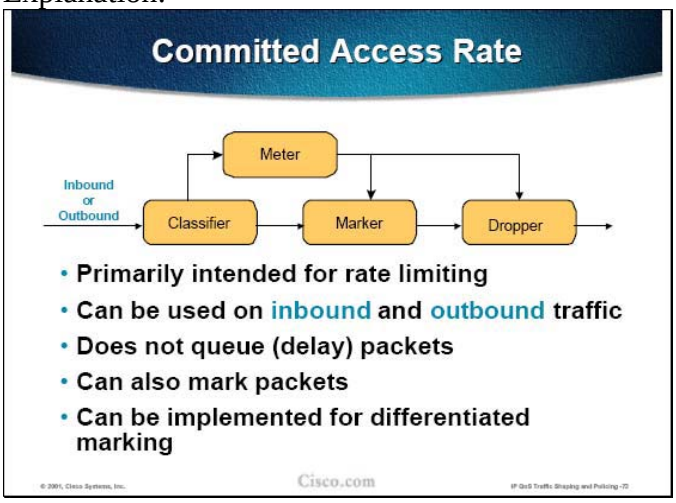


FIFO queuing might be regarded as the fairest queuing mechanism but it has a long list of drawbacks:
FIFO doesnot fairlyallocate bandwidth among multiple flows. Some flows receive more bandwidth
because they use larger packets or send more packets.

FIFO is extremely unfair when an aggressive flow is contesting with a fragile flow. Aggressive flows send a large number of packets, many of which are dropped. Fragile flows send a modest amount of packets and most of them are dropped because the queue is always full due to the aggressive flow. This type of behavior is called starvation.
Short or long bursts cause a FIFO queue to fill. Packets entering an almost full queue have to wait a
long time before they can be transmitted. Another time, the queue might be empty causing packets of the same flow to experience almost no delay. Variation in delay is calledjitter.
In spite of all the drawbacks FIFO is still the most used queuing mechanism because of the following benefits:
It is simple and fast. Most high-end routers with fast interfaces are not really challenged by the drawbacks mentioned earlier. Furthermore, routers are not capable of complex classification and scheduling when they have to process a large number of packets per second. FIFO is, therefore, the most suitable queuing mechanisms on these platforms.
It is supported on all platforms.
It is supported in all IOS versions.
Source:Cisco Queuing Mechanisms, Page 3-12

QUESTION 73
The newly appointed Certkiller trainee technician wants to know what services are provided through Committed Access Rate (CAR). What will your reply be? (Choose all that apply.)
A.Link efficiency
B.Traffic shaping
C.Policing
D.Classification
E.Weighted Random Early Discard (WRED)

Answer: C, D

Explanation:



Committed Access Rate (CAR) provides the capability to allow the service provider to rate-limit traffic in and out of router interfaces, thereby enabling various forms of ingress and egress rate-limiting in a network. CAR is a policing mechanism, not a queuing mechanism. Therefore it does not buffer or delay packets, which do or do not conform to the policy, but simply rate-limits them according to a simple "forward or drop" policy, according to the configuration. CAR also uses a token-bucket metering mechanism, similar to GTS, but without a delay queue.

The CAR rate-limiting feature manages a network's access bandwidth policy by ensuring that traffic falling within specified rate parameters is sent, while dropping packets that exceed the acceptable amount of traffic or sending them with a different priority. CAR is often configured on interfaces at the edge of a network to limit traffic into or out of the network.

CAR can also be used for packet marking. The operator can specify a policy that determines which packets should be assigned to which traffic class, and use CAR to implement the marking. The IP header already provides a mechanism to do this, namely the three precedence bits in the 'type of service' field in the IP header. CAR allows the setting of policies, based on information in the IP or TCP header such as IP address, application port, physical port or sub-interface, IP protocol, etc., to decide how the precedence bits should be marked or "colored." Once marked, appropriate treatment can be given in the backbone to ensure that premium packets receive premium service in terms of bandwidth allocation, delay control, etc.

NoteCAR can also be used to police (or "recolor") precedence bits set externally to the network either by the customer or by a downstream service provider. Thus the network can decide to either accept or override external decisions.

CAR is implemented using the following abstract mechanisms:

The classifier, which differentiates traffic into multiple classes, which may be treated in a discriminate manner

The meter, which uses a token-bucket scheme to measure the rate of classified traffic

The marker, which can be used to mark or re-mark classified traffic (for example, with precedence or DSCP values)

The dropper, which may drop packets (in the rate-limiting scenario) according to the configured policy

Source:CiscoIP QoS Traffic Shaping and Policing, Page 4-68

QUESTION 74

Which of the following are shaping characteristics, but not policing characteristics? (Choose all that

apply.)
A.It forces TCP resends
B.It is rate limiting with no buffering mechanism
C.It can adapt to Frame Relay BECN and FECN
D.It is most typically performed on egress
E.None of the above.

Answer: C, D

QUESTION 75
Which of the following statements regarding the capabilities of CAR is valid? (Choose all that apply.)
A.It is capable of supporting both policing and shaping options.
B.It allows a conform, exceed and violate action.
C.It allows cascading rate policies, inorderto allow for more granular rate limits.
D.It can be used as both input and output policer.
E.It can be applied to serial interfaces, as well as ATM and Frame Relay interfaces.

Answer: C, D, E

QUESTION 76
Shaping is the process whereby traffic flow is examined and rates are measured. What is done to packets during the shaping process when it exceeds a threshold bit rate?
A.Packets are delayed (queued)
B.Packets are discarded
C.Packets that exceed a defined burst size as well, are delayed (queued)
D.Packets that exceed a defined burst size as well, are discarded

Answer: C
Traffic that exceeds the BC value in time interval T will be queued.
Refhttp://www.cisco.com/en/US/tech/ CK5 43/ CK5 45/technologies_tech_note09186a00800a3a25.shtml

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QUESTION 77
Per-Virtual Circuit (VC) congestion avoidance discard at Layer 2 has what consequence when the ingress ATM interface discards a fragment?
A.Incomplete data packets are sent and the entire data packet must be resent.
B.The entire data packet is discarded at the ingress interface and must be resent.
C.Incomplete data packets are sent and discarded packet fragments must be resent.
D.Data packets may be sent in cells that are out oforder, causing the entire packet to be resent.

Answer: B, D

QUESTION 78
What are three capabilities of the route map used in policy-based routing? (Choose three)
A.Rate limiting
B.Packet marking
C.Packet classification

D.Intelligent packet discard
E.Defining customized routing paths

Answer: B, C, E

QUESTION 79
What are two services provided through Committed Access Rate (CAR)? (Choose two)
A.Policing
B.Classification
C.Link efficiency
D.Traffic shaping
E.Congestion avoidance

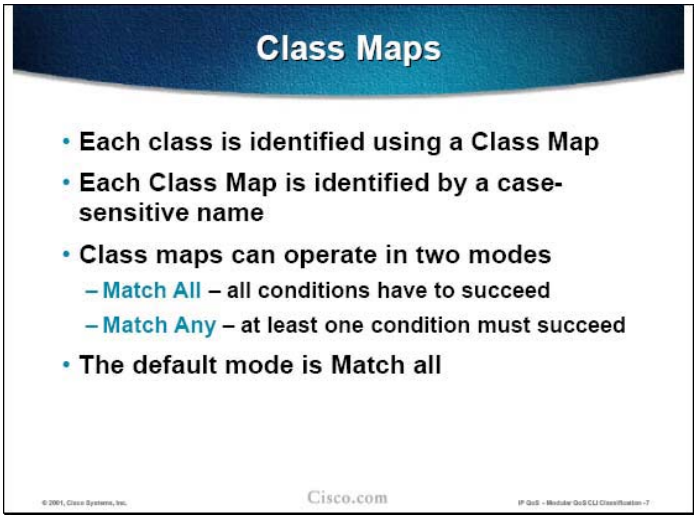
Answer: A, B

Explanation:
CAR provides policing functions and marking.
Policing, in its most basic form, discards traffic that exceeds a particular traffic contact. The contact statted in either bits or bytes. The traffic conforms to the contract if it sends at the rate, or bellow, and it does not send a burst of traffic greater than the burst size. If the traffic exceeds the traffic rate over time, or exceeds the single burst size limit, the policing function drops the traffic in excess of the rate and the burst size. Therefore, the simplest form of policing has two rigid actions: eigher to forward packets or to drop them.
Reference: DQOS Exam Certification Guide p.194.

QUESTION 80
Which of the following statements regarding class maps is valid? (Choose all that apply.)
A.It is possible to configure a class map within another class map.
B.Match commands are used to specify packet classification.
C.The default behavior is match-any regardless whether match-any or match-all is specified or not.
D.Traffic that does not have a match in the class map is placed in the default class.

Answer: A, B, D
Incorrect:
C. The default mode is Match all.

Explanation:

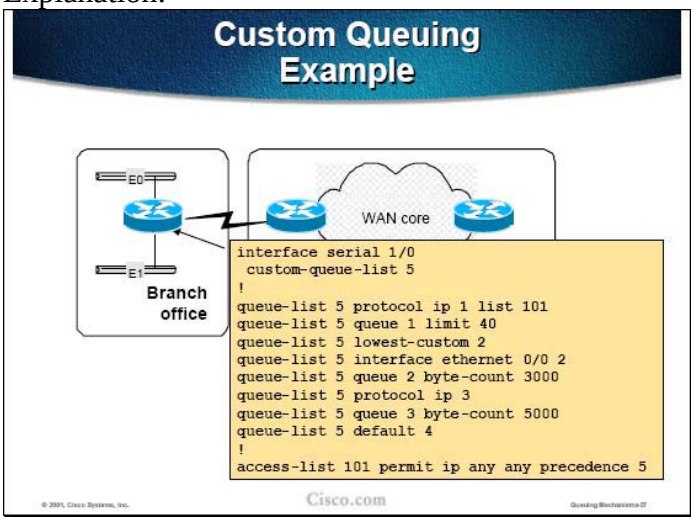


A class map is created using theclass-mapglobal configuration command. Class maps are identified by case-sensitive names. Each class map contains one or more conditions that determine if the packet belongs to the class.
There are two ways of processing conditions when there is more than one condition in a class map:
Match all-all conditions have to be met to bind a packet to the class
Match any-at least one condition has to be met to bind the packet to the class
The default match strategy of class maps is "Match all".
Source:Cisco IP QoS-Modular QoS CLI Classification, Page 8-6

QUESTION 81
Study the Exhibit below carefully:
interface s0/0
custom-queue-list 5
!
queue-list 5 protocol ip 1 list 101
queue-list 5 queue 1 limit 40
queue-list 5 lowest-custom 2
queue-list 5 interface e0/0 2
queue-list 5 queue 2 byte-count 5000
queue-list 5 protocol ip 3
queue-list 5 queue 3 byte-count 5000
queue-list 5 queue 4 default
!
access-list 101 permit ip any any precedence 5
According to the configuration in the exhibit, which queue is used for traffic from e0/0 with a precedence of five?
A.1
B.2
C.3
D.4

Answer: B

Explanation:



The figure shows a sample configuration where four queues is used:

Queue 1 is used for delay-sensitive applications (marked with IP precedence 5). It uses the strict priority scheduler.

Queue 2 is used for all packets coming from interface Ethernet0/0.

Queue 3 is used for all IP packets that do not end in one of the first two queues.

Queue 4 is used for all other traffic.

Source:Cisco Queuing Mechanisms, Page 3-50

QUESTION 82

Which of the following statements regarding the way in which Priority Queuing services its queues is valid?

A.The highest priority queue containing packets is serviced until it is empty.

B.The highest priority queue is always serviced first.

The remaining queues are serviced in a TDM fashion.

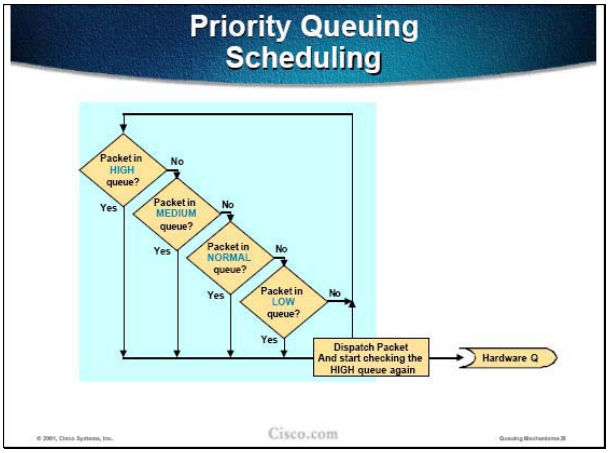
A.A high priority queue is serviced until it is empty, only then will the service engine move to the next highest priority queue in a round-robin fashion.

B.The highest priority queue is allocated 50% of the available bandwidth.

Each remaining queue is allocated half of the remaining bandwidth.

Answer: C

Explanation:

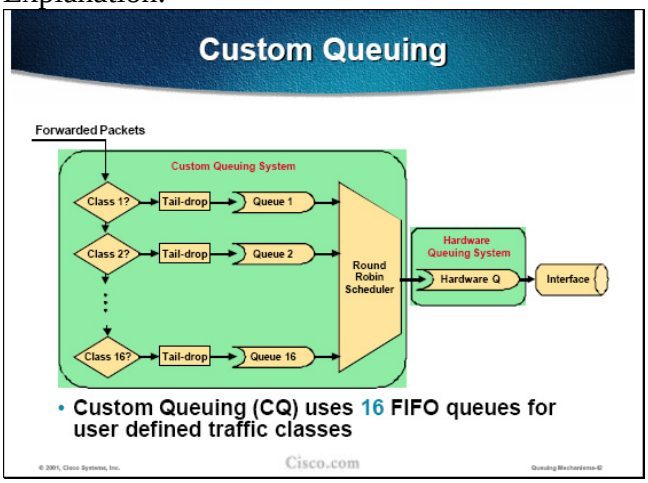


Priority Queuing uses strict priority scheduling. As long as there are packets in the high queue no other queue will be served. If the high queue is empty the router starts serving the medium queue.
Congestion in any of the queues, except the low queue, causes a different type of starvation. A congested higher-priority queue causes all lower-priority queues to starve (class starvation).
Source:CiscoQueuing Mechanisms, Page 3-23

QUESTION 83
What is the default scheduling mechanism that Custom Queuing uses?
A.FIFO
B.top down
C.round robin
D.weighted
E.none of the above

Answer: C

Explanation:



Custom Queuing (CQ) is similar to Priority Queuing in the way it is configured and in the supported classification options. The scheduling, however, is completely different.
CQ uses up to 16 queues that can be used for user-defined classes. The classification options are identical to those of Priority Queuing.
The scheduling mechanism uses the round-robin service where each queue is allowed to forward a certain

number of bytes (not packets).
Tail-drop is still used within each individual queue.
Source:CiscoQueuing Mechanisms, Page 3-35

QUESTION 84
Exhibit:
policy-map police 1
class bulk-ftp
police cir percent 20 pir percent 40
conform-action set-dscp-transmit af11
exceed-action set-dscp-transmit 0
violate-action drop
Based on the configuration, which two of the following statements are true? (choose two)

A. This configuration will use a single token buket
B. This configuration will drop all exceeding traffic
C. This is a dual-rate, class-based policing example
D. This is a percentage-based policing example
E. This is a multi-action, class-based policing example

Answer: D, E
Page 393, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 85
What are three key differences between Weighted Fair Queuing (WFQ) and distributed Weighted Fair Queuing (dWFQ)? (Choose three)
A.dWFQ distributes its queuing policy to its neighbor.
B.dWFQ requires a Versatile interface Processor (VIP) to operate.
C.dWFQ adds WFQ support on ATM, Fast EtherChannel, and tunnel interfaces.
D.dWFQ supports classed-based weighting based on TOS field and QoS Group settings.
E.Inorderto use dWFQ, distributed Cisco Express Forwarding (dCEF) must be enabled on the interface.

Answer: B, D, E
Reference: Introduction to IP QoS p.4-18

QUESTION 86
When configuring Priority Queuing on Cisco IOS routers, which three steps are required? (Choose three)
A.Define the priority list.
B.Configure an ACL for traffic identification.
C.Assign packets to specific priority queues.
D.Specify the maximum size of the priority queues.
E.Assign the priority list to be a designated router interface.

Answer: A, C, E

Explanation:
The configuration of Priority Queuing can be split into the following four steps:
1.Classify data into four classes
2.Assign a queue to each class
3.Set the maximum queue size (if the default is not appropriate)
4.Apply the priority queuing system to one or more interfaces
Reference: Introduction to IP QoS p.3-25

QUESTION 87
What are two benefits of WFQ? (Choose two)
A.WFQ is very easy to configure, and no manual traffic classification is necessary
B.WFQ can provide fixed-bandwidth and fixed-delay guarantees
C.WFQ can provide fixed-bandwidth guarantees
D.WFQ can provide fixed-delay guarantees
E.WFQ prevents the large-volume flows with large packet size from staring out the low-volums flows with small packet size.
F.Based on DSCP, WFQ allows weighted, random dropping of packets when the WFQ system is full

Answer: A, B
Page 257, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 88
Which two statements are true about the DSCP field in an IP header? (Choose two)
A.DSCP is the most significant six bits of the DS field
B.DSCP is the least significant six bits of the DS field
C.DSCP is used to select the type of service (ToS)
D.DSCP is used to select a per-hop behaviour (PHB)
E.DSCP is broken into four sub0fields
F.DSCP is broker into five sub-fields

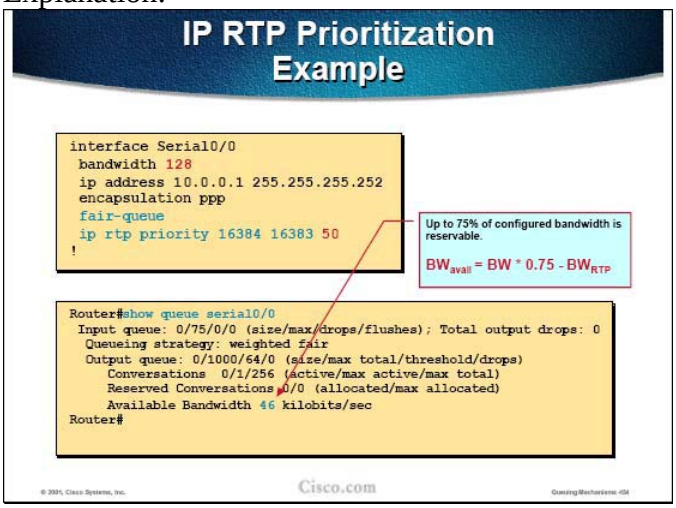
Answer: A, D
Page 120-121, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 89
Study the Exhibit below carefully:
interface s0/0
bandwidth 128
ip address 10.0.0.1 255.255.255.252
encapsulation ppp
fair-queue
ip rtp priority 16384 16383 50
According to the configuration in the exhibit, what is the amount of bandwidth available to the fair queues?
A.46 Kbps

B.50 Kbps
C.65 Kbps
D.78 Kbps
E.128 Kbps

Answer: A

Explanation:



The sample configuration shows how 50 kbps of bandwidth is guaranteed for RTP traffic. Theshow queue command shows there is only 46 kbps of bandwidth (128 kbps * 75% -50 kbps = 46 kbps) remaining for WFQ.
Source:CiscoQueuing Mechanisms, Page 3-140

QUESTION 90
Disregarding fragment size, which of the following LFI mechanism never fragments voice frames?
A.FRF .3
B.FRF.9
C.FRF.11 Annex C
D.FRF.6
E.FRF .12

Answer: C

Explanation:
FRF.11 Annex C never fragment voice frames.
Only this LFI mechanism is used with voice traffic.
There are three LFI mechanisms implemented in Cisco IOS:
1)Multilink PPP with Interleaving is by far the most common and widely used form of LFI.
2)FRF.11 Annex C LFI is used with Voice over Frame Relay (VoFR).
3)FRF.12 Frame Relay LFI is used with Frame Relay data connections.
4)In an ATM network, using separate PVCs carrying voice and data can be used to interleave packets when they are output on an interface.
Reference: Introduction to IP QoS p.6-47

QUESTION 91
Which of the following statements regarding cRTP compression is valid?
A.IP, TCP, and RTP headers are compressed, since the headers are uncompressed on the other end of the link.
B.UDP and RTP headers are compressed, but the IP header is not, so the VoIP packets can be delivered to the terminating gateway.
C.IP, UDP, and RTP headers are compressed, since the headers are uncompressed on the other end of the link.
D.TCP and RTP headers are actually removed, with a smaller header added that includes information that has changed since the last full header sent.
E.None of the above.

Answer: C

Explanation:
When using RTP compression IP packets that also have RTP headers are compressed. The compression algorithm does not compress the data-link header or trailer. It does compress the IP, UDP, and RTP headers. It does not compress any user data that follows the RTP header.

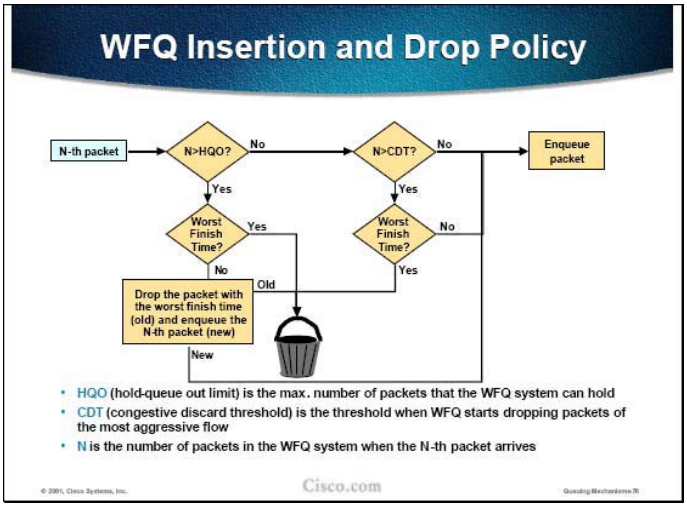
QUESTION 92
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know what the approximate bandwidths required for a G.729a VoIP call with and without cRTP enabled is. What will your reply be?
A.5.3 Kbps/8 Kbps
B.11 Kbps/26 Kbps
C.12 Kbps/24 Kbps
D.28 Kbps/64 Kbps
E.none of the above.

Answer: B
Reference: DQOS Exam Certification Guide p.39

QUESTION 93
Which packet will most likely be dropped by Weighted Fair Queuing (WFQ) during periods of traffic congestion?
A.The newest packet.
B.The packet with the worst finish time.
C.The largest packet.
D.The packet with the lowest priority.

Answer: B

Explanation:

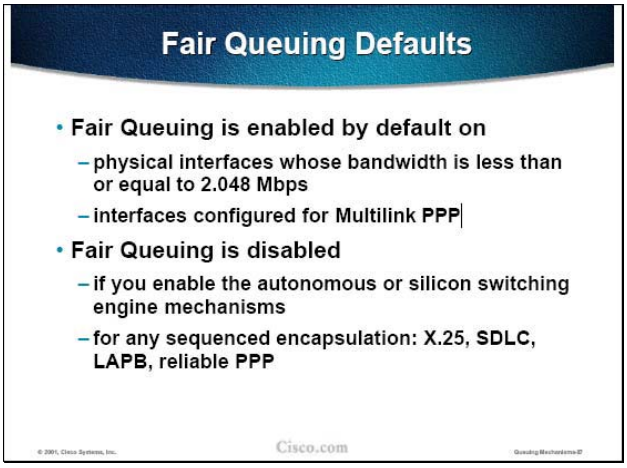


The figure illustrates the dropping scheme of WFQ. The process can be split into the following steps:
Step 1Drop the new packet if the WFQ system is full (hold-queue limit reached) and the new packet has the worst finish time (the last in the entire system).
Step 2Drop the packet with the worst finish time in the WFQ system if the system is full.
Enqueue the new packet
Step 3Drop the new packet if the queue, where the packet should be enqueued, is the longest (not in packets but in the finish time of the new packet) and there are more packets in the WFQ system than the CDT.
Step 4Otherwise enqueue the new packet.
Source:CiscoQueuing Mechanisms, Page 3-61

QUESTION 94
The newly appointed Certkiller trainee technician wants to know what is the reason why Weighted Fair Queuing (WFQ) is disabled on WAN interfaces using X.25, SDLC, LAPB, or reliable PPP encapsulations.What will your reply be?
A.These protocols require strict priority scheduling which is not WFQ is not capable of supporting.
B.These encapsulations require sequenced packets which is contradictory to the way in which WFQ works.
C.Each of these protocols has a pre-defined compulsory queuing scheme.
D.These protocols require delay characteristics which WFQ-enabled routers are incapable of.

Answer: B

Explanation:



The figure explains the default behavior of WFQ. As mentioned previously, WFQ is automatically enabled on all interfaces slower than 2Mbps. WFQ is also required on interfaces using Multilink PPP.
WFQ cannot be used ifreordering of framesis not allowed due to sequence numbering of Layer-2 frames or if the switching path does not support WFQ.
Source:CiscoQueuing Mechanisms, Page 3-79

QUESTION 95
Which of the following statements aptly describes what the result of enabling Weighted Fair Queuing (WFQ) on a low-speed router interface is?
A.Bandwidth is guaranteed for different traffic queues.
B.Delay is guaranteed for high-priority traffic types.
C.Fixed-size queues are pre-allocated for different traffic flows.
D.Low-bandwidth traffic receives priority over high-bandwidth traffic.

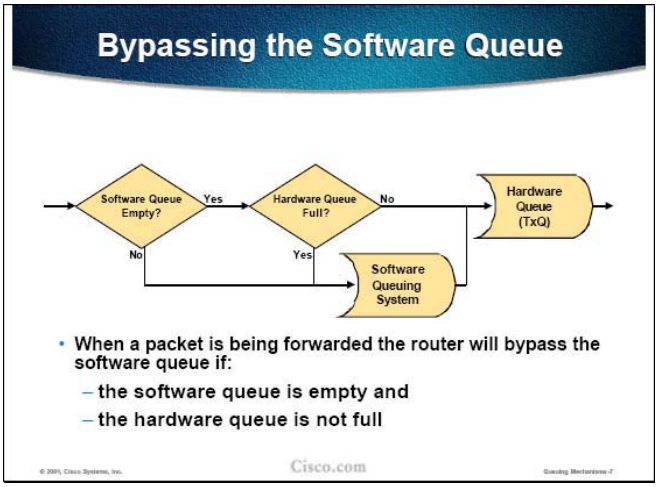
Answer: D

Explanation:
WFQ solves the problem of low-bandwidth traffic starvation. This is fair protocol and gives same bandwidth to all queues. For example if in queue 1 the packets are 100 kb each and in queues 2300kb each than 3 packets from queue 1 will go through the interface than 1 packet from queue 2 and so on.

QUESTION 96
Under which circumstances will Cisco IOS bypass the transmit software queue on an interface and place the packet directly into the hardware queue?
A.When LLQ has been enabled.
B.When the software queue is full.
C.When the software queue is empty.
D.When the software queue has reached its MCC.

Answer: C

Explanation:

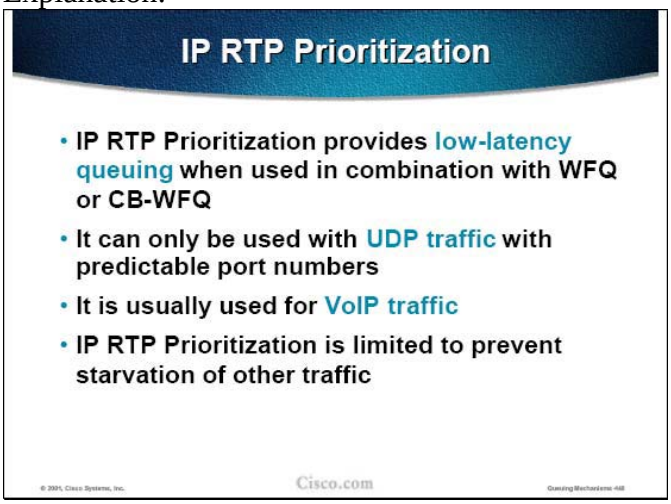


The implementation of software queuing was optimized for periods when the interface is not congested. The software queuing system is bypassed whenever there is no packet in the software queue and there is room in the hardware queue.
The software queue is, therefore, only used when data must wait to be placed into the hardware queue.
Source:Cisco Queuing Mechanisms, Page 3-6

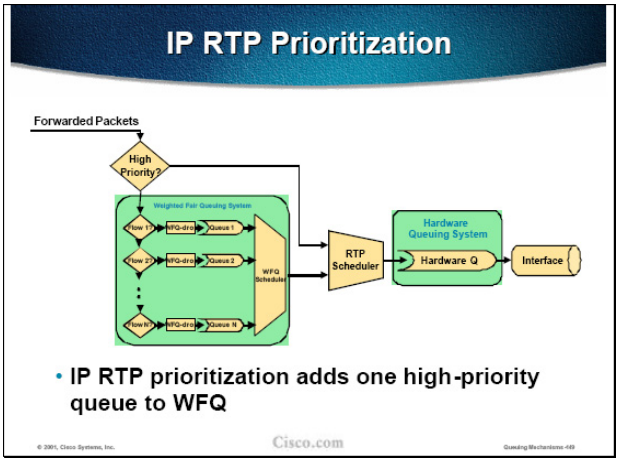
QUESTION 97
Which of the following statements regarding the queuing scheme of IP Real Time Transport Protocol (RTP) prioritization is valid?
A.It is capable ofsupporting TCP traffic.
B.It is used mainly for interactive traffic.
C.It is responsible for providing low latency queuing by providing a high priority queue.
D.Packets that exceed the queue's configured rate are placed into the default queue.

Answer: C

Explanation:



IP RTP Prioritization is an add-on to WFQ to support low-delay propagation of packets. It can be used for UDP traffic only.
IP RTP Prioritization also polices the high priority traffic to prevent starvation of other queues.

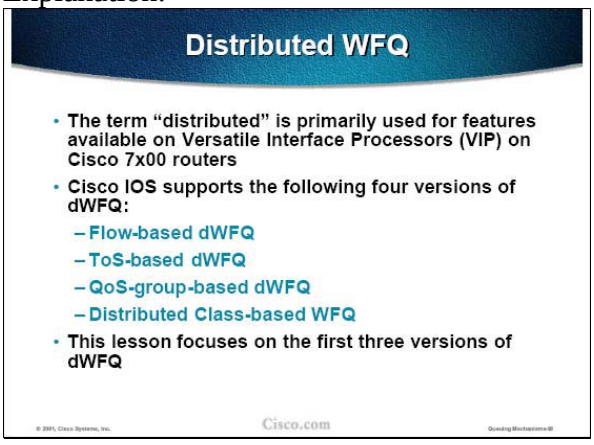


IP RTP Prioritization supports one high priority queue. Packets from this queue are scheduled ahead of other packets as long as they are within the configured rate.
Excess packets are dropped.
Sources:Cisco Queuing Mechanisms, Pages 3-134, 3-135

QUESTION 98
Which of the following are versions of distributed WFQ (dWFQ)? (Choose all that apply.)
A.CAR-based dWFQ
B.QPPB-based dWFQ
C.flow-based dWFQ
D.ToS-based dWFQ
E.DiffServ-based dWFQ
F.precedence-based dWFQ

Answer: C, D

Explanation:



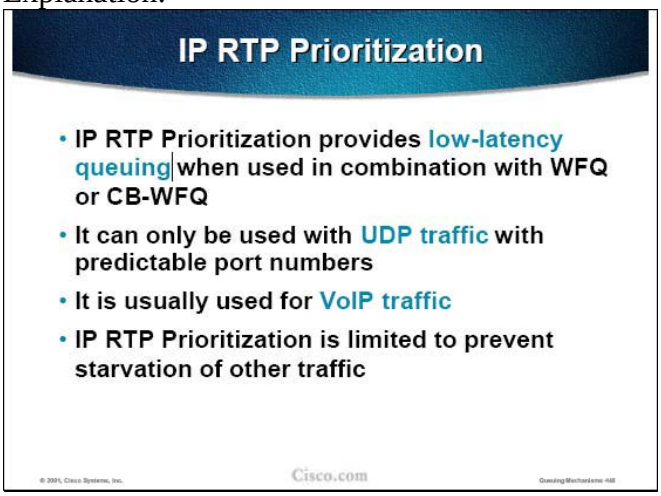
The distributed versions of Weighted Fair Queuing are implemented on Cisco 7x00 series routers with Versatile Interface Processors (VIPs). There are four different versions of distributed WFQ, three of which are discussed in this module:
Flow-based dWFQ or simply dWFQ
ToS-based dWFQ

QoS-group-based dWFQ or QoS-based dWFQ
VIP is basically a router within a router. It has its own processor and its own (different) version of the IOS. Most features implemented on VIPs have different functionality than those available on the Route Switch Processor (RSP).
Source:Cisco Queuing Mechanisms, Page 3-86

QUESTION 99
The newly appointed Certkiller trainee technician wants to know what the difference is between Low Latency Queuing (LLQ) and IP Real-Time Transport Protocol (RTP) priority. What will your reply be?
A.LLQ is not limited to defining traffic flows when making use of UDP port numbers.
B.IP RTP Priority has the ability to specify traffic matches based on DSCP whereas LLQ cannot.
C.LLQ can accommodate voice traffic that is not supported in IP RTP Priority configurations.
D.LLQ priority queues suffer from "starvation" of low priority traffic due to preferential treatment of the high priority queue.

Answer: A

Explanation:



IP RTP Prioritization is an add-on to WFQ to support low-delay propagation of packets. It can be used for UDP traffic only.
IP RTP Prioritization also polices the high priority traffic to prevent starvation of other queues.
Source:CiscoQueuing Mechanisms, Page 3-134

QUESTION 100
Which of the following represent important advantages of applying QoS to IP networks? (Choose all that apply.)
A.QoS manages packet loss during periods of bursty congestion.
B.QoS facilitates the integration of differing traffic types such as voice, video, and data into a single infrastructure.
C.QoS is capable of preoviding performance enhancements for commercial application issues such as server sizing and tuning.
D.QoS allows the control usage patterns of network applications.

E.QoS is capable of solving traffic problems on low bandwidth, high-latency, high-loss WAN links.

Answer: A, B, E

QUESTION 101
What are three features of CBWFQ? (Choose three.)
A.CBWFQ supports two drop methods: tail drop and WRED.
B.CBWFQ support up to 4096 dynamic queues.
C.CBWFQ provides fixed-delay guarantees.
D.If some queues do not need the bandwidth, the bandwidth is spread across the other classes.
E.CBWFQ provides fixed, minimum-bandwidth guarantees.
F.CBWFQ does not require manual traffic-classification configurations.

Answer: A, D, E
Reference: Cisco Press - DQOS Exam Certification Guide p.273

QUESTION 102
Which configuration command applies QoS features to a particular traffic class?
A.class-map
B.traffic-map
C.policy-map
D.table-map

Answer: C

Explanation:
Using policy-map command you can associate the traffic class with one or more QOS features using the policy-map command.
Reference: Introduction to IP QoS (Course) p.8-5

QUESTION 103
When configuring CB-shaping and using shape adaptive command, how should the min-rate be configured?
A.The min-rate should be equal to or greater than the minimum bandwidth guarantee for that traffic class.
B.The min-rate should be configured to match the bandwidth configured on the physical interface.
C.The min-rate should be configured as the PIR/32 or 1500 bytes. Whichever is grater.
Whichever is greater.
D.The min-rate should be configured as the CIR/8.

Answer: A

Explanation:
Min-rate parameter specifies the minimum shaping rate allowed. It should be greater than the guarantee level.

QUESTION 104
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know what global synchronization is. What will your reply be?
A.It is the purposeful dropping of 1 packet per TCP connection, to quickfix congestion on all TCP connections.
B.It is the process of selectively discarding TCP using packets, based on IP Precedence weighting, to reduce congestion.
C.It is the side effect of dropped packets on many simultaneous TCP connections, which causes network utilization to fluctuate between congestion state and an underutilized state.
D.
It is typical of Internet performance that has been improved with advanced TCP features (i.e., Slow Start, Congestion Avoidance, and Fast Retransmit)

Answer: C

Explanation:
If the receiving router drops all traffic that exceeds the queue limit, as is done by default (with tail drop), many TCP sessions then simultaneously go into slow start. Consequently, traffic temporarily slows down to the extreme and then all flows slow-start again. This activity creates a condition called global synchronization.
Reference: Introduction to IP QoS p.5-5

QUESTION 105
What is the TCP measurement of the delay for a packet to get the receive and then back to the send called?
A.window size
B.transit delay
C.transit window delay
D.round-trip time
E.propagation delay
F.serialization delay

Answer: D

Explanation:
Round-trip time equals a sum of all propagation, processing and queuing delay in the path.
Propagation delay is fixed, processing and queuing delay are unpredictable in best-effort networks.
Reference: Introduction to IP QoS p.7

QUESTION 106
Which of the following is valid about Low Latency Queuing (LLQ) but invalid when considering IP RTP priority?
A.It reserves and guarantees a configured amount of bandwidth.
B.It can be used for both TCP and UDP traffic types.
C.It is useful for RTP-based voice and video traffic.
D.It can match a range of UDP port numbers and provide lower latency for that traffic.
E.None of the above.

Answer: B

QUESTION 107
Name two sensitivities that Voice traffic has that data traffic is not necessarily affected by. (Choose two)
A.EMI
B.RFI
C.TPI
D.Jitter
E.Delay
F.Noise

Answer: D, E

QUESTION 108
Which two are benefits (listed in the DQOS course) of implementing QoS inEnterpriseNetworks? (Choose two)
A.It decreases propagation delay.
B.It provides predictable response times.
C.It support dedicated bandwidth per application.
D.It prevents the need to increase bandwidth when adding applications.

Answer: B, C

QUESTION 109
What are two common problems for video in the absence of QoS? (Choose two)
A.Dimmer video images.
B.Jerky video image movement.
C.Fuzzy edges on video images.
D.Unsynchronized audio and video.

Answer: B, D

Explanation:
Today the Internet is serving a large population of all walks of life. The Internet has also grown in its service offering. Users are using the Internet to view static or dynamic information, transmit voice and video, shop, play etc.
Along with these new applications of the Internet come some demands on the service(s) it provides:
1)Some applications are slow
2)Video broadcast or conferencing may have bad picture quality or appear jerky
3)Voice sessions may have bad voice quality or periods of silence
4)Critical transactions may take too long (too many seconds)
5)Bulk transfers take too long (too many hours)
Reference: Introduction to IP QoS p.3

QUESTION 110
Which three are congestion management techniques according to the Cisco QoS Framework? (Choose three)

A.CQ
B.PQ
C.LLQ
D.CAR
E.NBAR

Answer: A, B, C
Reference: Cisco Press - DQOS Exam Certification Guide p.104

QUESTION 111
What is true of LLQ but not true of IP RTP priority?
A.Reserves a configured amount of bandwidth.
B.Is useful for RTP-based voice and video traffic.
C.Can be used for both TCP and UDP traffic types.
D.Can match a range of UDP port numbers and provide lower latency for that traffic.

Answer: C

QUESTION 112
Which IOS queuing features will ensure a configured amount of bandwidth to a particular class of traffic?
A.CAR
B.CQ
C.LLQ
D.WFQ
E.CBWFQ
F.PQ

Answer: B, C, E

Explanation:
CQ provides specific percentage of bandwidth for each flow. LLQ and CBWFQ can guarantee that the flow with the biggest priority would never starve and the bandwidth would be guaranteed it.

QUESTION 113
Which subcommand will you advice the new Certkiller trainee technician to use when configuring LLQ on a Frame Relay interface?
A.frame-relay ip rtp priority class-map
B.priority map-class
C.priority policy-map
D.frame-relay ip rtp priority interface
E.priority class-map

Answer: C

Explanation:

To give priority to a class of traffic belonging to a policy map, use the priority policy-map class configuration command. To remove a previously specified priority specified for a class, use the no form of this command.
priority{bandwidth-kbps|percentpercentage} [burst]
no priority{bandwidth-kbps|percentpercentage} [burst]
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_command_reference_chapter091

QUESTION 114
Which of the following statements about NBAR is true?
A.NBAR is supported on multicast enabled interfaces
B.NBAR can match up to the 512 bytes in a packet payload
C.NBAR can classify application traffic by looking beyond the the TCP/UDP port numbers of a packet
D.NBAR can be used to classify output traffic on a WAN link where tunneling or encryption is used/

Answer: C
Page 185, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 115
Which mechanism does LLQ use to support real-time traffic?
A.IP RTP
B.RED
C.CBWFQ
D.PQ

Answer: D
Page 288-290, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 116
What s a drawback of the integrated services model of QoS deployment?
A.no service guarantees
B.limited scalability
C.requires complex QoS mechanisms on each router to implement the RSVP PHB
D.requires complex classification and marking of traffic at the network edge

Answer: B
The main drawback of IntServ as its limited scalability.

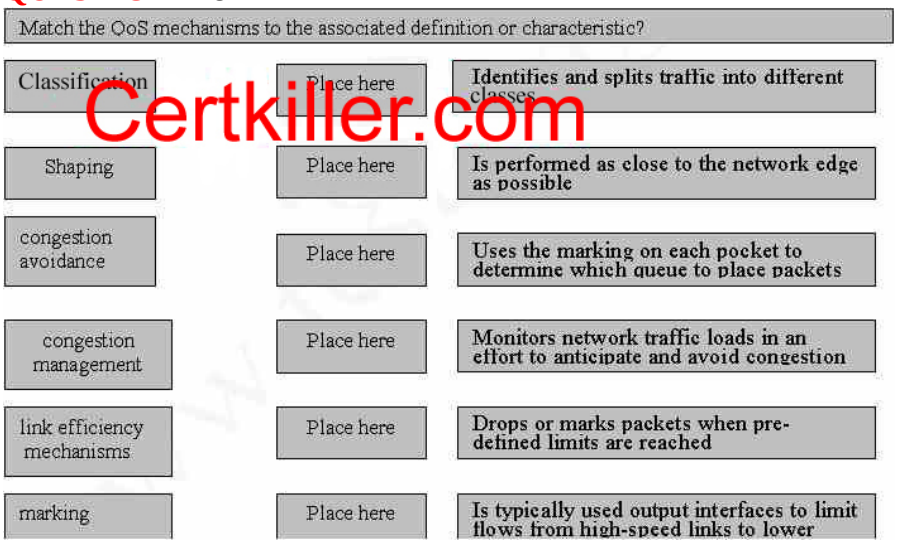
QUESTION 117
Which two statements regarding LLQ configuration are correct? (Choose two.)
A.The bandwidth command configures the required minimum bandwidth guarantee for the low-latency traffic.
B.The bandwidth command configures the required maximum bandwidth guarantee for the low-latency traffic.
C.LLQ only supports tail-drop for the low-latency queue.
D.LLQ only supports WFQ for the low-latency queue.
E.LLQ provides strict priority queuing for CBWFQ.

F.LLQ uses a congestion-aware policer to police the maximum bandwidth guarantee.

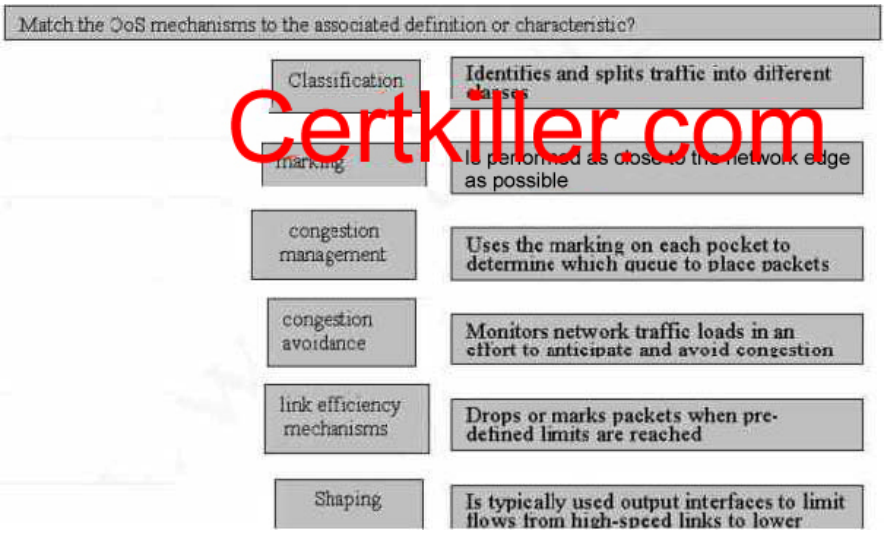
Answer: C, E

Explanation:
LLQ is not really a separate queuing tool, but rather a simple option of CBWFQ applied to one or more classes. CBWFQ treats these classes as strict-priority queues. In other words, CBWFQ always services packets in these classes if a packet is waiting, just as PQ does for the High queue.
Reference: DQOS Exam Certification Guide p.288

QUESTION 118



Answer:



QUESTION 119
Which four factors must be considered when determining the pre-call bandwidth requirement for voice traffic? (Choose four.)
A.router memory size and CPU speed

B.Use NBAR to classify voice bearer and control traffic
C.Codec type
D.Packetization interval
E.Layer 2 protocol overhead
F.Bandwidth required for he voice control (signaling) traffic

Answer: C, D, E, F

QUESTION 120
Which IOS queuing mechanism allows you to place packets at the front of the queue when you have a mission critical TCP application that will only be operational with the lowest possible latency?
A.NBAR
B.CAR
C.LLQ
D.WFQ
E.CBWFQ
F.IP RTP Priority

Answer: C

Explanation:
The mission critical TCP application can be placed to the low-latency queue.
Like PQ, the LLQ scheduler always checks the low-latency queue first, and takes a packet from that queue. If there are no packets in the low-latency queue, the normal, unpublished scheduler logic applies to the other non-low-latency queue queues, giving them their guaranteed bandwidth.
Reference: Cisco Press - DQOS Exam Certification Guide p.289

QUESTION 121
Study the Exhibit below carefully:

```
class-map fred
match ip dscp af41

policy-map barney
class fred
bandwidth 30

class-map wilma
match ip dscp af41

policy-map betty
class fred
bandwidth 30
class wilma
priority 100


int s 0/0
ip addr 10.1.1.1 255.255.255.0

int s 0/1
ip address 10.2.2.2 255.255.255.0
service-policy output barney

int s 0/2
ip address 10.3.3.3 255.255.255.0
service-policy output fred

int s 0/3
ip address 10.4.4.4 255.255.255.0
service-policy output wilma

int s 0/4
ip address 10.5.5.5 255.255.255.0
service-policy output betty
```

What serial interface makes use of LLQ?
A.serial 0/0
B.serial 0/1

C.serial 0/2
D.serial 0/4

Answer: D

QUESTION 122
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know which IOS queuing features use a strict priority queue. What will your reply be? (Choose all that apply.)
A.CQ
B.LLQ
C.CAR
D.PQ
E.NBAR
F.WFQ

Answer: B, D

Explanation:
Both LLQ and PQ use a strict priority queue. PQ (priority queuing) is fully based on strict priorities and LLQ uses strict priority only for its low latency queue.

QUESTION 123
What are the functions of RSVP in an Admission Control environment? (Choose all that apply.)
A.RSVP must determine if the application requesting resources is eligible.
B.RSVP must guarantee bandwidth and delay.
C.The requesting RSVP station must ensure end-to-end RSVP availability.
D.RSVP must determine the availability and adequacy of resources for the reservation.

Answer: B, D

Explanation:
RSVP is used for applications where bandwidth and delay related guarantees are necessary. Typical application which use RSVP are:
-Voice over IP (Cisco phones, Microsoft NetMeeting, ...)
-MPLS Traffic Engineering.
RSVP also must provide resources reservation.
Reference: Introduction to IP QoS p.7-8

QUESTION 124
Which of the factors mentioned below is important to keep in mind when selecting Call Admission Control (CAC) methods to be deployed in your network?
A.type of PBX
B.CAR
C.E.164 standards
D.network topology
E.QoS mechanisms deployed

Answer: D
Reference:Page 8-76 CAC design Network Topology Considerations

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QUESTION 125
What is a notable problem with weighted round-robin (WRR) queuing?
A.improper bandwidth allocation
B.no traffic prioritization
C.queue starvation
D.difficult implementation

Answer: A

Explanation:
Keep in mind that each port has a finite amount of buffer space to support the buckets. One queue will take all of the buffer space, for instance, two queues will divide the buffer space into two parts, three queues divide the buffer space into three parts, and so on. If the buffer space is too small, it will not be effective in momentarily holding the traffic before transport. Because nonpriority queues are serviced in either a round-robin or a Weighted Round-Robin manner, there is no guearantee that the traffic in the buffer is transported next. This limitation can lead to instaneous buffer overrun.

QUESTION 126
In most VPN tunneling, what is the classic QoS problem?
A.VPN overhead eliminates QoS processing time.
B.VPN adds too much delay to be used for voice.
C.The QoS information is encrypted in the packet being tunneled.
D.The QoS information is removed in the encryption process.

Answer: C

QUESTION 127
How does explicit congestion notification (ECN) work with Weighted Random Early Detection (WRED)?
A.ECN provides an additional marking option to WRED when the number of packets in queue is between the minimum and maximum thresholds.
B.ECN is an extension to WRED that provides support non-WRED devices.
C.ECN removes the tail-drop mechanism form WRED and replaces it with a dual leaky-bucket, congestion-management mechanism.
D.ECN applies the mark probability denominator to all packets identified in the class-map.

Answer: A

Explanation:
As with RED, WRED monitors the average queue depth in the router and determines when to begin packet drops based on the queue depth. When the average queue depth crosses the user-specified "minimum threshold, " WRED begins to drop packets (both TCP and UDP) with a certain probability. If the average queue depth ever crosses the user-specified" maximum threshold, " then WRED reverts to "tail drop, " where all incoming

packets might be dropped. The idea behind using WRED is to maintain the queue depth at a level somewhere between the minimum and maximum thresholds, and to implements different drop policies for different classes of traffic.
Reference: Introduction to IP QoS p.5-15

QUESTION 128
WRED is used to implement which QoS mechanism?
A.dropping
B.metering
C.policing
D.queuing
E.shaping

Answer: A
Page 437, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 129
What is a PDLM file?
A.Modules containing the rules used by NBAR to recognize an application.
B.A client-server application NBAR queries for network application information.
C.Modules containing a scripting language used to list applications to be recognized by NBAR.
D.An application that searched network servers to list the applications to be recognized by NBAR.

Answer: A

Explanation:
Cisco uses a feature called packet descriptor language modules (PDLMs) to define new protocols that NBAR should match. When Cisco decides to add one or more new protocols to the list of protocols that NBAR should recognize, it creates and compiles a PDLM. You can then download the PDLM from Cisco, copy it into Flash memory, and add the ip nbar pdlm pdlm-name command to the configuration, where pdlm-name is the name of the PDLM file in Flash memory. NBAR can then classify based on the protocol information from the new PDLM.
Reference: DQOS Exam Certification Guide p.226

QUESTION 130
What are two features that allow AutoQos to recognize voice traffic? (choose two)

A. a new QoS tag unique to phones
B. trust boundaries to allow the switch to track IP phones on the network
C. CallManager device table queries
D. IP phone registration with each AutoQoS server
E. automatic configuartion of an MQC class for voice signalling traffic

Answer: B, E

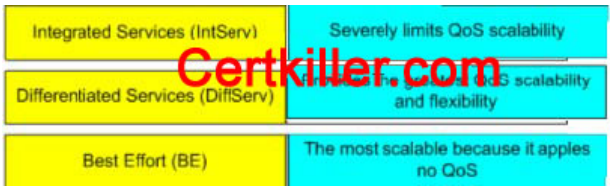
QUESTION 131
How does NBAR differ from traditional TCP/UDP packet recognition?

A. NBAR queries each application directly
B. NBAR uses different port numbers than TCP/UDP
C. NBAR builds a database of packet types
D. NBAR looks into the payload for application clues

Answer: D
Page 185, IP Telephony Self-StudyCisco DQOS Exam Certification Guide, http//www.ciscopress.com/title/1587200589

QUESTION 132
Drag the correct description to the correct implementation model.

Answer:



Explanation:
1)Best-effort. The Internet was designed for best-effort, no-guarantee delivery of packets. This behavior is still predominant in today's Internet.
2)Integrated Services model. Introduced to supplement the best-effort delivery by setting aside some bandwidth for application that require bandwidth and delay guarantees. The Integrated Services model expects application to signal their requirements to the network. Resource Reservation Protocol (RSVP) is used to signal QoS requirements to the network.
3)Differentiated Services model. Added to provide more scalability in providing QoS to IP packets.The main difference is that the network recognizes packets (no signalling is needed) and provides the appropriate services to them.
Reference: Introduction to IP QoS p.18

QUESTION 133
Compressed Real-time Transport Protocol compresses the 40 byte IP/UDP/RTP header down to what size?
A.Usually 1 or 2 bytes
B.Usually 2 or 4 bytes
C.Usually 4 or 8 bytes
D.Usually 8 or 16 bytes

E.It varies based on the information contained in the header.

Answer: B

QUESTION 134
Which RED packet drop mode is used when the average queue size has reached or exceeded its maximum?
A.no drop
B.tail drop
C.random drop
D.full drop

Answer: B
Page 435, IP Telephony Self-StudyCisco DQOS Exam Certification Guide, http//www.ciscopress.com/title/1587200589

QUESTION 135
Which of the tools mentioned below will you find most helpful when designing or managing QoS? (Choose all that apply.)
A.CPC
B.QDM
C.IPM
D.CAC
E.QPM
F.SMS
G.All of the above

Answer: B, C, E, F

Explanation:
This fore are management tools which Cisco provideto assist in managing the QoS policies and configuration in a network.
Reference: DQOS Exam Certification Guide p.102,103

QUESTION 136
The QoS design and implementation process comprises of the following steps:
1.characterize network
2.implement policy
3.determine customer priorities/QoS policy
4.monitor network
What is the correctorderfor these steps?
A.4, 1, 3, 2
B.1, 3, 2, 4
C.3, 1, 2, 4
D.1, 2, 3, 4
E.4, 3, 1, 2

Answer: C

Explanation:
The process begins with determining priorities - what traffic should get more bandwidth? Less loss, jitter, and of the traffic patterns so that you can configure the QoS tools to classify the traffic correctly. At Step 2, you characterize the traffic, which enables you to know how to configure the various classification features of the QoS tools. Then you can proceed with Step3, where you actually configure the QoS tools. Finally, you ceed to monitor the network (Step 4) to determine whether you met the stated policy goals you determined in Step 1. The process continues over time, with the quality of the QoS implementation improving with each cycle.
Reference: DQOS Exam Certification Guide p.669

QUESTION 137
Within a distributed call processing environment, what can you use to achieve call admission control across the WAN?
A.You can use a 720VXR to diversify the IPN1 traffic.
B.You can use a CiscoWorks RME package to keep lines clear.
C.You can use a gatekeeper.
D.You can use a H.333 Line card.

Answer: C

QUESTION 138
Which features can be used to police traffic according to the Cisco QoS Framework?
A.CQ
B.LLQ
C.CAR
D.NBAR
E.WRED

Answer: C

Explanation:
Only a few remaining mechanisms have marking capabilities:
1)Committed Access Rate (CAR), which is used for traffic policing
2)Class-based Policing, which is also used for traffic policing
3)Class-based Marking, which is used for classification and marking purposes only. It may however be combined with other mechanisms available with the Modular QoS CLI
Reference: Introduction to IP QoS p.2-46

QUESTION 139
What are the advantages of making use of NBAR as part of a classification and marking design? (Choose all that apply.)
A.It is able to match any TCP or UDP port number.
B.It is able to match packets based on application layer information
C.It has the ability to match QoS, Precedence, pr DSCP using NBAR.

D.It has the ability to match packets that are difficult to match with access lists.
E.All of the above.

Answer: B, D

Explanation: Nbar can be used to look beyond layer 4 port numbers and inspect the actual payload. Also NBAR can be used to easily identify data which can be hard to configure access lists.
DQOS course notes:
NBAR can classify static port protocols. Although access control lists (ACL's) can also be used for this purpose, NBAR is easier to configure and can provide classification statistics that are not available when using ACL's.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps5012/products_feature_guide09186a0080134add.html

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QUESTION 140
Which two interface commands will enable precedence-based WRED when configuring WRED without using the MQC?
A.wred
B.random-detect prec-based
C.service-policy random-detect
D.random-detect
E.wred prec-based

Answer: B, D

Explanation:
Random-detect command:
1)Enables IP precedence basid WRED
2)Default service profile is used
3)Non-distributed WRED cannot be combined with fancy queuing - FIFO queuing has to be used.
4)WRED can run distributed on VIP-based interfaces (dWRED)
5)dWRED can be combined with dWFQ
Random-detect precedence command:
1)Changes RED profile for specified IP precedence value
2)Packet drop probability at maximum threshold is 1/mark-prob/dominator
3)Non-wieghted RED is achieved by using the same RED profile for all precedence values.
Reference: Introduction to IP QoS p.5-22, 5-23

QUESTION 141
Which IOS features will you advice the new Certkiller trainee technician to use to combat the effects of global synchronization? (Choose all that apply.)
A.GTS
B.LLQ
C.FRED
D.WRED
E.RSVP

F.WFQ

Answer: C, D

Explanation:
Wighted RED (WRED) and Flow-Based WRED (FRED) are the two congestion-avoidance tools available in IOS.

QUESTION 142
The newly appointed Certkiller trainee wants to know which Cisco IOS congestion avoidance features use IP Precedence to affect the probability of whether or not a packet will be dropped. What will your reply be? (Choose all that apply.)
A.CAR
B.RED
C.FRED
D.WRED
E.NBAR
F.WFQ

Answer: C, D

QUESTION 143
The newly appointed Certkiller trainee wants to know which Cisco IOS congestion avoidance features specifically penalizes flows (such as UDP) that does not respond to drops. What will your reply be?
A.IP RTP priority
B.RED
C.WFQ
D.FRED
E.NBAR
F.WRED

Answer: A, D
Not D:WRED is not sensitive to flows.

QUESTION 144
Which of the following show commands will list the settings and counters for WRED behavior when you configure WRED using MQC?
A.show wred
B.show policy
C.show interface s0 random
D.show wred interface policy
E.show policy wred
F.show wred policy

Answer: B
Not C:There is no command show interface s0 random

QUESTION 145
Exhibit:
interface Fddi2/1/0
rate-limit input access-group rate-limit 100 8000000 80000 conform-action
transmit exceed-action drop
ip address 200.200.6.1 255.255.255.0
!
access-list rate-limit 100 00e0.34b0.7777
What is the result of the configuration shown in the exhibit on input traffic to the FDDI interface?
A.All input traffic on the FDDI interface is rate limited to 80 Mbps.
B.Traffic from MAC address 00e0.34b0.7777 is rate limited to 80 Mbps.
C.Traffic sent to the FDDI interface is dropped if it exceeds a rate of 512,000 bps.
D.Traffic sent from the MAC address 00e0.34.b0.7777 is dropped if it exceeds a rate of 512,000 bps
E.All traffic sent to the FDDI interface is accepted at 100 Mbps as long as it conforms to the excessive burst parameter.

Answer: B

QUESTION 146
Which command is used on Cisco IOS routers to enable Flow based WRED (FRED)?
A.router#(config)flow enable
B.router#(config)random detect
C.router#(config-if)flow enable
D.router#(config)random detect flow
E.router#(config-if)random detect flow

Answer: E

Explanation:
To enable flow-based WRED, use the ramdom-detect flow interface configuration command.
You must use this command to enable flow-based WRED before you can use the random-detect flow average-depth-factor and ramdom-detect flow count commands to further configure the parameters of low-based WRED.
Reference: Introduction to IP QoS p.5-44

QUESTION 147
How do you enable PGM on Cisco routers?
A.Router#(config) ip pgm
B.Router#(config) set pgm
C.Router#(config) ip pgm router
D.Router#(config-if) ip pgm router
E.Router#(config-if) ip pgm enable

Answer: D

Explanation:
To enable Pragmatic General Multicast (PGM) Router Assist and thereby allow PGM to operate more efficiently on the router, use the ip pgm router interface configuration command. To disable PGM Router Assist for the interface, use the no form of the command.
ip pgm router
no ip pgm router
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1831/products_command_reference_chapter09186a00800ca6

QUESTION 148
What is the main purpose of the Cisco IOS QPPB feature?
A.It provides flow-based WRED support to External BGP peers.
B.QPPB enables traffic shaping on BGP enabled WAN interfaces.
C.It conveys IP Precedence or QoS Group to destinations using BGP communities.
D.It allows non-CEF enabled routers to support QoS and BGP by tagging routes in the BGP table.
E.It provides QoS policy in BGP networks by allowing centralized QoS configuration confederations.

Answer: C

Explanation:
QoS Policy Propagation through BGP is a mechanism that can be split into two parts:
1)Policy propagation via BGP, where a QoS policy is encoded into a BGP attribute. BGP Communities are typically used to encode a QoS policy.
2)Marking of packets with IP precedence or QoS group based on the QoS policy learned via BGP.
BGP Policy is usually set on ingress routers (ingress for route propagation, egress for packet forwarding) in an Autonomous System. BGP then carries the information to other routers in the AS and translates (using a route map) this information into IP precedence or QoS group. Marking is then enabled on per-interface basis.
Reference: Introduction to IP QoS p.2-23

QUESTION 149
What is the purpose of shaping traffic conditioners in IP QoS?
A.Shaping reorders transmit queues to offer priority service to specific traffic flows.
B.Shaping is a non-buffer based solution that drops packets above a specified burst rate.
C.Shaping techniques monitor network traffic loads in an effort to anticipate and avoid congestion.
D.Shaping uses packet re-write capabilities to sort traffic and maintain specific data rates for classified traffic.
E.Shaping avoids delays by smoothing out speed mismatches in the network and by limiting transmission rates.

Answer: C

Explanation:
If the traffic exceeds the contract, one option is to shape the traffic. Shaping just means to buffer or queue the traffic, slowing it down, so that the resulting sending rate is withing the contract.
Reference: DQOS Exam Certification Guide p.130

QUESTION 150
When configuring Weighted Random Early Detection (WRED), what is a potential problem that could arise if the difference between the maximum threshold and the minimum threshold is too small?
A.Too many packets could be dropped resulting in global synchronization.
B.The network could become overly congested because not enough packets are dropped as traffic levels increase.
C.The only effect of these settings is that traffic utilization peaks are greatly reduced as smaller amounts of traffic are offered to the network.
D.This condition could never occur as the Cisco IOS forces users to configure a minimum distance setting between both the minimum and maximum threshold.
E.The WRED mechanism might not recognize the maximum threshold has been hit if it is configured too close to the minimum threshold.
The result would be unmanaged congestion.

Answer: A

Explanation:
The probability of a packet being dropped is based on three configurable parameters:
1)Minimum threshold - When the average queue depth is above the minimum threshold, RED starts dropping packets. The rate of packet drop increases linearly as the average queue size increases, until the average queue size reaches the maximum threshold.
2)Maximum threshold - When the average queue size is above the maximum threshold, all packets are dropped. If the difference between the maximum threshold and the minimum threshold is too small, many packets might be dropped at once, resulting in global synchronization.
3)Mark probability denominator - This is the fraction of packets dropped when the average queue depth is at the maximum threshold.
Reference: Introduction to IP QoS p.5-9

QUESTION 151
What are two features that allow AutoQos to recognise voice traffic? (choose two)

A. a new QoS tag unique to phones
B. trust boundaries to allow the switch to track IP phones on the network
C. CallManager device table queries
D. IP phone registration with each AutoQoS server
E. automatic configuartion of an MQC class for voice signalling traffic

Answer: B, E
Page 2,12, Cisco AutoQoS White Paper,
http//www.cisco.com/en/US/tech/ CK5 43/ CK7 59/technologies_white_paper09186a00801348bc.shtml

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QUESTION 152
In CBWFQ, class weights can be applied by using which three options?
A.DSCP value from theCoS-to-DSCPmap in the class-map statement
B.DSCP value in policy-map
C.bandwidth in kpbs

D.percentage of bandwidth on the configured interface
E.percentage of available bandwith

Answer: B, C, E
Page 276, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 153
Why is it necessary to map L2 QoS marking to L3 QoS marking?

A. because L2 QoS marking may not cross the network end to end
B. because L2 QoS markings such asCoSare only local to the router or switch
C. because L2 QoS marking can only identify up to 8 traffic classes
D. because routers do not support L2 QoS marjings
E. because L2 Qos marking cannot be trusted

Answer: A

QUESTION 154
What are three QoS benefits that can be gained when trust boundaries are extended from the distribution layer to the access layer in a network? (Choose three.)
A.Traffic is classified and marked immediately
B.Traffic classification is verified by distribution and core layer of the network.
C.Classification and marking at the edge increases distribution layer router processing power
D.Classification and marking at the edge minimizes upstream congestion.
E.Classification and marking is accomplished as close to the destination as possible.

Answer: B, C, D

QUESTION 155
Why is ECN considered an extension to WRED?
A.Instead of dropping packets, ECN marks them when the average queue length exceeds the threshold value.
B.ECN drops all packets when the average queue length is exceeded.
C.ECN drops only marked packets before entering them in the queue.
D.Because of tail dropping. ECN is identical to the way the WRED handles the queue buffering.

Answer: A

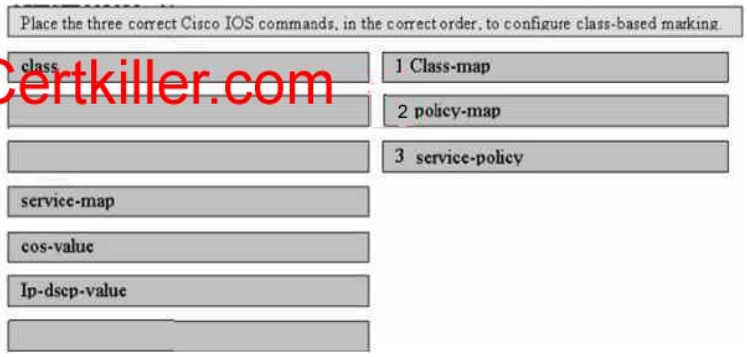
QUESTION 156
What are two benefits of using WRED to provide congestion management? (Choose two.)
A.Queue levels can be maintained somewhere between the minimum and maximum thresholds.
B.Lower priority traffic can selectively be discarded when the Interface becomes congested.
C.The average queue length is monitored and packets begin dropping only when the maximum threshold has been reached.
D.Statistically, more packets are dropped from small users than large users to preserve high flow queues.
E.The selective dropping capability is especially helpful in networks that support voice traffic.

Answer: A, B

Explanation:
A:The idea behind using WRED is to maintain the queue depth at a level somewhere between the minimum and maximum thresholds, and to implement different drop policies for different classes of traffic.
Reference: Introduction to IP QoS p.5-15

QUESTION 157

Answer:



QUESTION 158
What are two key advantages of the DiffServ model? (Choose two.)
A.is highly scalable
B.provides many possible levels of service
C.provides completely guaranteed quality of service
D.works seamlessly withvery little network configuration
E.reserves bandwidth explicitly for each level of service

Answer: A, B

Explanation:
The Differentiated Services (DiffServ) model describes services associated with traffic classes. Traffic classes are identified by the value of the DiffServ Code Point (DSCP replaces IP precedence in the ToS field of the IP header).

The main goal of the DiffServ model are to provide scalability and a similar level of QoS to the Int Serv model, without having to do it on a per-flow basis. The network simply identifies a class (not application) and applies the appropriate per-hop behavior (QoS mechanism)
Reference: Introduction to IP QoS (Course) p.34

QUESTION 159
Which class-based, policing-configuration option uses dual token buckets that fill simultaneously but at different rates based on the configured PIR and CIR?
A.single-rate, dual token buckets, class-based policing
B.multi-action, class-based policing
C.dual-rate, class-based, class-based policing
D.percentage-based, class-based policing
E.peak-rate, class-based policing
F.average-rate, class-based policing

Answer: C

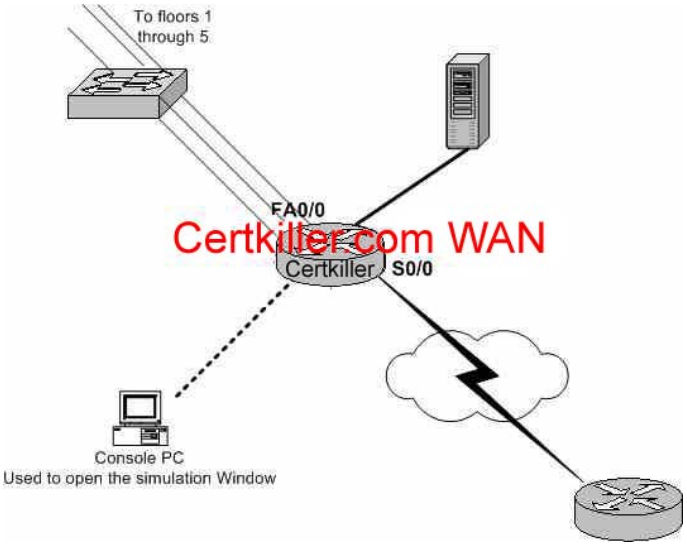
QUESTION 160
What is the correct class-based marking configuration to remark (map) traffic marked as "CoS4" or "CoS5" to DSCP AF 31"?
A.class.map cos4and5
Match cos 4 5
!
policy-map remark
class cos4and5
set dscp af31
B.class-map cos4and5
Match cos 4
Match cos 5
!
policy-map remark
class cos4and5
set dscp af31
C.class-map cos4
Match cos 4
!
class-map cos5
match cos5
!
policy-map remark
class cos4
class cos5
set dscp af31
D.class-map cos4
Match cos4
!

class-map cos5
match cos5
!
policy-map remark
class cos4 cos5
set dscp af31

Answer: A

Explanation:
Only in A syntax is correct.

QUESTION 161
Simulation exhibit:



Note: You are required to evaluate the output the simulation to obtain the correct answer to this question.
Simulation output #1:

Simulation output #2:

You work as a network administrator at Certkiller .com.
An upstream device has verified that HTTP packets are passing through the Certkiller router.
Why are no packets showing as matching the os1-traffic?
A.The policy-map out-policy configuration is incorrect.
B.The class-map cs1-traffic configuration is incorrect.
C.The service-policy is incorrectly applied to the serial 0/0 interface.
D.NBAR protocol discovery needs to be enabled on the serial 0/0 interface.
E.IP CEF must be disabled.

Answer: D

QUESTION 162
What is the function of Modular QoS CLI classification?
A.To classify traffic independently of QoS policies.
B.To classify traffic based on the Class Latency Index (CLI).

C.To group QoS configuration commands into modules to ease configuration.
D.To aggregate traffic into one QoS classification for operational efficiency (CPU and memory).

Answer: A

Explanation:
Modular Quality of Service (QoS) Command-Line Interface (CLI) is a feature that allows users to specify a traffic class independently of QoS policies.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800bd9

QUESTION 163
Within Modular QoS CLI, which three elements does a service policy contain? (Choose three)
A.Name
B.Policy type
C.Traffic class
D.QoS policies
E.Wildcard mask for matching policy criteria.
F.Instruction on how to evaluate the policy type.

Answer: A, C, D

Explanation:
A traffic policy contains three elements: a name, a traffic class (specified with the class command), and the QoS policies .
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800bd9

QUESTION 164
You are using Modular QoS CLI to classify all packets except those that came in from a specific interface.
Which command should you use?
A.Match not interface
B.Match none interface
C.Match inverse interface
D.Match not input-interface
E.Match none input-interface
F.Match inverse input-interface

Answer: D

QUESTION 165
Under Modular QoS CLI's policies, the set command can be used to set_____.(Choose four)
A.ip dscp

B.atm-clp
C.qos-group
D.max-thresh
E.ip precedence

Answer: A, B, C, E

QUESTION 166
In the Differentiated Services model, what is the purpose of the Expedited Forwarding service class as defined in RFC 2598? (Select all that apply.)
A.Provides a traffic engineered path for packets to transit.
B.Ensures guaranteed bandwidth to a specific traffic class.
C.Provides for packet delivery with a specific reliable deliver guarantee.
D.Provides guaranteed packet forwarding with the lowest possible delay.
E.Ensures that packets traverse the network using the least loaded paths.

Answer: B, D
RFC2598

QUESTION 167
When using Modular QoS CLI to classify packets arriving from a specific MAC address, which command should you use?
A.Match mac
B.Match source
C.Match source-mac
D.Match source-address
E.Match source-address mac

Answer: E

Explanation:
Match source-address mac mac-address command classifies packets based on the source MAC address. This classification oprion can only be used on interfaces using MAC addresses (e.g. Ethernet, FastEthernet).
Reference: Introduction to IP QoS p.8-27

QUESTION 168
What are Packet Description Language Modules (PDLMs)
A.Modules containing the rules used by NBAR to recognize an application.
B.A client-server application NBAR queries for network application information.
C.Modules containing a scripting language used to list applications to be recognized by NBAR.
D.An application that searched network servers to list the applications to be recognized by NBAR.

Answer: A

Explanation:
Cisco uses a feature called packet descriptor language modules (PDLMs) to define new protocols that NBAR

should match. When Cisco decides to add one or more new protocols to the list of protocols that NBAR should recognize, it creates and compiles a PDLM. You can then download the PDLM from Cisco, copy it into Flash memory, and add the ip nbar pdlm pdlm-name command to the configuration, where pdlm-name is the name of the PDLM file in Flash memory. NBAR can then classify based on the protocol information from the new PDLM.
Reference: DQOS Exam Certification Guide p.226

QUESTION 169
In which 3 scenarios can Cisco AutoQoS be extremely beneficial? (choose three.)
A.small-to-medium size businesses that have unlimited time and staffing skills to plan and deploy IP QoS services
B.large customer enterprises that need to deploy Cisco AVVID on a large scale, while reducing the cost, complexity, and timeframe for deployment and ensuring that the appropriate QoS for voice applications is being set in a consistent fashion.
C.international enterprises or service providers requiring QoS for VoIP in different regions of the world while little experience exists and where provisioning QoS remotely and across different time zones is difficult
D.service providers requiring a template-driven approach to delivering managed services and QoS for voice traffic to large numbers of customer-premise devices
E.large enterprises that need to deploy IPT and have a support staff capable of doing the design.

Answer: B, C, D
Page 2, Cisco AutoQoS White Paper,
http//www.cisco.com/en/US/tech/ CK5 43/ CK7 59/technologies_white_paper09186a00801348bc.shtml

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QUESTION 170
Match the QoS characteristic with the matching QoS model

QoS characteristic, select from these

- virtually unlimited scalability
- the necessity for applications to signal their requirement to the network
- packet recognition by the network (no signaling needed)
- limited scalability
- highly scalable
- today's internet

QoS model

Best Effort

Integrated Services

Differentiated Services

Answer:

QoS model

Best Effort

virtually unlimited scalability
today's internet

Integrated Services

the necessity for application to signal their requirement to the network
limited scalability

Differentiated Services

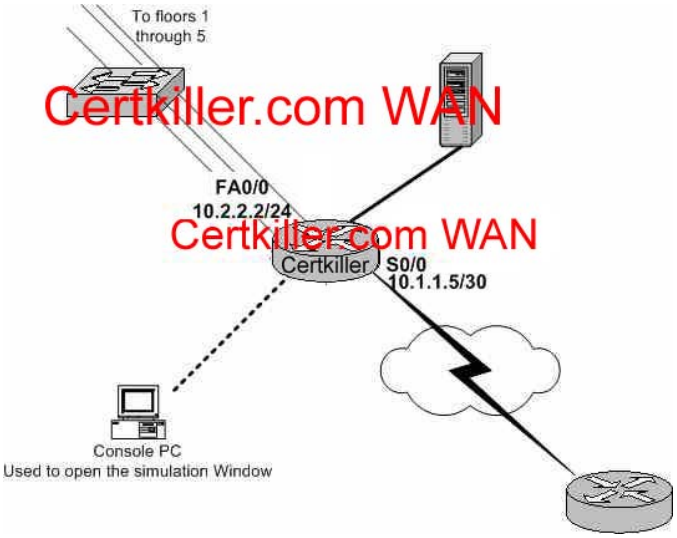
packet recognition by the network (no signaling needed)
highly scalable

Page 777, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 171
How are IP precedence bits used in differentiated services to provide backward compatibility?
A.as the default PHB
B.as the class selector
C.as expedited forward bits
D.as the assured forwarding group

Answer: B
Page 129, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 172
Simulation exhibit



Note: You are required to evaluate the output the simulation to obtain the correct answer to this question.

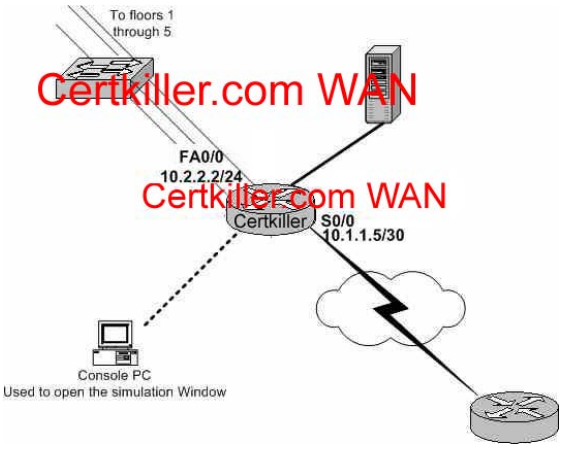
Simulation output #1:

Simulation output #2:

You work as a network administrator at Certkiller .com.
Which QoS method is applied to the serial 0/0 interface on the Certkiller router?
A.LLQ
B.CBWFG
C.LLQ + CB-WRED
D.CBWFQ + CBWRED
E.CB Policing
F.CB Shaping

Answer: A

QUESTION 173
Simulation exhibit:



Note: You are required to evaluate the output the simulation to obtain the correct answer to this question.

Simulation output #1:

Simulation output #2:

You work as a network administrator at Certkiller .com.
Which statement is accurate regarding the status of interface serial 0/0?
A.Congestion has occurred on the interface.
B.No congestion has occurred on the interface.
C.The queuing mechanism was not invoked on the interface.
D.The TxRing limit is set at 64 packets.

Answer: B

QUESTION 174
Your boss at Certkiller .com is curious about WRED (Weighted Random Early Detection. In particular she wants to know which QoS mechanism is implemented by WRED.
What should you tell Mrs. King?

A.dropping
B.metering
C.policing
D.queuing
E.shaping

Answer: A

Explanation:
WRED is dropping packet in the queue based on their weights to avoid conjestion.

QUESTION 175
You work as a network administrator at Certkiller .com. You have deployed link efficiency mechanisms on a WAN Link. Your trainee asks you why. (Select three.)
A.decrease delay
B.decrease jitter
C.increase link speed
D.increase throughput
E.decrease propagation delay

Answer: A, B, D

QUESTION 176
What is the standard serialization delay goal to insure low delay and jilter for voice packets?
A.20-25ms
B.10-15ms
C.15-20ms
D.25-30ms

Answer: B
"Ip Telephony Self-Study / Cisco Ip Telephony Flash Cards", page. 167.

QUESTION 177
What are three benefits of using MQC for QoS configuration? (Choose three.)
A.It allows the same QoS policy to be applied to multiple interfaces.
B.It provides support for up to 64 different class maps.
C.It allows any supported classification mechanism to be used with any QoS mechanism.
D.It allow for extensive marking capabilities to be applied to any service policy.
E.Classification is configured independently from the service policy.

Answer: A, C, E
Explanation
The Modular Quality of Service Command Line Interface (MQC) was introduced to allow any supported classification to be used with any QoS mechanism.
The separation of classification from the QoS mechanism allows new IOS versions to introduce new QoS mechanisms and reuse all available classification options. On the other hand, old QoS mechanisms can benefit

from new classification options.
Another important benefit of the MQC is the reusability of configuration. MQC allows the same QoS policy to be applied to multiple interfaces.
Reference : Introduction to IP QoS p.8-3

QUESTION 178
At the network layer, IP packets are typically classified based on which three items?
(Choose three.)
A.packet length
B.VALAN Identifier
C.flow control bits
D.source and destination IP addresses
E.content of the ToS byte

Answer: A, D, E
Reference: Introduction to IP QoS p.4-77

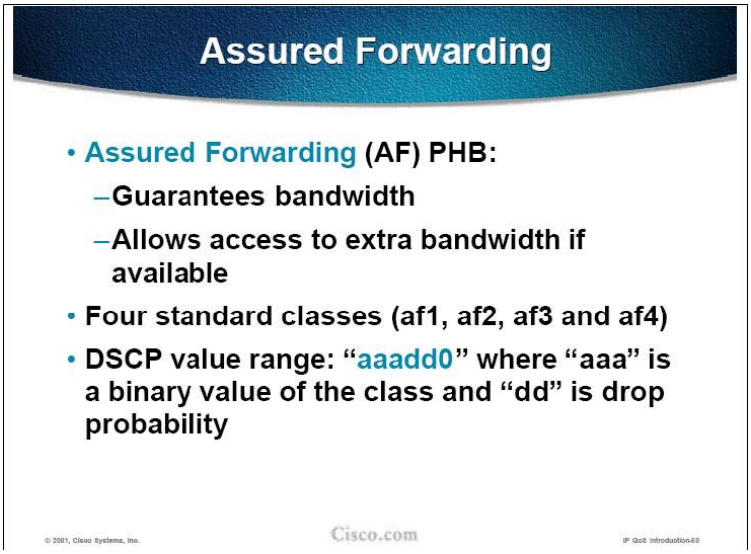
QUESTION 179
Which of the following are types of scheduling used by Cisco QoS features? (Choose all that apply.)
A.Round robin
B.Modified linear
C.Strict priority
D.Fair weighted
E.Weighted Random Early Detection (WRED)

Answer: A, C, D

QUESTION 180
What is the default number of classes that Assured Forwarding (AF) have?
A.1
B.3
C.4
D.6
E.8

Answer: C

Explanation:



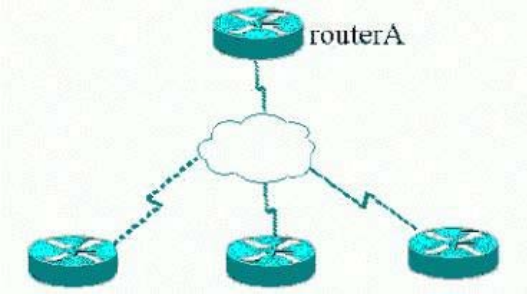
The Assured Forwarding PHB is identified based on the following parameters:
Guarantees a certain amount of bandwidth to an AF class
Allows access to extra bandwidth, if available
Packets requiring AF PHB should be marked with DSCP value "aaadd0" where "aaa" is the number
of the class and "dd" is the drop probability
There are four standard-defined AF classes. Each class should be treated independently and have bandwidth allocated based on the QoS policy.
Source:Cisco IP QoS Introduction, Page 49

QUESTION 181
Which two problems are typical for voice in the absence of QoS? (Choose two)
A.Choppy speech.
B.Disconnected calls.
C.Softer volume speech.
D.Words out oforderdue to recovery.

Answer: A, B

Explanation:
The following most likely occurs for voice in absence of QoS:
difficult to know when the other caller has finished talking.
Reference: Cisco Press - DQOS Exam Certification Guide p.765

QUESTION 182
Exhibit:



Central site router A has a single access link, which is a 512 Kbps link, with PVCs of CIR 256 K to each of three remote routers, namely routerB, routerC, and routerD. RouterB's output utilization on the PVC to routerA never exceeds an average of 100 Kbps. You have verified that it never even approaches 256 Kbps, even during short burts.
Which two statements are true about fragmentation? (Choose two)
A.Since there is never congestion, there is no need for fragmentation.
B.The Frame Relay network inherently deals with congestion therefore no fragmentation is required,
C.There still may be large packets leaving routerB, so fragmentation may be beneficial to overcome serialization delay.
D.Congestion delay called "Egress Blocking" could occur for frames leaving the Frame Relay network, heading for routerA, so fragmentation at all the remote routers might help some frames to be interspersed.

Answer: C, D

QUESTION 183
For very low-speed links (those with a link speed less than 768 K), it is necessary to use techniques that provide link fragmentation and interleaving of packets. This prevents voice traffic from being delayed behind large data frames and hence bounds jitter.
What are two techniques that exist for this?
A.LECS for ATM links.
B.Multilink PPP (MLP) for Serial links.
C.FRF.12 for Frame Relay.
D.1png for DSL links.

Answer: B, C

QUESTION 184
Which two features can be used to mark packets according to the Cisco QoS Framework? (Choose two)
A.CQ
B.PQ
C.CAR
D.MQC
E.WRED

Answer: C, D

QUESTION 185
Which two are benefits (listed in the DQOS course) of implementing QoS inEnterpriseNetworks? (Choose two)

A.It sets traffic priorities across the network.
B.It minimizes loss during bursty congestion.
C.It allows better LAN performance through Per QOS Spanning Tree (PQST).
D.It reduces the amount of data sent through the network using Content Distribution Networking (CDN).

Answer:
A. B

Explanation:
QoS attempts to solve network traffic performance issues, although QoS is not a cure-all. To improve network performance, QoS features affect a network by manipulation the following network characteristics:
1) Bandwidth
2) Delay
3) Jitter (delay variation)
4) Packet loss
Reference: Cisco Press - DQOS Exam Certification Guide p.9

QUESTION 186
Exhibit:

PC1 sends a packet to R1. R1 forwards to R2, then R3, and finally R3 forwards the packet to the destination, PC2. R1 marks the packet with IP Precedence 3.
Which statement is true?
A.When classifying packets at Layer 3, only Layer 3 IP Precedence marking can be used.
B.R2 and R3 can perform QoS features that ignore the marked IP Precedence field in the packet.
C.R2 and R3 can only perform QoS features based on the IP Precedence field, since the packet had already been marked.
D.R2 can apply QoS features to the packet, and R3 can on ingress, but R3 cannot apply QoS features to the packet as it exists the Ethernet port on which PC2 resides.

Answer: B

QUESTION 187
From the list below, what is the most important piece to implement if you are considering a VoIP infrastructure?
A.Reinstallation of the PBX.
B.QoS
C.PSTN Regeneration costs.
D.POTS installation documentation.
E.A new Help Desk trained on Voice technologies.

Answer: B

QUESTION 188
Which tool from the list below can be applied to the Campus Switches to help eliminate traffic congestion?

A.QoS
B.LMI
C.PIM
D.DVRMP
E.CDP
F.RDP

Answer: A

QUESTION 189
Command exhibit: qos pre-classify
Your Certkiller .com trainee Sandra asks you what the purpose of the command displayed in the exhibit is.
A.To enable the IOS to copy the ToS field from the original IP header to the outer tunnel IP header.
B.To enable the IOS to copy the ToS field from the outer tunnel IP header to the outer tunnel IP header.
C.To enable the IOS to classify the packet based on the original IP header instead of the tunnel IP header.
D.To enable the IOS to classify the packet based on the outer tunnel IP header instead of the original IP header.
E.to enable class-based marking on tunnel interface
F.to enable class-based marking on IPSec crypto maps

Answer: C

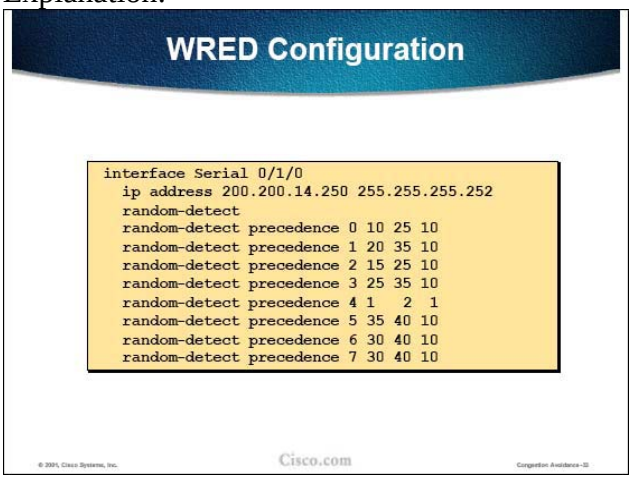
Explanation:
For Layer 2 Forwarding(L2F) and Layer 2 Tunneling Protocol(L2TP) protocols, the qos pre-classify command is applied on the virtual template interface. L2TP clients belonging to identical virtual private dial-up network (VPDN) groups inherit the preclassification setting. The qos pre-classify command can be configured on a per-VPDN tunnel basis.
For IPSec tunnels, the qos pre-classify command is applied on the crypto map, allowing configuration on a per-tunnel basis. QoS features on the physical interface carrying the crypto map are able to classify packets before encryption.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800c75

QUESTION 190
Study the Exhibit below carefully:
interface Serial 0/1/0
ip address 10.1.1.1 255.255.255.0
random-detect
random-detect precedence 0 121
random-detect precedence 0 10 20 10
random-detect precedence 2 15 20 10
random-detect precedence 3 20 30 10
random-detect precedence 4 25 30 10
random-detect precedence 5 30 40 10
random-detect precedence 6 35 40 50

random-detect precedence 7 35 40 100
random-detect exponential-weighted-constant 11
Based on the configuration in the exhibit, which statement is valid?
A.The drop probability of precedence 0 traffic is 100%.
B.The drop probability of precedence 1-5 traffic is 100%.
C.The drop probability of precedence 6 traffic is 100%.
D.The drop probability of precedence 7 traffic is 100%.

Answer: A

Explanation:

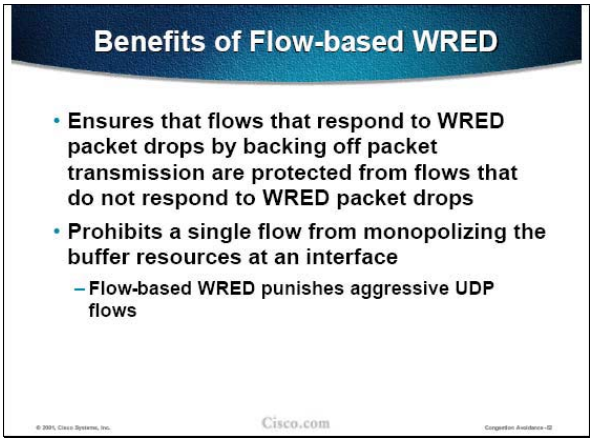


This configuration excerpt shows the implementation of the dropping policy, illustrated by the case study. The threshold values reflect the values chosen in the previous figure. Note that precedence 4 is not used to mark traffic in the case study network, so the drop probability of precedence 4 traffic is 100% (1 divided by 1 times 100%).
Source:Cisco Congestion Avoidance, Page 5-30

QUESTION 191
Why would a network administrator prefer to use Flow-based WRED (FRED) as opposed to standard Weighted Random Early Detection (WRED)?
A.In Cisco IOS, FRED is more user friendly when being configured as opposed to WRED.
B.FRED can classify packets using DSCP and WRED cannot.
C.FRED adds support for new protocol and traffic types including UDP.
D.With FRED, packets are not dropped indiscriminate of the kind of flows to which the packets belong.

Answer: D

Explanation:



FRED therefore has substantial benefits compared to WRED, as it can also be used in environments that do not exhibit a predominantly TCP-based traffic mix. FRED enables differentiated dropping between fragile and non-adaptive flows, in which the loss rate is higher with non-adaptive flows. This is something that WRED is unable to do, because it drops packets without regard to flow buffer usage. Therefore, FRED protects fragile and adaptive flows from non-adaptive flows, which may, in the case of RED, monopolize router queues in their path.
Source:CiscoCongestion Avoidance, Page 5-48

QUESTION 192
On what basis are packet drop decisions taken in an environment of Cisco implemented Weighted Random Early Detection (WRED)? (Choose all that apply.)
A.TCP window size
B.Interface buffer utilization
C.DSCP
D.IP precedence
E.Interface output queue size

Answer: C, D

Explanation:
WRED calculates the average queue depth just like RED, ignoring precedence, but it decides when to discard packets based on theprecedenceorDSCPvalue.
Source:Cisco DQOS Exam Certification Guide, Page 438

QUESTION 193
The newly appointed Certkiller trainee technician wants to know which of the following steps are necessary when configuring policy-based routing on Cisco IOS routers.What will your reply be?(Choose all that apply.)
A.Assign the policy to an interface.
B.Enable local policy-based routing.
C.Enable fast-switched policy-based routing.
D.Specify the match criteria and resulting action.
E.Define a route map to be used by policy-based routing.

Answer: A, D, E

Explanation:

Example 3-7 *PBR Marking, VoIP as DSCP EF, Everything Else as BE*

```
ip route-cache policy
!
ip access-list extended VoIP-ACL
 permit udp any range 16384 32767 any range 16384 32767
!
int fastethernet 0/0
 ip policy route-map voip-routemap
!
route-map voip-routemap permit 10
 match ip address VoIP-ACL
 set ip precedence 5
!
route-map voip-routemap permit 20
set ip precedence 0
```

PBR usesroute-mapcommands, along withmatchandsetroute-map subcommands, to classify and mark the packets. This configuration uses a route map named voip-routemap, which includes two clauses. The first clause, clause 10, uses amatchcommand that refers to VoIP-ACL, which is a named IP ACL. VoIP-ACL matches UDP port numbers between 16,384 and 32,767, which matches all VoIP traffic. If the ACL permits a packet, the route map's first clause acts on thesetcommand, which specifies that IP precedence should be set to 5.

The second route map clause, clause 20, matches the rest of the traffic. The route map could have referred to will match this clause by default. By not having to refer to another IP ACL to match all packets, less processing overhead is required. Thesetcommand then specifies to set precedence to zero.

Theip policy route-map voip-routemapcommand enables PBR on interface FA0/0 for incoming packets. Notice that the direction, input or output, is not specified, because PBR can only process incoming packets.

Source:Cisco DQOS Exam Certification Guide, Pages 203, 204

QUESTION 194

The newly appointed Certkiller trainee technician wants to know how per-VC Class-Based Weighted Fair Queuing (CBWFQ) works. What will your reply be?

A.A weight is assigned to the entire class, not to an individual flow.
Only a single class can be assigned to each VC.

A.A weight is assigned to the entire class, not to an individual flow.
Multiple classes can be assigned to each VC.

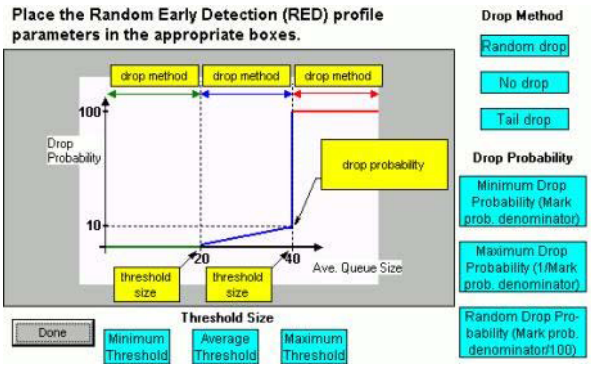
A.Each flow within a class is assigned a separate weight by CBWFQ.
Only a single class can be assigned to each VC.

A.Each flow within a class is assigned a separate weight by CBWFQ.
Multiple classes can be assigned to each VC.

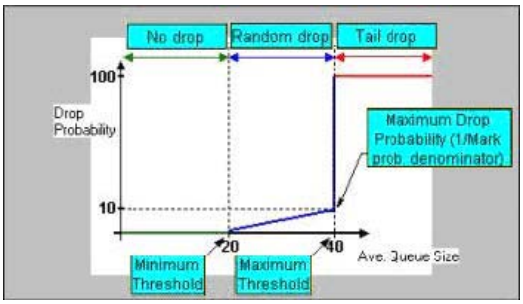
Answer: C

QUESTION 195

Place the Random Early Detection (RED) profile parameters in the appropriate boxes.

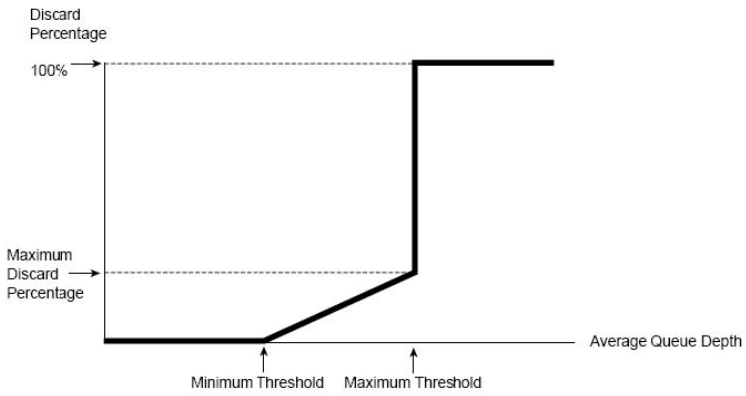


Answer:



Explanation:

Figure 6-6 *RED Discarding Logic Using Average Depth, Minimum Threshold, and Maximum Threshold*



You can set the maximum percentage of packets discarded by WRED by setting the mark probability denominator (MPD) setting in IOS. IOS calculates the maximum percentage using the formula 1/MPD. For instance, an MPD of 10 yields a calculated value of 1/10, meaning the maximum discard rate is 10 percent.
Source:Cisco DQOS Exam Certification Guide, Page 436

QUESTION 196

The CIO of Certkiller wants to know what allows the Differential Services model to be scaled to large networking environments. What will your reply be?

A.Differential services are accomplished through hop-by-hop application signaling.

B.The Differentiated Services model scales by providing per-flow state visibility to the core of the network.

C.Policing is not utilized in the Differentiated Services model providing to facilitate efficient expediting of high priority traffic flows.

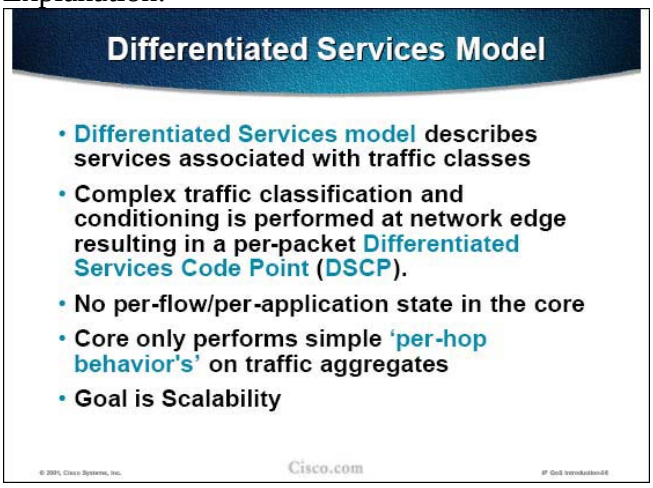
D.

It achieves scalability by implementing complex classification and conditioning requirements only at network boundary nodes.
E.In the Differentiated Services model, an explicit setup mechanism predefines all QoS parameters for the packet before it is transmitted.

Answer: D
Incorrect:

A. Core only performs simple'per-hop behavior's'on traffic aggregates
B. No per-flow/per-application state in the core

Explanation:



Source:CiscoIP QoS Introduction, Page 34

QUESTION 197
Study the Exhibit below carefully:
<output omitted>
!
interface Ethernet0/0
ip address 161.24.52.1 255.255.255.0
traffic-shape group 101 1000000 125000 125000
!
interface Ethernet0/1
ip address 161.24.53.1 255.255.255.0
traffic-shape rate 5000000 625000 625000
!
access-list 101 permit udp any any
!
<output omitted>
In which way will the traffic leaving the router be affected by the configuration as illustrated? (Choose all that apply.)
A.All traffic leaving interface Ethernet 0/0 is rate limited to 1 Mbps.
B.All traffic leaving interface Ethernet 0/1 is rate limited to 5 Mbps.
C.All UDP traffic that enters interface Ethernet 0/0 is rate limited to 1 Mbps.

D.All non-UDP traffic that leaves interface Ethernet 0/0 can use the full line rate.
E.Excess burst capabilities have been disabled because the excess burst parameter has been configured to match the burst size.

Answer: D, E
Correct
D: Traffic not matching the access-list will default to full line rate.
E: The default is equal to theburst-sizeargument.
Incorrect

A. Burstsize is set above the bit rate
B. Burstsize is set above the bit rate
C. Traffic shaping is outbound traffic on an interface

Explanation:
traffic-shape group
To enable traffic shaping based on a specific access list for outbound traffic on an interface, use thetraffic-shape groupinterface
configuration command. To disable traffic shaping on the interface for the access list, use thenoform of this command.
traffic-shape groupaccess-listbit-rate[burst-size[excess-burst-size]]
no traffic-shape groupaccess-list
Syntax Description

access-list	Number of the access list that controls the packets that traffic shaping is applied to on the interface.
bit-rate	Bit rate that traffic is shaped to (in bits per second). This is the access bit rate that you contract with your service provider, or the service levels you intend to maintain.
burst-size	(Optional) Sustained number of bits that can be sent per interval. On Frame Relay interfaces, this is the committed burst size contracted with your service provider.
excess-burst-size	(Optional) Maximum number of bits that can exceed the burst size in the first interval in a congestion event. On Frame Relay interfaces, this is the excess burst size contracted with your service provider. The default is equal to theburst-sizeargument.

Usage Guidelines
Generic traffic shaping is not supported on ISDN and dialup interfaces. Is is also not supported on non-generic routing encapsulation
(GRE) tunnel interfaces. Traffic shaping is not supported with flow switching.
Traffic shaping uses queues to limit surges that can congest a network. Data is buffered and then sent into the network in regulated
amounts to ensure that traffic will fit within the promised traffic envelope for the particular connection.
Thetraffic-shape groupcommand allows you to specify one or more previously defined access list to shape traffic to on the interface.

You must specify onetraffic-shape groupcommand for each access list on the interface.
Thetraffic-shape groupcommand supports both standard and extended access lists.
Use traffic shaping if you have a network with differing access rates or if you are offering a subrate service.
You can configure the
values according to your contract with your service provider or the service levels you intend to maintain.
An interval is calculated as follows:
1.If theburst-sizeis not equal to zero, the interval is theburst-sizedivided by thebit-rate.
2.If theburst-sizeis zero, the interval is theexcess-burst-sizedivided by thebit-rate.
Traffic shaping is supported on all media and encapsulation types on the router. To perform traffic shaping on Frame Relay virtual
circuits, you can also use theframe-relay traffic-shapingcommand. For more information on Frame Relay traffic shaping, refer to the
"Configuring Frame Relay" chapter in theCisco IOS Wide-Area Networking Configuration Guide.
If traffic shaping is performed on a Frame Relay network with thetraffic-shape ratecommand, you can also use thetraffic-shape
adaptivecommand to specify the minimum bit rate to which the traffic is shaped.
Examples
The following example enables traffic that matches access list 101 to be shaped to a certain rate and traffic matching access list 102 to
be shaped to another rate on the interface:
interface serial 1
traffic-shape group 101 128000 16000 8000
traffic-shape group 102 130000 10000 1000
traffic-shape rateTo enable traffic shaping for outbound traffic on an interface, use thetraffic-shape rateinterface configuration
command. To disable traffic shaping on the interface, use thenoform of this command.
traffic-shape ratebit-rate[burst-size[excess-burst-size]]
no traffic-shape rate
Syntax Description

bit-rate	Bit rate that traffic is shaped to (in bits per second). This is the access bit rate that you contract with your service provider, or the service levels you intend to maintain.
burst-size	(Optional) Sustained number of bits that can be sent per interval. On Frame Relay interfaces, this is the committed burst size contracted with your service provider.
excess-burst-size	(Optional) Maximum number of bits that can exceed the burst size in the first interval in a congestion event. On Frame Relay interfaces, this is the excess burst size contracted with your service provider. The default is equal to theburst-sizeargument.

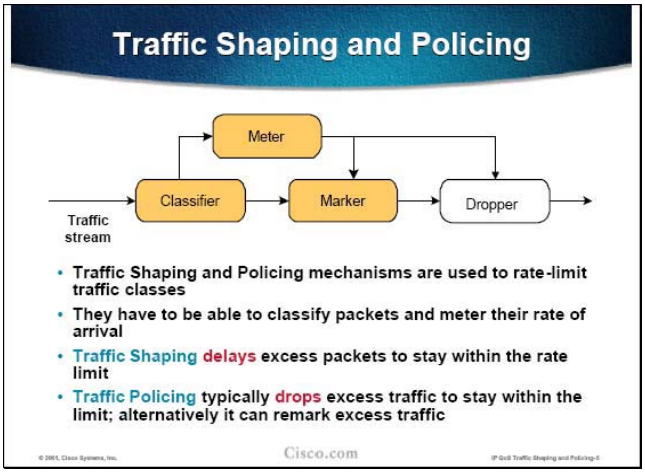
Defaults
Traffic shaping is disabled.
Usage Guidelines

Generic traffic shaping is not supported on ISDN and dialup interfaces. Is is also not supported on non-generic routing encapsulation
(GRE) tunnel interfaces. Traffic shaping is not supported with flow switching.
Traffic shaping uses queues to limit surges that can congest a network. Data is buffered and then sent into the network in regulated
amounts to ensure that traffic will fit within the promised traffic envelope for the particular connection.
Use traffic shaping if you have a network with differing access rates or if you are offering a subrate service. You can configure the
values according to your contract with your service provider or the service levels you intend to maintain.
An interval is calculated as follows:
1.If theburst-sizeis not equal to zero, the interval is theburst-sizedivided by thebit-rate.
2.If theburst-sizeis zero, the interval is theexcess-burst-sizedivided by thebit-rate.
Traffic shaping is supported on all media and encapsulation types on the router. To perform traffic shaping on Frame Relay virtual
circuits, you can also use theframe-relay traffic-shapingcommand. For more information on Frame Relay traffic shaping, refer to the
"Configuring Frame Relay" chapter in theCisco IOS Wide-Area Networking Configuration Guide.
If traffic shaping is performed on a Frame Relay network with thetraffic-shape ratecommand, you can also use thetraffic-shape
adaptivecommand to specify the minimum bit rate to which the traffic is shaped.
Examples
The following example enables traffic shaping on serial interface 0 using the bandwidth required by the service provider:
interface serial 0
traffic-shape rate 128000 16000 8000
Source:
http://www.cisco.com/en/US/partner/products/sw/iosswrel/ps1831/products_command_reference_chapter09186a008008

QUESTION 198
Which of the following QoS components will you find in both traffic shaping and policing? (Choose all that apply.)
A.meter
B.dropper
C.classifier
D.marker
E.shaper

Answer: A, C

Explanation:

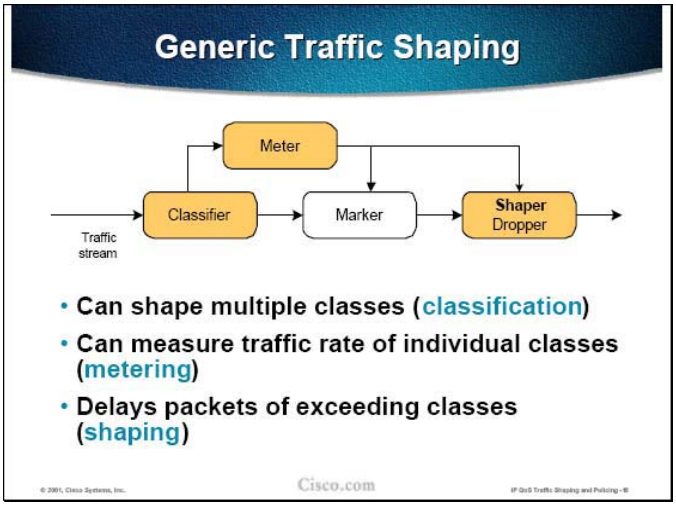


Both shaping and policing mechanisms are used in a network to control the rate at which traffic is admitted into the network. Both mechanisms useclassification, so they can differentiate traffic. They also usemeteringto measure the rate of traffic and compare it to the configured shaping or policing policy.
The difference between shaping and policing can be described in terms of their rate-limiting implementation:
Shaping meters the traffic rate and delays excessive traffic so that it stays within the desired rate limit. With shaping, traffic bursts are smoothed out producing a steadier flow of data. Reducing traffic bursts helps reduce congestion in the core of the network.
Policing drops excess traffic inorder
to control traffic flow within specified limits. Policing does not introduce any delay to traffic that conforms to traffic policies. It can however, cause more TCP retransmissions, because traffic in excess of specified limits is dropped.
Source:Cisco IP QoS Traffic Shaping and Policing, Page 4-3

QUESTION 199
In which way is congestion managed when using Generic Traffic Shaping (GTS)?
A.Call Admission Control is performed on classified traffic to ensure allocated bandwidth is not exceeded.
B.It uses multiple traffic queues that are serviced in a round-robin fashion that promotes fairness and reduces congestion.
C.Strict priority is maintained for classified traffic and is policed through packet discard.
D.Random Early Detection (RED) is used to selectively drop packets and avoid congestion.
E.Outbound traffic is constrained to a particular bit rate using a token bucket mechanism.

Answer: E

Explanation:



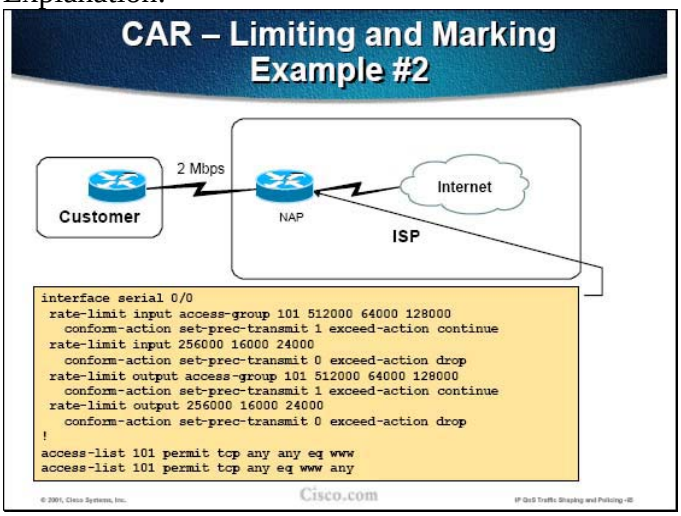
Generic Traffic Shaping (GTS) shapes traffic by reducing the outbound traffic flow to avoid congestion. This is achieved by constraining traffic to a particular bit rate using the token bucket mechanism. GTS is applied on a per-interface basis and can use access lists to select the traffic to shape. It works with a variety of Layer-2 technologies, including Frame Relay, ATM, Switched Multi-megabit Data Service (SMDS) and Ethernet.
As shown in the block diagram, GTS performs three basic functions:
Classification of traffic, so that different traffic classes can have different policies applied to them
Metering, using a token-bucket mechanism, to distinguish between conforming and exceeding traffic
Shaping, using buffering, to delay exceeding traffic and shape it to the configured rate limit
Source:Cisco IP QoS Traffic Shaping and Policing, Page 4-15

QUESTION 200
Study the Exhibit below carefully:
interface Hssi0/0/0
description 45Mbps to R2
rate-limit output access-group 101 20000000 24000 32000
conform-action set-prec-transmit 5
exceed-action set-prec-transmit0
rate-limit output access-group 102 10000000 24000 32000
conform-action set-prec-transmit 5
exceed-action drop
rate-limit output 8000000 16000 24000
conform-action set-prec-transmit 5 exceed-action drop
ip address 10.1.0.9 255.255.255.0
!
access-list 101 permit tcp any any eq www
access-list 102 permit tcp any any eq ftp
Following the exhibit, what happens to WWW traffic sent out the HSSI interface?
A.WWW traffic is rate limited to 80 Mb.
Traffic exceeding the rate policy is dropped.
A.WWW traffic is limited to 10 Mb.
Conforming traffic is sent as IP precedence 5.
Traffic exceeding the rate policy is dropped.

A.WWW traffic is limited to 10 Mb.
Conforming traffic is marked as IP precedence 5 and the next rate limit statement is executed.
Traffic exceeding the rate policy is dropped.
A.WWW traffic is limited to 20 Mb.
Conforming traffic is sent as IP precedence 5.
Traffic exceeding the rate policy is sent with best effort priority.
A.WWW traffic is limited to 20 Mb.
Conforming traffic is marked as IP precedence 5 and the next rate limit statement is executed.
Traffic exceeding the rate policy is sent with best effort priority.

Answer: D

Explanation:



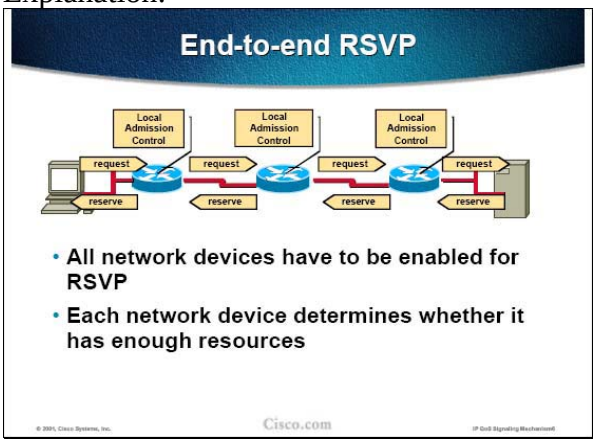
The configuration implements the policy outlined in the previous case study. Traffic is classified with extended access lists (to differentiate web traffic from other traffic), and CAR uses the access list to apply the correct policing to the traffic.
Precedence values of 0 and 1 are set to signal preferential treatment of the webtraffic to other QoS mechanisms, such as queuing and WRED.
The access list 101 identifies HTTP traffic using the default well-known port number 80 ("www" in the configuration) either as the source or destination port number in TCP segments. The conforming part of the class (up to 512 kbps) is marked with IP precedence 1. The exceeding part of the class is further evaluated by the nextrate-limit
command where it is limited together with the rest of the traffic (non-HTTP) to 256 kbps. The total throughput, therefore, will never exceed 768 kbps (512 kbps of conforming HTTP traffic + 256 kbps of exceeding HTTP traffic and all other traffic). WRED can be used in combination with CAR to provide differentiated congestion avoidance anywhere in the network.
Source:CiscoIP QoS Traffic Shaping and Policing, Page 4-93

QUESTION 201
What are functions of the RSVP path message? (Choose all that apply.)
A.RSVP path message transports the path state to each node.
B.RSVP path message distributes the path table to each RSVP node in the network.
C.RSVP path message identifies the routes used for reservation-request messages in the reverse direction.

D.RSVP path message discovers all paths to the destination so that the best path can be chosen.

Answer: B, D

Explanation:



If end-to-end RSVP is desired in a network, all devices in the reservation path must be RSVP-enabled. When a device receives an RSVP message, it determines whether it has enough resources to satisfy the reservation request at the local level.

There are two main RSVP messages used for signaling. When a reservation is needed, the sending client sends an RSVP PATH message into the network requesting a specific bandwidth to a specific destination (or multicast address, in the case of IP multicast application). The purpose of the PATH message is to discover all RSVP-enabled routers along the path from the sender to the receiver, and to create initial reservations. The PATH message is forwarded along the flow path and every intermediate RSVP-capable router adds its identification to the PATH message. When the receiving end-node receives the PATH message, it confirms the reservation by replying with an RSVP RESV message. The RESV message is forwarded back upstream towards the initial sender using the list of

RSVP-enabled routers generated by the PATH message. If the RESV message successfully arrives at the initial sender, each hop in the end-to-end connection has reserved the appropriate resources and an end-to-end reservation is established. If the appropriate resources are not available, the reservation is refused and the application must default to traditional, best effort communications.

RSVP keeps track of the soft state of reservations in routers. This soft state provides dynamic membership information, adapts to routing changes, and, as the number of flows increases, enables dynamic changes in reservations to meet those changing needs. RSVP reservations time out unless periodically refreshed by the communication endpoint, usually at 30-second intervals.

The benefits of soft state behavior are:

Connectionless behavior- routers automatically adapt to route changes.

Timeliness- state changes propagate immediately, but only as far as needed.

Robustness- the method is self-correcting, because incorrect reservations will always time-out even in the most unexpected situations.

Flexibility- provides easy dynamic reservation changes.

The cost of this approach is that it requires ongoing refresh processing for established states by the endpoints.

Sources:CiscoIP QoS Signaling Mechanism, Pages 7-4, 7-5

QUESTION 202
With Modular QoS CLI, which command should you use to display the configuration for the specified class of the specified policy map?
A.Show policy
B.Show policy-map class
C.Show policy-map service
D.Show policy-map interface

Answer: A

Explanation:
The show policy-map command can be used to verify the configuration of a policy map.
Reference: Introduction to IP QoS (Course) p.9-13

QUESTION 203
Which statement is true about policing traffic conditioners in IP QoS?
A.Policing records transmit queue to offer priority service to specific traffic flows.
B.Policing utilities buffers to delay excessive traffic when the flow is higher than expected.
C.Policing techniques monitor network traffic loads in an effort to anticipate and avoid congestion.
D.Policing allows network administrators to traffic engineer paths through the network for application flows.
E.Policing is the ability to control bursts and conform traffic to ensure certain traffic types receive specified amounts of bandwidth.

Answer: E

QUESTION 204
What are the two main functions of Committed Access Rate on Cisco IOS routers? (Choose two)
A.Packet classification using IP Precedence or QoS Group.
B.Bandwidth management by policing to control the maximum traffic rate.
C.Integrated services compatibility provided by an embedded RSVP signalling mechanism.
D.Integrated packet deliver de-jitter buffering mechanism to ensure real-time packet delivery.

Answer: A, B

Explanation:
CAR is a mechanism used to limit the traffic rate of a class and optionally mark packets with one of the following markers:
1)IP precedence
2)DSCP
3)MPLS experimental bits
4)QoS group
CAR can also mark packets with two different values depending on whether they:
1)Conform to the policy (packet is within the contractual bit-rate)
2)Exceed the policy (packet is over the contractual bit-rate)
Conforming and exceeding packets can be marked with different values.
Reference: Introduction to IP QoS p.2-47

QUESTION 205
What are two purposes of the RSVP patch message? (Choose two)
A.Transports the path state to each node.
B.Sets up an alternate path in case of network failure.
C.Distributes the path table to each RSVP node in the network.
D.Discovers all paths to the destination so that the best path can be chosen.
E.Identifies the routers used for reservation-request messages in the reverse direction.

Answer: D, E

Explanation:
When a reservation is needed, the sending client sends an RSVP PATH message into the network requesting a specific bandwidth to a specific destination (or multicast address, in the case of IP multicast application). The purpose of the PATH message is to discover all RSVP-enabled routers along the path from the sender to the receiver, and to create intial reservations. The PATH message is forwarded along the flow path and every intermediate RSVP-capable router adds it identification to the PATH message. When the receiving end-node receives the PATH message, it confirms the reservation by replying with an RSVP RESV message. The RESV message is forwarded back upstream towards the initial sender using the list of RSVP-enabled routers generated by the PATH message.
Reference: Introduction to IP QoS p.7-4

QUESTION 206
Theshow ip rsvp installedcommand displays what information?
A.RSVP-related interface information.
B.Current peak rate limit set for an interface.
C.RSVP neighbors installed in the adjacency table.
D.RSVP-related receiver information currently in the database.
E.RSVP-related installed filters and corresponding bandwidth information.

Answer: E

Explanation:
The show ip rsvp installed command shows all active conversations over an RSVP-enabled path, which has resource reservations installed. The actual reserved bandwidth is shown, along with the session parameters (endpoints and applications).
Reference: Introduction to IP QoS p.7-18

QUESTION 207
When configuring Resource Reservation Protocol (RSVP), how much of the available RSVP bandwidth is available to a single flow if you do not explicitly specify an amount?
A.25%
B.50%
C.75%
D.100%

Answer: C

Explanation:
Basic RSVP is configured by two interface commands. The rsvp bandwidth command sets the maximum total amount of reservable bandwidth on an interface. By default, it is configured to 75% of the configured bandwidth, which is also its maximum allowed value. A per-flow reservable bandwidth can also be configured, setting the maximum bandwidth a single flow can reserve over this interface. By default, it is also set to 75% of the configured bandwidth.
Reference: Introduction to IP QoS p.7-9

QUESTION 208
Which two are important benefits of applying QoS to IP networks? (Choose two)
A.QoS manages packet loss during periods of bursty congestion.
B.QoS allows network managers to control usage patterns of network applications.
C.QoS can solve traffic problems on low bandwidth, high-latency, high-loss WAN links.
D.QoS facilities the integration of differing traffic types such as voice, video, and data into a single infrastructure.
E.QoS can provide performance enhancements for commercial application issues such as server sizing and tuning.

Answer: A, D

QUESTION 209
What could be the reasons why real-time applications such as VoIP require better service in which to operate than the traditional best-effort services? (Choose all that apply.)
A.These applications are jitter sensitive.
B.These applications are delay sensitive.
C.Real-time applications are sensitive to packet drops.
D.Real-time applications are usually non-interactive and use mostly bulk data transfer.
E.Real-time applications usually require RSVP which is not available on best-effort services.

Answer: A, B, C

Explanation:
Quality of Service is usually identified by the following parameters:
bandwidth availableto a certain application or user
Average delayexperienced by IP packets on end-to-end or link basis
Jitterthat affects applications that transmit packets at a certain fixed rate and expect to receive them at approximately the same rate (for example, voice and video)
Dropsof packets when a link is congested can severely impact fragile applications
Admission controlwhich prevents too many sessions from congesting links and causing
degradation in quality of service (for example, voice sessions)
Source:CiscoIP QoS Introduction, Page 4

QUESTION 210
What is the result of Per-VC congestion avoidance discard at Layer 2 when the ingress ATM interface discards

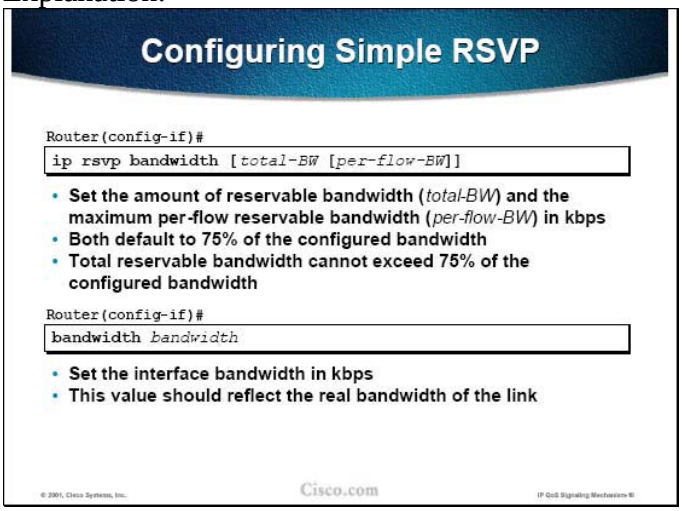
a fragment?
A.Incomplete data packets are sent and the entire data packet must be resent.
B.Data packets may be sent in cells that are out oforder, causing the entire packet to be resent.
C.The entire data packet is discarded at the ingress interface and must be resent.
D.Incomplete data packets are sent and the discarded packet fragments must be resent.

Answer: B

QUESTION 211
What is the default amount of interface bandwidth available to RSVP?
A.10%
B.25%
C.50%
D.75%
E.100%

Answer: D

Explanation:



Basic RSVP is configured by two interface commands. Theip rsvp bandwidthcommand sets the maximum total amount of reservable bandwidth on an interface. By default, it is configured to 75% of the configured bandwidth, which is also its maximum allowed value. A per-flow reservable bandwidth can also be configured, setting the maximum bandwidth a single flow can reserve over this interface. By default, it is also set to 75% of the configured bandwidth.
NoteRSVP cannot be configured with VIP-distributed Cisco Express Forwarding (dCEF).
The bandwidth
interface command sets the interface bandwidth and is used by routing protocols (to calculate costs) and by a variety of QoS mechanisms. With RSVP, this is used as the configured bandwidth parameter, referenced by the limits in theip rsvp bandwidthcommand.
Source:CiscoIP QoS Signaling Mechanism, Page 7-9

QUESTION 212
How is flow-based WFQ applied at the Virtual Circuit (VC) level?

A.Configure fair-queuing in the ATM VC.
B.Configure fair-queuing in the policy map.
C.Configure fair-queuing in the default class.
D.Configure fair-queuing in the service policy.

Answer: C

QUESTION 213
Exhibit:

```
class-map ixia
match input-interface FastEthernet3/0
class-map loopbacks
match access-group 102
!
policy-map mypol
class ixia
bandwidth 40000
queue-limit 40
class loopbacks
bandwidth 10000
class class-default
fair-queue
!
interface ATM2/0.130 point-to-point
ip address 14.0.0.2 255.0.0.0
no ip directed-broadcast
pvc 1/130
service-policy output mypol
vbr-nrt 100000 75000
broadcast
encapsulation aa15mux ip
!
access-list 102 permit ip host 10.0.0.1 host 11.0.0.1
```

Which four statements are true about the configuration in the exhibit? (Choose four)
A.CBWFQ is applied to PVC 1/130.
B.One class is applied to all the incoming traffic on Fast Ethernet 3/0.
C.Class loopbacks have been assigned a minimum of 10 kbps bandwidth
D.Class ixia has been allocated 40 Mbps bandwidth and a queue depth of 40 packets.
E.Flow-based WFQ is applied to all packets that do not belong to either class ixia or loopbacks.

Answer: A, B, D, E

QUESTION 214
How does RSVP-AT, QoS Interworking provide L3 QoS over ATM (L2)?
A.It builds an SVC with the desired parameters for each L3 flow.
B.It maps each L3 flow to a separate soft PVC that is configured with the appropriate parameters.

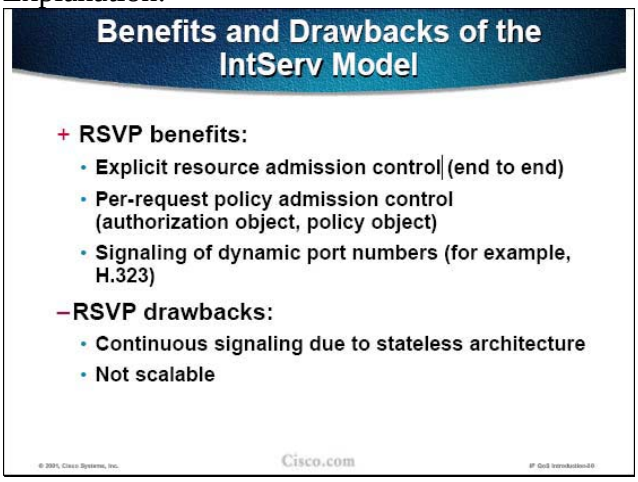
C.It dynamically builds a sub-interface for each flow and uses WFQ to achieve its bandwidth and latency requirements.
D.It dynamically allocates the L2 flow to an existing VC that can guarantee the bandwidth and latency requirements.

Answer: A

QUESTION 215
Why would you advice the new Certkiller trainee technician to make use of RSVP in an Integrated Services model? (Choose all that apply.)
A.Admission control can be based on per-request polices.
B.RSVP provides continues signaling due to its stateless architecture.
C.End-to-end, explicit resource admission control is possible with RSVP.
D.
RSVP is very scalable, even in the backbone, as only a small amount of information is required for each RSVP flow.
E.RSVP provides signaling for dynamic port numbers such as those uses in H.323.

Answer: A, C, E

Explanation:



The main benefits of RSVP are:
It signals QoS requests per individual flow. The network can then provide guarantees to
these individual flows. The problem of this is that it does not scale to large networks because of the large numbers of concurrent RSVP flows.
applications use dynamic port numbers, which can be difficult for network devices to recognize. NBAR is a mechanism that has been introduced to supplement RSVP for applications that use dynamic port numbers but do not use RSVP.
It supports admission control that allows a network to reject (or down-grade) new RSVP sessions if one of the interfaces in the path has reached the limit (all reservable bandwidth is booked).
The main drawbacks of RSVP are:
Continuous signaling due to stateless operation of RSVP
RSVP is not scalable to large networks where per-flow guarantees would have to be made

to thousands of flows.
Source:CiscoIP QoS Introduction, Page 30

QUESTION 216
The newly appointed Certkiller trainee technician wants to know what the function of classification as a building block of QoS in IP networks is. What will your reply be?
A.It is to recognize and distinguish different traffic streams.
B.It is to delay or drop packets based on specific traffic polices.
C.It is to provide guaranteed bandwidth to individual traffic streams.
D.It is to speed transmission and compress headers, improving WAN efficiency.

Answer: A

QUESTION 217
Study the Exhibit below carefully:
Policy-map shape-it
Class customer1
Bandwidth
Class customer2
Bandwidth 384
Interface serial 3
Service-policy output shape-it
You want to add CB shaping to interface serial 3, so that each customer is shaped to 64 Kbps beyond what is committed to the. Which command needs to be added to the policy map for customer 2?
A.shape average 448
B.shaping average 448
C.shape average 448000
D.shaping average 448000

Answer: C

QUESTION 218
Study the Configuration below carefully:
interface multilink 1
ip addr 1.1.1.1 255.0.0.0
fair-queue
ppp multilink
ppp multilink fragment-delay 140 160
Which statement will be valid for this configuration?
A.Fragmentation is not yet enabled.
B.Fragmentation is only partially enabled.
C.Fragmentation is enabled, but packets will not be interleaved.
D.Fragmentation is enabled, and voice packets or fragments, plus packets smaller than 140 bytes, will be interleaved.
E.Fragmentation is enabled, but only packets shorter than 160 bytes will be interleaved between fragments.

Answer: C

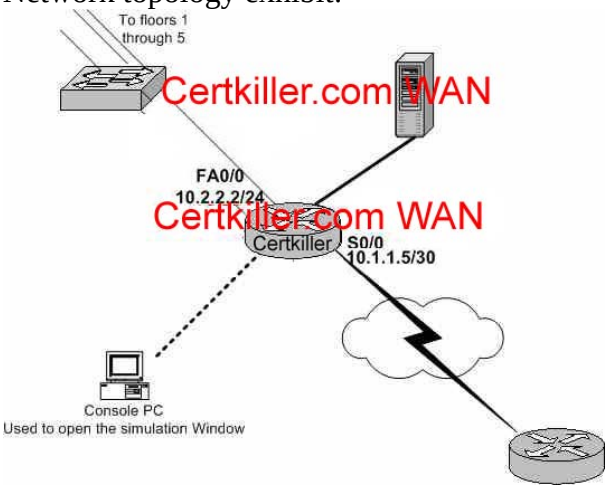
Explanation: The following command is not visible
ppp multilink interleave
Reference:http://www.cisco.com/en/US/products/sw/iosswrel

QUESTION 219
Which of the following statements describes Network-Based Application Recognition (NBAR)?
A.NBAR is Cisco IOS software that is capable of recognizing applications that use dynamically assigned port numbers or applied services (including QoS) to them.
B.NBAR is an application associated with RSVP that resides in the host computers and is responsible for registering its network applications with RSVP to allocate the necessary bandwidth for each.
C.NBAR is an application that is responsible for the search and cataloguing of applications in use on the network on the network servers. The latter can be used by the network administrator to apply services, including QoS.
D.NBAR is a network server that uses agents in the routers to monitor the network to catalog the application traffic and applied services, including QoS.

Answer: A

Explanation:
NBAR is a mechanism that has been introduced to supplement RSVP for applications that use dynamic port numbers but do not use RSVP.
Source:Cisco IP QoS Introduction, Page 30

QUESTION 220
Network topology exhibit:



You work as an administrator for Certkiller .com. On the Certkiller 1 WAN edge router use Class-Based Marking to classify and mark the inbound traffic to FA0/0 from the Campus LAN as follows:
Create a policy-map called " Certkiller " with the following 3 classes.
Class NameTraffic TypePHB
real-timertp voice packetsEF
(Use NBAR to match the rtp voice packets.)
mission-criticalcitrix or voice control trafficAF31

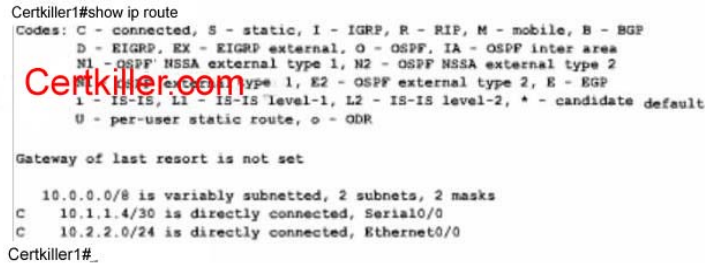
(Use NBAR to match the citrix traffic.)
(For the voice control traffic reference the given named access-list to use as the match criteria.)
bulkftp trafficAF11
(Use NBAR to match the citrix traffic.)
class-defaultall othersDefault
Show int command output exhibit:

```
Certkiller1#show int
FastEthernet0/0 is Up, line protocol is Up
   Hardware is Lance, address is 00d0.58ac.ec1f(bia 00d0.58ac.ec1f)
   Internet address is 10.2.2.2/24
   MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
   Encapsulation ARPA, loopback not set, keepalive set (10 sec)
   ARP type: ARPA, ARP Timeout 04:00:00
   Last input 00:00:27, output 00:00:02, output hang never
   Last clearing of "show interface" counters never
   Queueing strategy: fifo
   Output queue 0/40, 0 drops; input queue 0/75, 0 drops
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
      3581 packets input, 1202219 bytes, 0 no buffer
      Received 25443 broadcasts, 0 runts, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 input packets with dribble condition detected
      24213 packets output, 2101260 bytes, 0 underruns
      0 output errors, 0 collisions, 12 interface resets
      0 babbles, 0 late collision, 0 deferred
      0 lost carrier, 0 no carrier
      0 output buffer failures, 0 output buffers swapped out
Serial0/0 is Up, line protocol is Up
      0 output errors, 0 collisions, 12 interface resets
      0 babbles, 0 late collision, 0 deferred
      0 lost carrier, 0 no carrier
      0 output buffer failures, 0 output buffers swapped out
Serial0/0 is Up, line protocol is Up
   Hardware is HD64570
   Internet address is 10.1.1.5/30
   MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
   Encapsulation HDLC, loopback not set, keepalive set (10 sec)
   Last input 00:00:04, output 00:00:08, output hang never
   Last clearing of "show interface" counters never
   Queueing strategy: fifo
   Output queue 0/40, 0 drops; input queue 0/75, 0 drops
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
      5495 packets input, 2525186 bytes, 0 no buffer
      Received 25443 broadcasts, 0 runts, , 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      43640 packets output, 2760413 bytes, 0 underruns
      0 output errors, 0 collisions, 2 interface resets
      0 output buffer failures, 0 output buffers swapped out
      1 carrier transitions
      DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
Certkiller1#_
```


Show runn command output exhibit:

```
Certkiller1#show runn
Building configuration...
Current configuration:
!
Version12.0
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
!
!
logging queue-limit 100
!
ip subnet-zero
!
!
!
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 10.2.2.2 255.255.255.0
 speed auto
 duplex auto
!
interface Serial0/0
 ip address 10.1.1.5 255.255.255.252
 bandwidth 384
!
!
ip http server
ip classless
!
!
!
ip access-list extended Voice-Control
remark - use to match the voice control traffic
permit tcp any any eq 1720
permit tcp any any range 11000 11999
permit udp any any eq 2427
permit tcp any any eq 1728
permit tcp any any range 2000 2002
permit udp any any eq 1719
permit udp any any eq 5060
!
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
 transport input none
line aux 0
line vty 0 4
 session-timeout 60
 password cisco
 login
!
end
Certkiller1#_
```


Show ip route output exhibit:



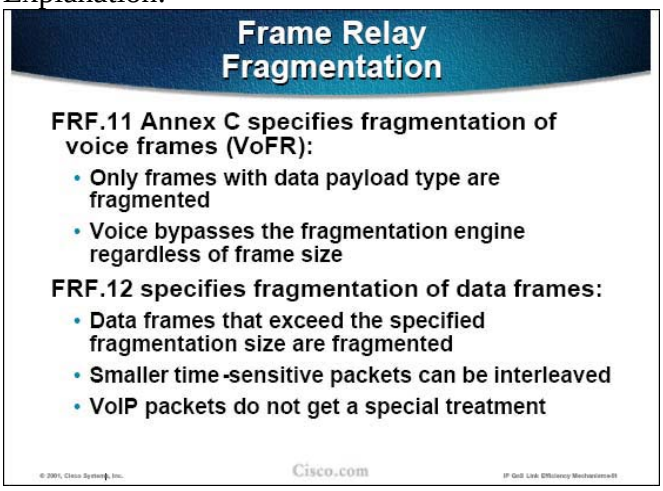
Answer:
Certkiller 1(config)#class-map real-time
Certkiller 1(config-cmap)#match protocol rtp voice
Certkiller 1(config-cmap)#class-map citrix-or-mission-critical
Certkiller 1(config-cmap)#match protocol citrix
Certkiller 1(config-cmap)#match access-group voice-control
Certkiller 1(config-cmap)#class-map bulk
Certkiller 1(config-cmap)#match protocol ftp
Certkiller 1(config-cmap)#class-map class-default
Certkiller 1(config-cmap)#match any
Certkiller 1(config)#policy-map test
Certkiller 1(config-pmap)#class real-time
Certkiller 1(config-pmap-c)#set ip dscp ef
Certkiller 1(config-pmap-c)#class bulk
Certkiller 1(config-pmap-c)#set ip dscp af11
Certkiller 1(config-pmap-c)#class citrix-or-mission-critical
Certkiller 1(config-pmap-c)#set ip dscp af31
Certkiller 1(config-pmap-c)#class class-default
Certkiller 1(config-pmap-c)#set ip dscp default
Certkiller 1(config)#interface fastethernet 0/0
Certkiller 1(config-if)#service policy input test
Certkiller 1(config-if)#end
Certkiller 1#copy run start
Note: There is no need to use the ip cef or ip nbar protocol-discovery commands as provided in older versions since the question doesn't state to configure NBAR.
http://www.cisco.com/warp/public/cc/pd/iosw/prodlit/nbarw_wp.htm

---

QUESTION 221
Which statement regarding Frame Relay Fragmentation is valid?
A.Voice packets are never fragmented.
B.FRF.12 uses separate queues for voice and non-voice traffic.
C.All DLCIs on the same physical interface must use the same fragmentation scheme.
D.FRF.11 Annex-C is used if VoFR is configured on the DLCI.
E.An interface uses FRF.11 Annex-C or FRF.12 fragmentation for non-voice traffic and FRF 3.1 encapsulation for voice traffic.

Answer: D

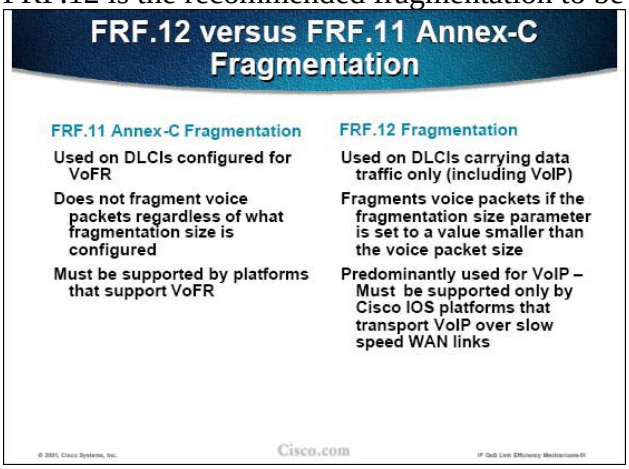
Explanation:



In Frame Relay networks, two fragmentation standards are available on layer-2 (within the Frame Relay encapsulation):

When Voice over Frame Relay (FRF.11) and fragmentation are both configured on a PVC, Frame Relay fragments are transmitted in the FRF.11 Annex C format. This fragmentation method is used when FRF.11 voice traffic is transmitted on the PVC and uses the FRF.11 Annex C fragmentation standard. With FRF.11, all data packets contain fragmentation headers regardless of size. This form of fragmentation is not recommended for use with Voice over IP.

FRF.12 fragmentation is defined by the FRF.12 Implementation Agreement. The FRF.12 Implementation Agreement was developed to allow long data frames to be fragmented into smaller pieces and interleaved with real-time frames. In this way, real-time voice and non-real-time data frames are carried together on lower-speed links without causing excessive delay to the real-time traffic. As a result, FRF.12 is the recommended fragmentation to be used with VoIP.



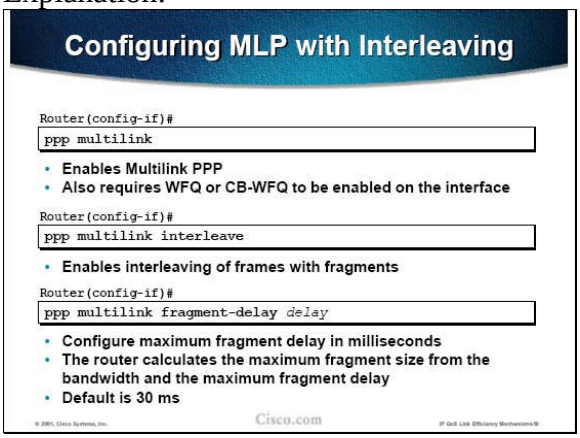
If a PVC is not configured for VoFR, it uses normal Frame Relay (FRF.3.1) data encapsulation. If fragmentation is turned on for this DLCI, it uses FRF.12 for the fragmentation headers. PVCs carrying VoIP use FRF.12 fragmentation because VoIP is a layer 3 technology that is transparent to layer 2 Frame Relay. VoIP and VoFR can be supported on different PVCs on the same interface, but not on the same PVC. FRF.12 fragments voice packets if the fragmentation size parameter is set to a value smaller than the voice packet size. FRF.11 Annex-C (VoFR) does not fragment voice packets regardless of what fragmentation size is

configured.
FRF.11 Annex-C needs only to be supported by platforms that support VoFR. Because FRF.12 is predominantly used for VoIP, it is important to use FRF.12 as a general feature on Cisco IOS platforms that transport VoIP over slow speed WAN links.
Sources:IP QoS Link Efficiency Mechanisms 6-53, 6-54

QUESTION 222
Which of the following represents the default MLP Link Fragmentation and Interleaving (LFI) serialization time?
A.10 ms
B.20 ms
C.30 ms
D.40 ms
E.50 ms

Answer: C

Explanation:

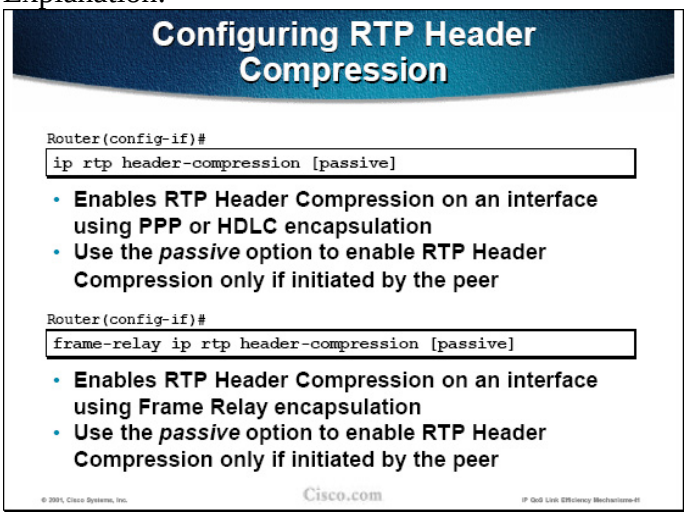


Theppp multilinkcommand enables PPP multilink on an interface. This requires either Weighted Fair Queuing (WFQ) or CB-WFQ (Class-Based Weighted Fair Queuing) to be enabled on the same interface.
Theppp multilink interleavecommand enables interleaving of fragments within the multilink connection.
Theppp multilink fragment delaycommand specifies the maximum desired fragment delay for the interleaved multilink connection. The maximum fragment size is calculated from the interface bandwidth and the specified maximum delay. The default is set at30 milliseconds.
If dCEF is configured on a VIP interface, MLP with interleaving runs distributed on the VIP.
Source:CiscoIP QoS Link Efficiency Mechanisms, Page 6-49

QUESTION 223
Which of the following functions does the passive keyword perform when configuring Compressed Real-time Transport Protocol (RTP)?
A.It compresses all RTP packets, regardless of other parameters.
B.
C.It compresses outgoing RTP packets only if incoming RTP packets are compressed.
D.

Answer: C

Explanation:

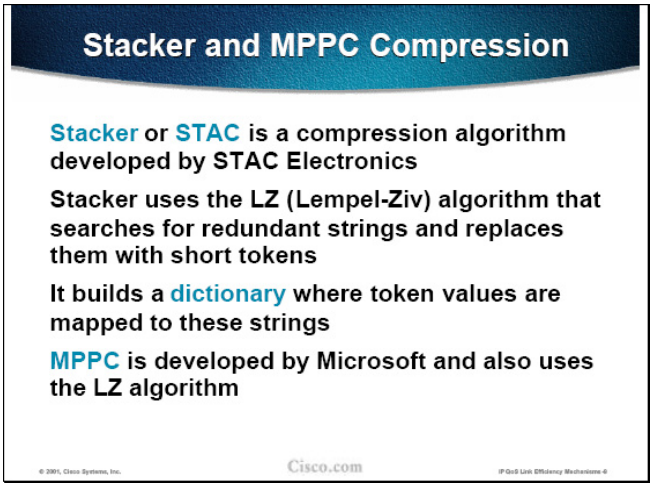


RTP header compression is configured with theip rtp header-compressioncommand.Thepassiveoption instructs the peer to use RTP header compression only if the remote peer initiates RTP header compression. On frame relay, theframe-relay ip rtp header-compressionconfigures header compression with interfaces using pure frame relay encapsulation.
In Cisco IOS, RTP header compression is now fast and CEF-switched. If distributed CEF (dCEF) is configured, CRTP also runs in distributed mode. Up to 256 connections, which is also the default value, can be compressed over a point-to-point link.
Source:Cisco IP QoS Link Efficiency Mechanisms, Page 6-36

QUESTION 224
The newly appointed Certkiller trainee technician wants to know which of the following Cisco IOS-supported payload compression algorithms will search the byte stream for redundant strings and replace them with shorter dictionary tokens. What will your reply be? (Choose all that apply.)
A.Diffie-Helman (DH)
B.Microsoft Point-to-Point Compression (MPPC)
C.Predictor
D.STAC (Stacker)

Answer: B, D

Explanation:



The STAC (or Stacker) algorithm is based on the well-known LZ (Lempel-Ziv) compression algorithm. The LZ (sometimes also called LZW) algorithm searches the byte stream for redundant strings, and replaces them with shorter dictionary tokens. The dictionary is built in real time, and there is no need to exchange the dictionary between the compression peers, because the dictionary is reconstructed from the data received by the remote peer. The MPPC method also uses the same LZ algorithm. The STAC and MPPC algorithms yield very good compression results, but are CPU-intensive.
Source:Cisco IP QoS Link Efficiency Mechanisms, Page 6-7

QUESTION 225
What is the standard serialization delay goal to insure low delay and jilter for voice packets?
A.20-25ms
B.10-15ms
C.15-20ms
D.25-30ms

Answer: A

QUESTION 226
What are three benefits of using MQC for QoS configuration? (Choose three.)
A.It allows the same QoS policy to be applied to multiple interfaces.
B.It provides support for up to 64 different class maps.
C.It allows any supported classification mechanism to be used with any QoS mechanism.
D.It allow for extensive marking capabilities to be applied to any service policy.
E.Classification is configured independently from the service policy.

Answer: A, C, E
Explanation
The Modular Quality of Service Command Line Interface (MQC) was introduced to allow any supported classification to be used with any QoS mechanism.
The separation of classification from the QoS mechanism allows new IOS versions to introduce new QoS mechanisms and reuse all available classification options. On the other hand, old QoS mechanisms can benefit from new classification options.
Another important benefit of the MQC is the reusability of configuration. MQC allows the same QoS policy to

be applied to multiple interfaces.
Reference : Introduction to IP QoS p.8-3

QUESTION 227
At the network layer, IP packets are typically classified based on which three items?
(Choose three.)
A.packet length
B.VALAN Identifier
C.flow control bits
D.source and destination IP addresses
E.content of the ToS byte

Answer: A, D, E
Reference: Introduction to IP QoS p.4-77

QUESTION 228
What is the function of Modular QoS Command Line Interface (MQC) classification?
A.to identify traffic independently of QoS polices
B.to mark traffic based on the Class Latency index (CLI)
C.to route traffic based on the multiple QoS policies
D.to group QoS configuration commands into modules to ease configuration
E.To aggregate traffic onto one QoS classification for operational efficiency (CPU and Memory)

Answer: A

Explanation:
Modular Quality of Service (QoS) Command-Line Interface (CLI) is a feature that allows users to specify a traffic class independently of QoS policies.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800bd9

QUESTION 229
On a Cisco switch, CDP v2 must be enabled for which AutoQoS configuration to function properly?
A.WTT queuing
B.trust boundary
C.fr-atm
D.ciscosoflphone

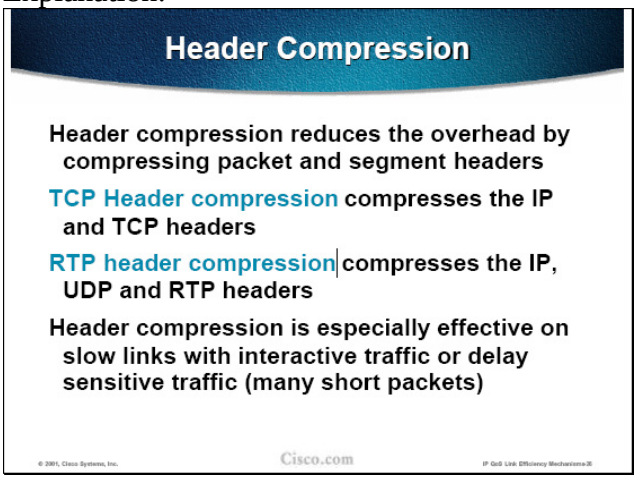
Answer: B

QUESTION 230
Which of the following headers can be reduces by making use of RTP header compression? (Choose all that apply.)
A.IP
B.TCP

C.UDP
D.RTP
E.PPP

Answer: A, C, D

Explanation:



All compression methods are based on eliminating redundancy when sending the same or similar data over a transmission medium. One piece of data, which is often repeated, is the protocol header. In a flow, the header information of packets in the same flow does not change much over the lifetime of that flow. Therefore, most of header information could be sent only at the beginning of the session, stored in a dictionary, and then referenced in later packets by a short dictionary index.
Two methods were standardized by the IETF (Internet Engineering Task Force) for use with IP protocols:
&#61472
TCP header compression (also known as the Van Jacobson or VJ header compression) is used to compress the packet TCP headers over slow links, thus considerably improving the interactive application performance.
&#61472 RTP header compression is used to compress UDP and RTP headers, thus lowering the delay for
transporting real-time data, such as voice and video over slower links.
Source:CiscoIP QoS Link Efficiency Mechanisms,Page 6-21

QUESTION 231
Which statement regarding the policing traffic conditions in IP QoS is valid?
A.Policing allows the network administrators to traffic engineer paths through the network for application flows.
B.Policing techniques monitor network traffic loads to anticipate and avoid congestion.
C.Policing is the ability to control bursts and conform traffic to ensure certain traffic types receive specified amounts of bandwidth.
D.Policing reorders transmit queues to offer priority service to specific traffic flows.
E.Policing utilizes buffers to delay excessive traffic when the flow is higher than expected.

Answer: B
Incorrect:
C.With shaping, traffic bursts are smoothed out producing a steadier flow of data

E.Policing does not introduce any delay to traffic that conforms to traffic policies

Explanation:
The QoS tool used to monitor the rate, and discard the excess traffic, is called traffic policing, or just policing. Because the provider is monitoring traffic sent by the customer, traffic polices typically monitor ingress traffic, although they can monitor egress traffic as well.
Source:Cisco DQOS Exam Certification Guide, Page 95

QUESTION 232
When working in a large network which of the following would qualify to be a limiting factor of IntServ scalability?
A.IntServ admission control must be implemented locally on all the routers.
B.MPLS/TE tunnels cannot be established through an MPLS network using RSVP.
C.IntServ requires routers that are able to track a large amount of per-flow state information.
D.IntServ requires all routers that have the ability to identify common flows that require the same service into a traffic aggregate.
E.The IntServ QoS mechanism used to apply the appropriate per-hop behavior (PHB) must be implemented on all the routers.

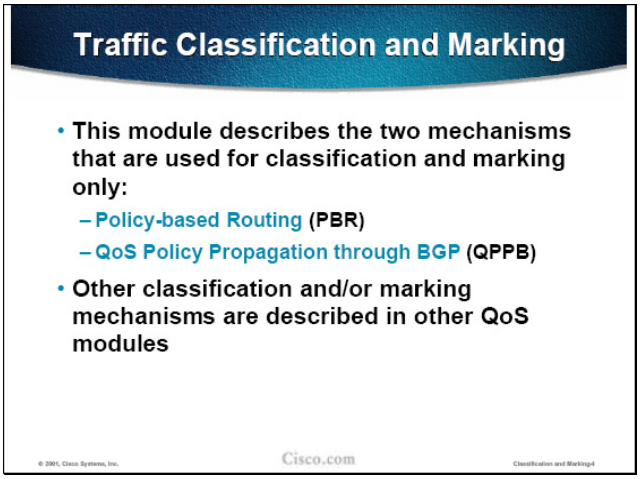
Answer: C

Explanation:
Benefits and Drawbacks of the IntServ Model
Benefits and Drawbacks of the
The main drawbacks of RSVP are:
Continuous signaling due to stateless operation of RSVP.
RSVP is not scalable to large networks where per-flow guarantees would have
to be made to thousands of flows.
Source:Cisco IP QoS Introduction, Page 30

QUESTION 233
What are the Cisco IOS QoS mechanisms that have marking abilities? (Choose all that apply.)
A.PBR
B.Committed Access Rate (CAR)
C.Weighted Random Early Detection (WRED)
D.QoS Policy Propagation through BGP (QPPB)
E.Class-Based Weighted Fair Queuing (CBWFQ)

Answer: A, B, D

Explanation:



This module describes the two QoS mechanisms that are used purely for classification and marking purposes:
Policy-based Routing (PBR)
QoS Policy Propagation through BGP (QPPB)
There are other QoS mechanisms that also support classification and marking:
Committed Access Rate (CAR)- this mechanism is described in the "IP QoS - Traffic Shaping and Policing" module
Class-based Policing (CB-Policing)- this mechanism is described in the "IP QoS - Modular QoS CLI (Chapter 2)" module
Class-based Marking (CB-Marking)- this mechanism is described in the "IP QoS - Modular QoS CLI (Chapter 2)" module
Source:Cisco IP QoS Classification and Marking, Page 2-3

QUESTION 234
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know which of the following is a "Measurement Based" Call Admission Control (CAC) function. What will your reply be?
A.RSVP
B.Advanced Busy Out Monitor (AVBO)
C.Service Assurance Agent (SAA)
D.Max. Connections
E.Voice Bandwidth for Frame Relay

Answer: B

Explanation:
Advanced Busy-Out Monitor (AVBO) is measurement based CAC feature.
placed in busy-out.
Reference: DQOS Exam Certification Guide p.102

QUESTION 235
Which of the following represents a "Local Configuration" Call Admission Control (CAC) method?
A.RSVP

B.PSTN Fallback
C.Max. Connections
D.Locations Construct
E.Advanced Busy Out Monitor (AVBO)

Answer: C

Explanation:
Max-connections is Local based CAC tool. A configured number of maximum connections on the dial peer used for the call has been exceeded.
Reference: DQOS Exam Certification Guide p.102

QUESTION 236
You are the network technician at Certkiller . The newly appointed Certkiller trainee wants to know which feature can be used to police traffic according to the Cisco QoS Framework. What will your reply be?
A.PQ
B.LLQ
C.CAR
D.CQ
E.NBAR
F.WRED

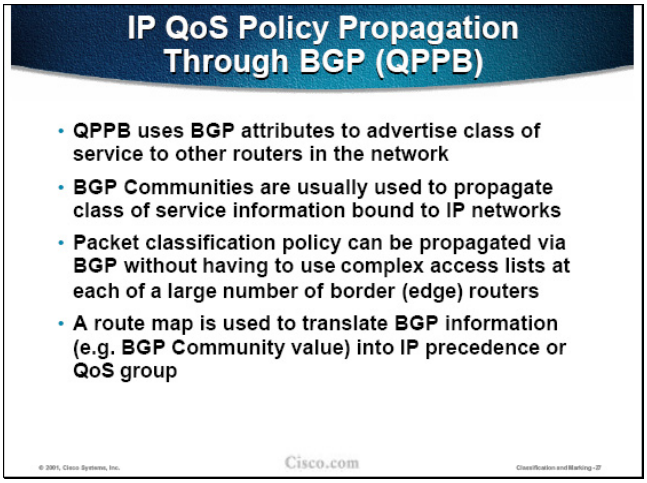
Answer: C

Explanation:
CAR provides policing and marking.
Reference: DQOS Exam Certification Guide p.193

QUESTION 237
The newly appointed Certkiller trainee technician wants to know what is the purpose of the Cisco IOS Policy Propagation through BGP (QPPB) feature. What will your reply be?
A.QPPB enables traffic shaping on BGP-enable WAN interfaces.
B.It makes allowance for non-CEF enabled routers to support QoS and BGP by tagging routes in the BGP table.
C.It makes provision for flow-based Weighted Random Early Detection (WRED) support to external BGP peers.
D.It propagates IP precedence or the QoS Group to destinations using BGP communities.
E.It is responsible for providing QoS policy in BGP networks by allowing centralized QoS configurations in BGP confederations.

Answer: D

Explanation:



QoS Policy Propagation through BGP is a mechanism that can be split into two parts:

Policy propagation via BGP - where a QoS policy is encoded into a BGP attribute. BGP Communities are typically used to encode a QoS policy.

Marking of packets with IP precedence or QoS group based on the QoS policy learned via BGP.

BGP Policy is usually set on ingress routers (ingress for route propagation, egress for packet forwarding) in an Autonomous System. BGP then carries the information to other routers in the AS and translates (using a route map) this information into IP precedence or QoS group. Marking is then enabled on perinterface basis.Source: Cisco IP QoS Classification and Marking, Page 2-23

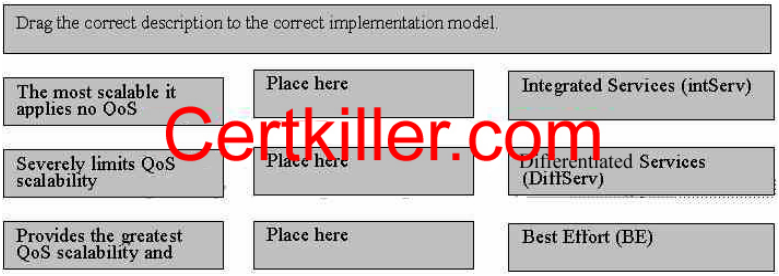
QUESTION 238

When is it recommended to use peak rate shaping over average rate shaping?
(Choose two.)

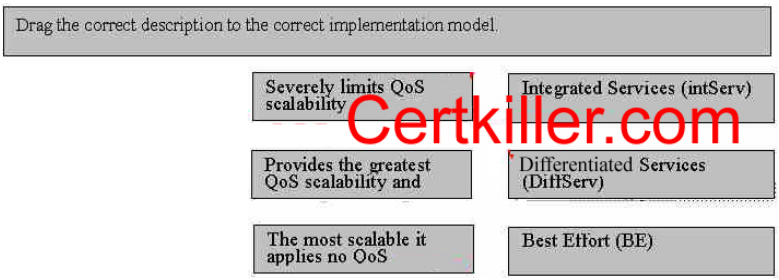
A.when the network has additional bandwidth available beyond the CIR
B.when occasional packet loss can be tolerated by the application
C.when unlimited burst capability is required
D.when using class-based traffic shaping combination with CBWFQ
E.when using dual token bucket with class-based traffic shaping

Answer: A, B

QUESTION 239



Answer:



QUESTION 240
What are three methods of reducing delay for critical applications in a converged network? (Choose three.)
A.Apply payload compression.
B.Increase link capacities.
C.Apply header compression.
D.Increase LF1 fragment size.
E.Reduce inter-packet gaps.
F.Increase all queue depths.

Answer: A, B, C

QUESTION 241
When configuring CB-WRED, on what is the default configuration based? (Choose two.)
A.IP precedence using 64 default WRED profiles
B.DSCP using 8 default WRED profiles
C.IP precedence using 8 default WRED profiles
D.treating non-IP traffic as precedence 0
E.treating non-IP traffic as DCSP Best Effort (BE)

Answer: C, D

QUESTION 242
If a priority queue is desired on a Cisco Catalyst 2950 switch, how can it be obtained?
A.A fifth priority queue is added
B.The fourth queue becomes the priority queue
C.Queues three and four are combined into one priority queue
D.Priority queuing is not supported on the Catalyst 2950

Answer: B
Cisco IP Telephony Flash Cards, http//www.informit.com/articles/article.asp?p=352991&seqNum=7

QUESTION 243
Which technology is required when configuring FRF.12 on a Cisco device?

A. FRF11.c
B. FRF.8

C. VoFR
D. MLP with interleaving
E. FRTS
F. WRED

Answer: E
Page 500, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 244
What are two differences between "shape average" and "shape peak" when configuring CB-Shaping (Choose two.)

A. Shape Average forwards Bc of traffic at every Tc interval with bursting capability
B. Shape average forwards Bc + Be of traffic at every Tc interval
C. Shape peak forwards Bc of traffic at every Tc interval with bursting capability
D. Shape peak forwards Bc + Be of traffic at every Tc interval
E. Share average uses a single or dual token bucket
F. Shape peak uses dual token bucket

Answer: A, D
Page 358, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 245
In LLQ, how does the command priority percent [i]percentage[/i] apply bandwidth to the priorty class?
A.There is no such command.
B.This class subcommand enables LLQ in this class, reserves bandwidth, and enables the policing function

Answer: B

Explanation:
Reference:
Page 290, IP Telephony Self-StudyCisco DQOS Exam Certification Guide,
http//www.ciscopress.com/title/1587200589

QUESTION 246
Which TCP congestion control mechanism allows starvation and global synchronisation to occur?

A. ECN
B. MDDR
C. RED
D. tail drop
E. WRR

Answer: D

Page 432, IP Telephony Self-StudyCisco DQOS Exam Certification Guide, http//www.ciscopress.com/title/1587200589

QUESTION 247
What is the concept behind the operation of the Integrated Services model?
A.Application of network policies is only performed at the edges of the network.
B.Applications send as much data, with no predefined frequency, into the network.
C.Applications request a specific kind of service from the network and receive confirmation about reserved bandwidth and delay requirements before sending any data.
D.Applications are provided with a minimum amount of guaranteed bandwidth during periods of network congestion.
In periods of non-congestion, application can utilize all available bandwidth.
E.Network administrators predefine traffic classes for each application.
As application data traverse the network, packets are inspected and the network attempts to deliver the QoS level specified within the packet.

Answer: C

Explanation:
Integrated Services model is introduced to supplement the best-effort delivery by setting aside some bandwidth for applications that require bandwidth and delay guarantees. The Integrated Services model expects applications to signal their requirements to the network. Resource Reservation Protocol (RSVP) is used to signal QoS requirements to the network.
Reference: Introduction to IP QoS p.18

QUESTION 248
Which mechanism is used by IP RTP Priority to classify packets?
A.QoS Group
B.IP Precedence
C.Access Control List (ACL)
D.Differentiated Services Code Point (DSCP)
E.Dynamically Negotiated UDP ports within a specified range.

Answer: E

Explanation:
IP RTP Prioritization classifies packets based on UDP port numbers. If the destination UDP port is within the configured range it is enqueued into the high priority queue.
Reference: introduction to IP QoS p.3-136

QUESTION 249
What differentiates Modified Deficit Round Robin (MDRR) from Deficit Round Robin (DDR)?
A.In DDR, users can define multiple weights per queue.
B.MDRR designated one of its queues as a low-latency queue.
C.MDRR extends the number of queues supported from 8 to 32 queues.
D.DRR can facilitate guaranteed packet deliver through the use of Tx queue buffer and congestion feedback

mechanisms.
E.Servicing of DDR queues is performed using a round robin weighted strategy, but in MDRR servicing is done using a FIFO strategy.

Answer: B

Explanation:
Modified Deficit Round-robin (MDRR) is a class-oriented queuing mechanism available on Cisco 12000 series routers (GSR).
It supports eight classes, one of which can be used for low-delay propagation.
DRR was the first implementation that was later improved by allowing one queue to be high priority.
Reference: Introduction to IP QoS p.3-18

QUESTION 250
The QoS pre-classify feature is used to ensure QoS services operate in conjunction with which two networking technologies? (Choose two)

A. VoIP
B. tunneling
C. Frame Relay
D. IPsec tunnel mode
E. multicast

Answer: B, D

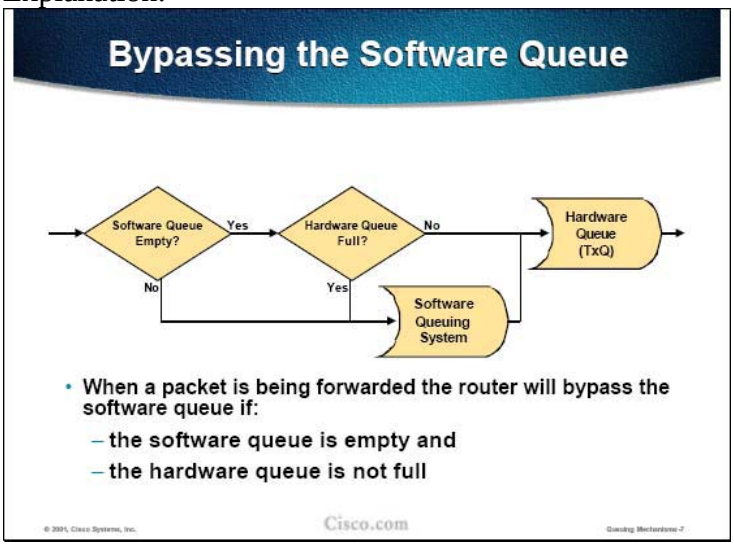
Explanation:
For Layer 2 Forwarding(L2F) and Layer 2 Tunneling Protocol(L2TP) protocols, the qos pre-classify command is applied on the virtual template interface. L2TP clients belonging to identical virtual private dial-up network (VPDN) groups inherit the preclassification setting. The qos pre-classify command can be configured on a per-VPDN tunnel basis.
For IPSec tunnels, the qos pre-classify command is applied on the crypto map, allowing configuration on a per-tunnel basis. QoS features on the physical interface carrying the crypto map are able to classify packets before encryption.
Reference:
http://www.cisco.com/en/US/products/sw/iosswrel/ps1835/products_configuration_guide_chapter09186a00800c75

QUESTION 251
When will packets be en-queued in the software queue?

A. when the shaping queue is full
B. when the hardware transmit queue is full
C. when the transmit ring reaches the congestion-discard threshold
D. when an incoming packet is process switched
E. when the egress trafic rate excees the ingress traffic rate
F. when an incoming packet is CEF switch

Answer: B

Explanation:



The implementation of software queuing was optimized for periods when the interface is not congested. The software queuing system is bypassed whenever there is no packet in the software queue and there is room in the hardware queue.
The software queue is, therefore, only used when data must wait to be placed into the hardware queue.
Source:Cisco Queuing Mechanisms, Page 3-6

QUESTION 252
Which of the following qualifies to be capabilities of CB shaping? (Choose all that apply.)
A.When it is similar to CAR with added shaping capabilities.
B.When it can be applied only as an output but not input shaper.
C.When it can be configured using MQC
D.When it is dissimilar to CAR with no additional shaping capabilities.
E.When it can be applied to individual VCs on amultipointFrameRelay interface.

Answer: B, C

Explanation:
Class-based Shaping, like Class-based Policing, is used to rate-limit traffic within the CB-WFQ queueing system. Class-based Shaping works by metering the traffic rate and delaying excessive packets until they conform to the configured shaped rate.
Class-based Shaping is very similar to Generic Traffic Shaping (GTS), but is implemented as a part of the CB-WFQ system and is configured via the Cisco IOS MQC. Like GTS, Class-based Shaping has no packet marking capability.
Reference: Introduction to IP QoS p.9-93

QUESTION 253
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know which three are primary functions of QPM. What will your reply be? (Choose all that apply.)

A.It can enable protocol discovery using NBAR
B.It can verify consistency of deployed QoS policies
C.It allows centralized enterprise-wide QoS policy
D.It combines configuration and monitoring into one tool
E.It scales QoS policy deployment quickly and accurately
F.All of the above.

Answer: B, C, E
Reference:DQOS Exam Certification Guide p.102

QUESTION 254
Under which circumstances will you use QPM? (Choose all that apply.)
A.When monitoring queue depth.
B.When ensuring end to end QOS commitments.
C.When measuring client response time.
D.When defining rules that match business requirements
E.When creating and deploying a decentralized enterprise-wide QOS policy.

Answer: B, D

Explanation:
You can use the Cisco QoS Policy Manager (QPM) to overcome the configuration correctness and consistency problem. QPM creates the QoS configurations for you, based on your input about QoS policies using a GUI. QPM loads the configurations, and re-verifies the QoS configurations to discover whether changes have been made. It can also reconfigure a router after someone has inadvertenly changed the QoS configuration - automatically. Any large QoS implementation begs for the use of QPM.

QUESTION 255
QDM Performance Monitor will graph which of the following metrics? (Choose all that apply.)
A.Drop Rate.
B.Packet Collisions and FCS error rates.
C.Pre/Post Policy Bit rate / Byte count /Packet Count.
D.Queue Depth.
E.Round trip packet delay.
F.All of the above.

Answer: A, C, D

Explanation:
The QDM user can perform two types of tasks. First, the user can configure QoS tools using a graphical interface from a browser. The user can also monitor real-time statistics about QoS behavior inside the single device, including graphs of bit/byte/packets rates, drop rates, queue depth, and so on.
Reference: DQOS Exam Certification Guide p.660

QUESTION 256
Which of the following show commands will display information regarding frame-relay fragmentation?

A.Show frame-relay pvc
B.Show frame-relay queue
C.Show frame-relay fragment
D.Show frame-relay tracert
E.Show frame-relay traffic shaping

Answer: C

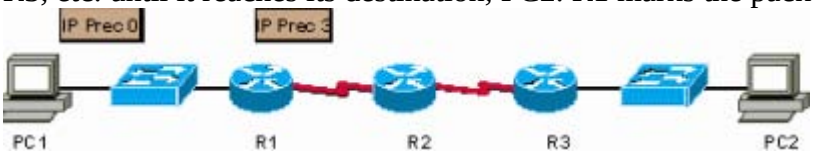
Explanation:
The show frame-relay fragment command displays statistics of Frame Relay fragmentation methods. This output shows whether Frame Relay fragmentation is in effect and working as configured. The ouput also shows possible fragmentation timeouts, indicating that some fragments were lost in the Frame Relay network and could not be reassembled. If the number of timeouts is significant, this may indicate significant frame loss in the Frame Relay network.
Reference: Introduction to IP QoS p.6-62

QUESTION 257
Which of the following statements would be the most appropriate when one considers Policy-Based Routing (PBR) for QoS?
A.PBR can only choose a route other than what is in the routing table.
B.PBR can change the route provided it first classifies and marks the packet.
C.PBR can change the route and/or mark the packet using precedence.
D.PBR can only set the precedence if configured to choose a route other than what is in the routing table.

Answer: C

Explanation:
The primary function of Policy-based Routing (PBR) is to bypass the destination-based forwarding functionality of routers by using a route map to make a forwarding decision based on other information. One additional feature of Policy Based Routing is the ability to modify IP packets by marking them with IP precedence or QoS group.
Reference: Introduction to IP QoS p.2-5

QUESTION 258
The exhibit low illustrates how a packet is sent. First to R1, after which R1 forwards it to R2, and then R3, etc. until it reaches its destination, PC2. R1 marks the packet with IP Precedence 3.

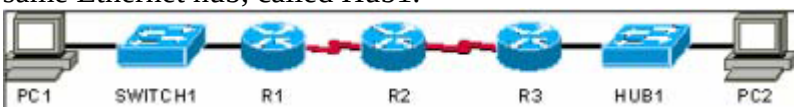


Which statement is valid?
A.When classifying packets at layer 3, only Layer 3 IP procedure marking can be used.
B.R2 and R3 can perform QoS features that ignore the marked IP Precedence field in the packet.
C.R2 and R3 can only perform QoS features based on the IP Precedence field, since the packet has already been marked.
D.R3 can apply QoS features to the packet exclusively, but when the packet exits R1, the QoS features are lost.
E.R2 can apply QoS features to the packet, and R3 can on ingress, but R3 cannot apply QoS features to the

packet as it exits the Ethernet port on which PC2 resides.

Answer: B

QUESTION 259
The Exhibit below illustrates how an Ethernet frame is sent. PC1 will send an Ethernet frame, that is received and forwarded by Switch1. Switch1 forwards the frame to Router1. Router1 also forwards the packet to Router2 via serial link. Router2 will then forward the frame to Router3 via serial link, after which Router3 will forward the packet to the destination, PC2. Router3 and PC2 are connected to the same Ethernet hub, called Hub1.



Which networking devices can be used to examine the QoS field?
A.all devices
B.all routers
C.the hub and switches
D.all devices except the hub
E.Switch1 only
F.Switch1 and Router1

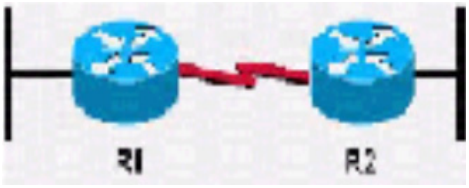
Answer: D

QUESTION 260
Which of the following statements regarding the capabilities of CB policing is valid? (Choose all that apply.)
A.It cannot set ATM CLP bit.
B.It only allows conform, exceed or violate action.
C.It can be applied as either an input or output policer but not both.
D.It can be applied to serial as well as ATM and Frame Relay interfaces.
E.It can be applied as a cascading rate policy
F.It allows cascading rate policies, inorderto allow for more granular rate limits.

Answer: B. D

Explanation:
B: is correct
Class-based policing can mark packets with three different values depending on whether theyconform, exceed or violatethe policy.
Reference: Introduction to IP QoS (Course) p.2-48

QUESTION 261
Study the Exhibit below carefully:



You are the network administrator at Certkiller and have been instructed to apply policing and shaping functions to packets flowing into router1 over Ethernet, over a serial link to router2, and onto another Ethernet to the destination host.
Which of the following statements represents the most accurate description of Cisco's suggested designs for policing and shaping?
A.Shaping is applied as output on router1's serial interface, and shaping is applied on input of router2's serial interface.
B.Shaping is applied as output on router1's serial interface, and policing is applied on input of router2's Ethernet interface.
C.Shaping is applied as output on router1's serial interface, and policing is applied on input of router2's serial interface.
D.Shaping is applied as output on router1's serial interface, and shaping is applied on input of router2's Ethernet interface.
E.None of the above.

Answer: C

QUESTION 262
Study the Exhibit below carefully:

Exhibit 5

```
map-class frame-relay slow_vcs
  frame-relay traffic-rate 64000 2000
map-class frame-relay fast_vcs
  frame-relay traffic-rate 8000 4000


interface serial 0
no ip address
encapsulation frame-relay
frame-relay traffic-shaping
int s 0.2
  ip addr 1.1.1.1 255.0.0.0
  frame-relay interface-dlci 102
  class fast_vcs
int s 0.3
  ip addr 2.2.2.2 255.0.0.0
  frame-relay interface-dlci 103
  frame-relay class slow_vcs


interface serial 1
no ip address
encapsulation frame-relay
frame-relay traffic-shaping
frame-relay class slow_vcs
int s 1.2
  ip addr 3.3.3.3 255.0.0.0
  frame-relay interface-dlci 202
int s 1.3
  ip addr 4.4.4.4 255.0.0.0
  frame-relay interface-dlci 203
```

Which interface or subinterface would be properly configured for 64 Kbps shaping?
A.interface S0
B.interface S1
C.subinterface S0.2
D.subinterface S0.3
E.subinterface S1.2

Answer: D

QUESTION 263
Which of the following are IPM features? (Choose all that apply)
A.identification and performance analysis
B.policy implementation right through an "IP reachable" network
C.Path Per Hop Performance Analysis between two network devices
D.real-time historical graphical reports
E.Proactive notification with an SNMP trap when response time exceeds predefined thresholds
F.All of the above

Answer: A, C, D, E

Explanation:
IPM can analyze the performance between two endpoints in the network by comparing probes generated and sent from different points in the network. Instead of just knowing that response time is slow, IPM can help pinpoint the slow point in the network. IPM also supports some historical reporting, although SMS has more historical reporting features. More importantly, you can set thresholds with IPM so that when network performance degrades past a certain point, it will generate an SNMP trap.
Reference: DQOS Exam Certification Guide p.666

QUESTION 264
You are the network administrator at Certkiller . The newly appointed Certkiller trainee wants to know which dial-peer subcommand correctly performs marking of VoIP packets. What will your response be?
A.precedence 5
B.ip precedence 5
C.set ip mark precedence 5
D.set ip precedence 5
E.mark ip precedence 5

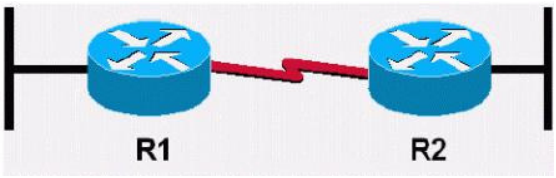
Answer: B

Explanation:
The syntax of B is correct.
IP precedence is encoded into the three high-orderbits of the ToS field in the IP header. It supports eight classes of which two are reserved and should not be used value and is usally used for the best-effort class. The set ip precedence command marks packets of a class with the specified precedence value.
Reference: Introduction to IP QoS p. 9-104

QUESTION 265
Under which circumstances will you use marking in QoS enabled networks?
A.When you want to indicate policing preferences based on the marked value.
B.When you want to color a packet or frame so it is distinguishable from other packets or frames in QoS treatment.
C.When you want to indicate whether PQ or CQ should be used.
D.When you want to enable a router to disregard its locally configured QoS settings and provide alternate QoS implied by the marked value.

Answer: B

QUESTION 266
Exhibit:



You want to apply policing and shaping functions to packets flowing into router1 over Ethernet, over a serial link to router2, and onto another Ethernet to the destination host. Which statement is most accurate when describing Cisco's suggested design for policing and shaping?
A.Shaping is applied as output on router1's serial interface, and policing is applied on input of router2's serial interface.
B.Policing is applied as output on router1's serial interface, and shaping is applied on input of router2's serial interface.
C.
Shaping is applied as output on router1's serial interface, and policing is applied on output of router2's Ethernet interface.
D.Policing is applied as output on router1's serial interface, and shaping is applied on output of router2's Ethernet interface.

Answer: A

QUESTION 267

```
!
class-map match-all ROUTING
 match ip dscp cs6
class-map match-all VOICE
 match ip dscp ef
class-map match-all MISSION-CRITICAL-DATA
 match ip dscp 25
class-map match-any VOICE-CONTROL
 match ip dscp cs5
 match ip dscp af31
class-map match-all TRANSACTIONAL-DATA
 match ip dscp af21
class-map match-all NETWORK-MANAGEMENT
 match ip dscp cs2
class-map match-all BULK-DATA
 match ip dscp af11
!
```

```
!
policy-map CE-EDGE
 class ROUTING
  bandwidth percent 3
 class VOICE
  priority percent 20
class MISSION-CRITICAL-DATA
  bandwidth percent 25
  random-detect dscp-based
  set ip dscp af31
 class VOICE-CONTROL
  priority percent 2
  set ip dscp cs5
class TRANSACTIONAL-DATA
  bandwidth percent 10
  random-detect dscp-based
  set ip dscp cs3
class NETWORK-MANAGEMENT
  bandwidth percent 2
  set ip dscp cs3
class BULK-DATA
  bandwidth percent 13
  random-detect dscp-based
  set ip dscp af21
class class-default
  fair-queue
!
```


Based on the configuration shown, which two of the following statements are correct? (Choose two)
A.All the different traffic classes are being re-marked into different DSCP values.
B.Both the VOICE and VOICE-CONTROL traffic classes will be serviced by the priority queue.
C.Both the TRANSACTION-DATA and NETWORK-MANAGEMENT traffic classes are being re-marked to CS3.
D.The ROUTING traffic class is policed by a congestion-aware policer.
E.Class-Based WRED is being implemented on all traffic classes.
F.Only 20% of the link bandwidth is guaranteed by the priority queue.

Answer: B, C
Flera svarsalternativ i bild 20

QUESTION 268
The qos pre-classify command can be configured under which two configuration modes? (Choose two)
A.router(config)#
B.router(config-if)#
C.router(config-pmap-c)#
D.router(config-crypto-map)#
E.router(config-cmap)#
F.router(config-router)#

Answer: B, D

QUESTION 269
Which element is mandatory for QoS policy propagation through BGP operations?
A.MPLS
B.NBAR
C.CEF
D.QoS pre-classify
E.Policy-based routing
F.MQC

Answer: C

QUESTION 270
What does the service-policy statement do?
A.maps a type of traffic and QoS feature to an interface.
B.Maps a QoS feature to a type of traffic.
C.Differentiates types of traffic.
D.Differentiates QoS features.

Answer: A

QUESTION 271
Which configuration provides the mission-critical traffic class with a minimum bandwidth guarantee of 84 kbps and a maximum upper bandwidth limit of 96 kbps?
A.policy-map shape
class mission-critical
bandwidth 64
shape average 96000
A.policy-map shape
class mission-critical
bandwidth 96
shape average 64000

A.policy-map shape
class mission-critical
shape average 64000
shape peak 96000
A.policy-map shape
class mission-critical
priority 64
bandwidth 96

Answer: A

QUESTION 272
What is a PDLM (packet description language module) file?
A.It is used to enhance the list of protocols recognized by NBAR.
B.It is required file stored in the flash memory if the router when implementing class-based marking using NBAR.
C.It is used to enable the NBAR MIB for sending SMNP traps when the traffic rate hits a threshold.
D.It is used to store the application traffic statistics gathered by NBAR.
E.It is used to allow NBAR to search for a protocol using a port number other than the well-known port.
F.It is a file stored in the flash memory of the router and is used to integrate NBAR operations with auto-qos.

Answer: A

QUESTION 273

```
class-map well-known-services
   Match access-group 100
class-map Unknown-services
   Match not class-map well-known-services
Policy-map set-DSCP
   Class well-known-services
      Set DSCP af21
   Class Unknown-services
      Set DSCP 1
!
Access-list 100 permit tcp any any lt 1024
Access-list 100 permit tcp any lt 1024 any
!
Interface Ethernet 0/0
   Service-policy input set-DSCP
```


Given the above configuration, which two statements are correct? (Choose two)
A.All traffic not matching the well-known services class will be marked by the default-class to DSCP 0.
B.All traffic not matching either the well-known or unknown-services class will be marked by the default-class as DSCP 0.
C.All incoming DNS (port 53) traffic on Ethernet 0/0 will be marked af21.
D.All RTP applications (default ports 5004 and 5005) will be marked DSCP 1.
E.All Telnet (port 23) traffic exiting Ethernet 0/0 will be marked as af21.

Answer: C, D

QUESTION 274
What is the default trust mode on a Catalyst 2950 switch port?
A.trust cos

B.trust dscp
C.trust ip precedence
D.trust device cisco-phone
E.trust device cisco-router
F.untrusted

Answer: F

QUESTION 275
When LLQ is being configured, which IOS command is used to limit the traffic rate on the priority queue even when the other class queues are not congested?
A.priority
B.bandwidth
C.queue-limit
D.police
E.hold-queue

Answer: D

QUESTION 276
Note this exhibit is for questions 10-14
Exhibit:

What will happen if the incoming bulk class traffic rate arriving at the fa0/0 interface is higher than the normal burst rate (CIR)?
A.Dropped
B.Marked as AF11 then transmitted
C.Marked as DSCP 0 then transmitted.
D.Queued in the excess token buckert.
E.Queued in the CBWFQ.

Answer: A

QUESTION 277
All traffic belonging to the class-default traffic class on the s0/0 interface will be queued by a class queue that uses which type of queuing?
A.FIFO
B.LLQ
C.WFQ

D.Round Robin
E.PQ

Answer: A

QUESTION 278
What will happen if the incoming mission-critical class traffic rate arriving at the fa0/0 interface is higher than the normal burst rate (CIR) but not exceeding the excess burst rate?
A.Dropped
B.Marked as AF31 then transmitted.
C.Marked as AF32 then transmitted.
D.Marked as AF33 then transmitted.
E.Queued in the CBWFQ.

Answer: D

QUESTION 279
Which type of traffic receives the least amount of guaranteed bandwidth when exiting the S0/0 interface?
A.ftp
B.http
C.telnet
D.citrix
E.sqlnet

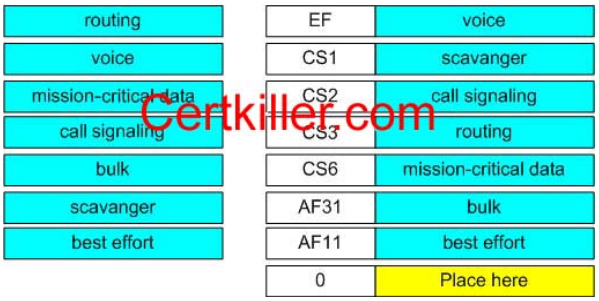
Answer: A

QUESTION 280
Which type of software queue is used on the s0/0 interface?
A.LLQ
B.CBWFQ
C.FIFO
D.WFQ

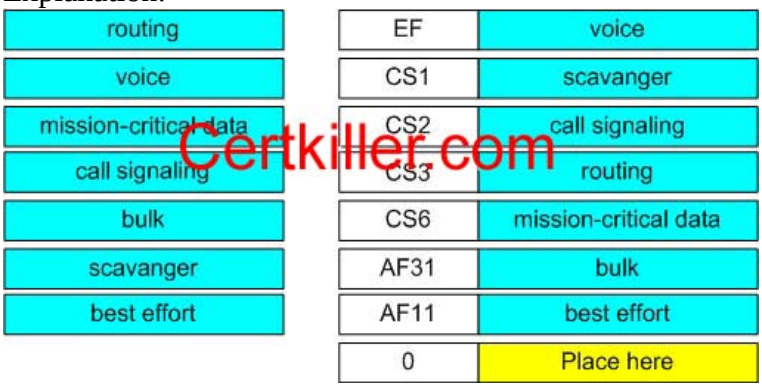
Answer: B

QUESTION 281
Drag each traffic type to its QoS markings on the right based on Cisco's recommendation for traffic classifications and markings.

Answer:



Explanation:



QUESTION 282
With a queue depth at maximum threshold, its is desired that one out of every 512 packets be dropped.
In this case, what is the number 512 known as?
A.Mark probability denominator
B.Congestive discard threshold
C.Minimum-drop threshold
D.Maximum-drop threshold

Answer: A

QUESTION 283
AutoQos is which type of Cisco IOS command?
A.interface
B.global
C.policy-map
D.service-map
E.serial interface only

Answer: A

QUESTION 284
Which two of the following statements about CBWFQ are correct? (Choose two)
A.The CBWFQ scheduler provides a guaranteed amount of minimum bandwidth to each class.

B.CBWFQ services each class queue using a strict priority scheduler.
C.The class-default queue only supports WFQ.
D.Each CBWFQ traffic class is policed using a congestion aware policer.
E.Inside a class queue, processing is always FIFO, except for the class-default queue.

Answer: A, E

QUESTION 285
Which of the following configurations requires the use of hierarchical policy maps?
A.The use of class-based WRED within a CBWFQ class queue.
B.The use of a strict priority-class queue within CBWFQ.
C.The use of CBWFQ inside class-based shaping.
D.The use of nested class-maps with class-based marking.
E.The use of both thebandwidthandshapestatements within a CBWFQ class queue.

Answer: C

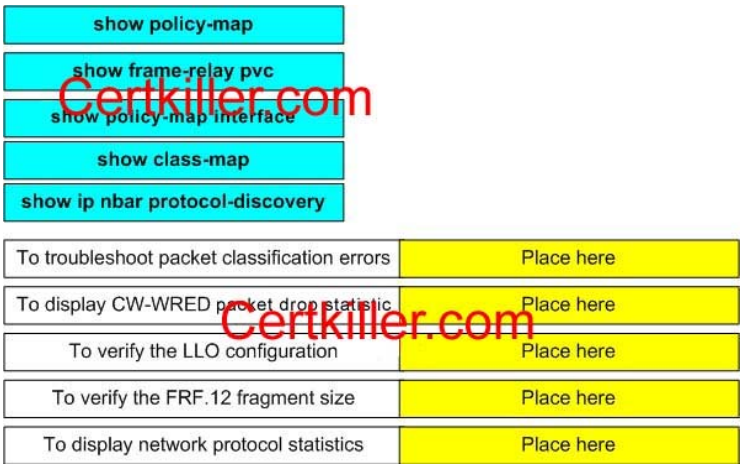
QUESTION 286
An ECN-enabled packet arrives at a router with ECN WRED turned on. WRED determines the packet should be dropped. What happens when the average queue length is between the minimum and maximum thresholds?
A.The packet is tail dropped.
B.The packet is forwarded without change in all cases.
C.The ECT and CE bits are set to 1 if not already set.
D.The ECT bit is set to 0 and the CE bit is set to 1 of not already set.

Answer: C

QUESTION 287
With the use of class maps to classify traffic, into which traffic class will the majority of the enterprise traffic typically be classified?
A.priority
B.bulk
C.mission-critical
D.transactional
E.class-default
F.scavenger

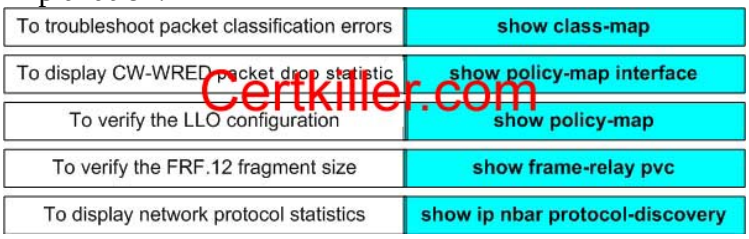
Answer: E

QUESTION 288
Match the correct show command to the given scenario.



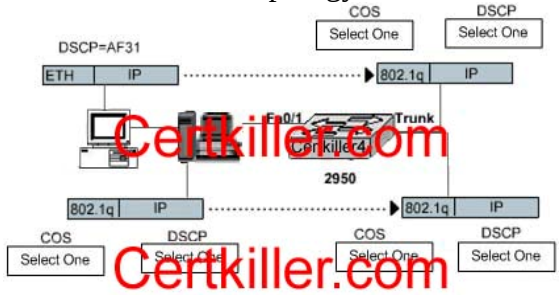
Answer:

Explanation:



QUESTION 289

Exhibit, Network Topology



COS Selections: 0, 1, 2, 3, etc

DSCP Selections: 0(BE), 48, 58, CS 1, etc

Exhibit, 2950 configuration

```
! 2950 config
mls qos map cos-dscp 0 10 18 26 34 40 48 56
Interface fa0/1
  mls qos trust cos
  mls qos trust device cisco-phone
  switchport priority extend cos 0
  wrr-queue cos-map 4 5
  wrr-queue bandwidth 20 1 80 0
```

You work as a technician at Certkiller .com. Based on the topology in the exhibit and the 2950 configuration shown, select the appropriateCOSand DSCP values from down boxes for the packets below. The top set of packets are the PC generated packet. The bottom of packets are the Cisco's IP

Phone generated packet.

Answer:

QUESTION 290
What are the three steps involved in implementing a QoS policy using MQC? (Choose three)
A.Define a policy map.
B.Define a traffic class.
C.Set the match parameters for a policy map.
D.Define a route map to set the QoS markings.
E.Assign a service policy to an interface.

Answer: A, B, E

QUESTION 291
The show policy-map interface command output is showing too many random drops for the mission-critical traffic class. What can be changed to reduce the random drops?
A.Increase the WRED max-threshold value for the mission-critical traffic class.
B.Increase the WRED min-threshold value for the mission-critical traffic class.
C.Decrease the WRED drop probability denominator for the mission-critical traffic class.
D.Decrease the queue-limit for the mission-critical traffic class.
E.Enable fair-queue within the mission-critical traffic class.

Answer: B

QUESTION 292
For which service is assured forwarding PHB used?
A.Best effort
B.Expedited forwarding
C.Guaranteed bandwidth
D.Class selector

Answer: C

QUESTION 293
What are the two queuing options to the Catalyst 2950? (Choose two)
A.IP3Q
B.2P2Q
C.4Q
D.1P2QIT

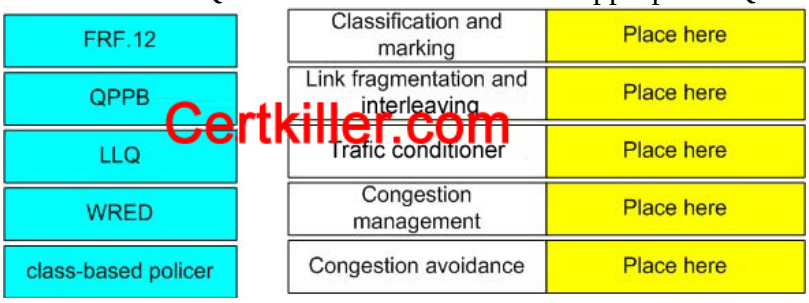
Answer: A, C

QUESTION 294
What is the class selector PHB used for in the differentiated services model?
A.Best-effort service

B.Low-delay service
C.Bandwidth guarantee
D.Backward compatibility

Answer: D

QUESTION 295
Match the IOS QoS feature on the left to the appropriate QoS mechanism on the right.



Answer:

Explanation:

QUESTION 296
Which other protocol does the auto qos voip cisco-phone command require to operate between the switch port and the IP phone?
A.RTP
B.Skinny Protocol
C.CDP
D.RTCP
E.VTP
F.DTP

Answer: C

QUESTION 297
What are the four types of per-hop behavior used with DSCP? (Choose four)
A.Expedited forwarding
B.Default
C.Class-bit
D.Assured forwarding

E.Class-selector
F.Express forwarding

Answer: A, B, D, E

QUESTION 298
Which four of the following are required to calculate the LLQ priority bandwidth requirement for the voice traffic class? (Choose four)
A.Codec type
B.IP/UDP/RTP header lengths and Layer 2 overhead.
C.IP Phone Skinny Protocol overhead.
D.Number of concurrent VoIP calls to support.
E.Voice digitalization overhead.

Answer: A, B, D, F

QUESTION 299
Which binary pattern is a valid class selector PHB DSCP value?
A.110001
B.000010
C.111000
D.000001

Answer: C

QUESTION 300
In a typical converged campus network, which two of the following are considered QoS best practices? (Choose two)
A.Traffic classification and marking is performed as close to the traffic source as possible.
B.Traffic classification and marking is performed at the high speed core layer.
C.Ensure voice traffic is serviced by a weighted fair queue.
D.Only a reasonable number of applications should be classified into the mission-critical traffic class.
E.NBAR is used at the high speed core layer to discover and classify network applications.
F.Catalyst switches should use weighted round robin (WRR) queuing giving the voice traffic the highest priority.

Answer: A, D

QUESTION 301
When configuring WFQ, what is the default number of dynamic queues based on?
A.hold-queue limit
B.congestive discard threshold (CDT)
C.interface bandwidth
D.hash of the packet headers
E.inter-packet arrival rate
F.drop probability denominator

Answer: C

QUESTION 302
Traffic classification using NBAR is configured using which IOS command?
A.router(config-cmap)# match protocol {protocol-name}
B.router(config-if)# ip nbar protocol-discovery
C.router(config)# ip nbar port-map {protocol} [tcp|udp] {port-number} {port-number}...
D.router(config)# ip nbar pdlm {pdlm-file}

Answer: A

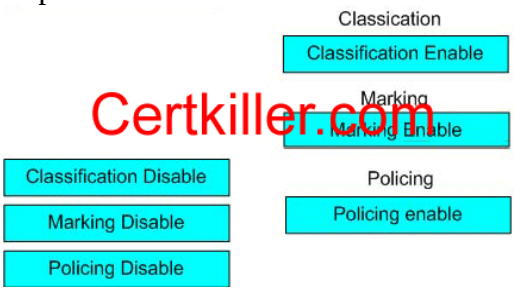
QUESTION 303
In an unmanaged CE router implementation, how does the service provider enforce theSLA?
A.By using class-based policing on the CE to PE link to limit the customer's input rate.
B.By marking on the CE to PE link and using CBWFQ and CD-WRED on the PE to P link.
C.By marking on the CE to PE link and using class-based policing on the PE to P link.
D.By using class-based random discard on the CE to PE link to limit the customer's input rate.

Answer: A

QUESTION 304
According to the best practices, identify the QoS mechanism that should applied at the inbound direction on the PE router's CE to PE link when using an unmanaged CE services by dragging and dropping the proper enable or disable state to the right.

Answer:

Explanation:



QUESTION 305
Exhibit:
violate-action drop
class class-default
fair-queue 16
queue-limit 20
interface fastethernet 0/0
service-policy output access-group1-traffic
Refer to the exhibit. Which three statements are true about the configuration? (Choose three)
A.Traffic that is subject to shaping can burst up to 32,000 bps.
B.IP traffic (DSCPs 5, 6, and 7) that is sent on fastethernet 0/0 will be traffic policed.
C.RTP traffic (ports 2024 and 1000) that is sent on fastethernet 0/0 will be traffic shaped.
D.Traffic that is subject to policing will have the DCSP set to 0 if the rate exceeds 1000 bps.
E.IP traffic (DSCPs 1, 2, 3, and 4) that is sent on fastethernet 0/0 are considered to have a violate status and are dropped.
F.IP traffic (DSCP 0) that is sent on fastethernet 0/0 will be subject to fair queuing.

Answer: A, B, F

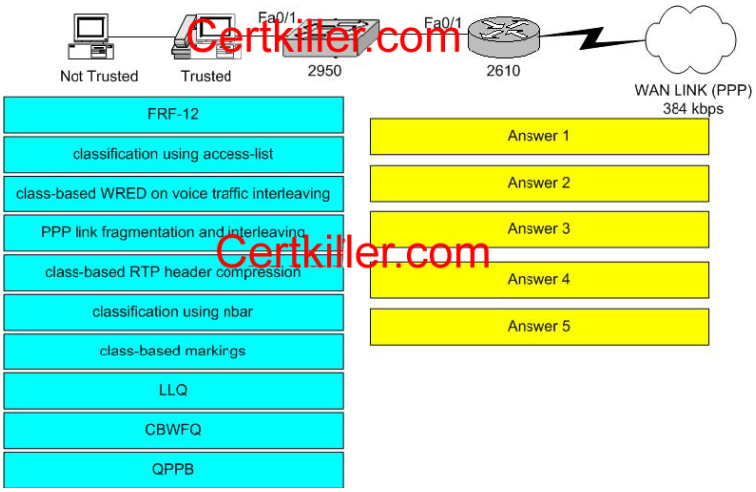
QUESTION 306
Which three factors will affect processing delay? (Choose three)
A.CPU speed
B.Router architecture
C.Queuing mechanism
D.Type of media
E.IP switching method
F.Distance of media

Answer: A, B, E

QUESTION 307
Which statement is true about the IntServ QoS model?
A.QoS traffic flows are managed on a hop-by-hop basis.
B.QoS traffic flows are guaranteed end-to-end.
C.QoS policies are not implemented, relying on best-effort delivery of packets.
D.QoS policies require that traffic be divided into classes.

Answer: B

QUESTION 308
Based on the topology shown, various applications traffic from the PC needs to be identified, classified, then marked as easily as possible. On the 2610 WAN link, voice traffic should have strict priority over all other traffic. Also ensure that the PC application traffic that have large payload does not cause excessive latency for the voice traffic and make the most efficient use of bandwidth on the WAN link. Drag the five appropriate QoS mechanisms into the boxed below 2610 to meet the given requirements.



Answer:

Explanation:

QUESTION 309
Based on the following policy-map configuration, the bulk traffic class packets are not being ECN marked, yet there are many random drops in the bulk traffic class. What is the most likely cause of the problem?
router(config)# policy-map MyPolicy
router(config-pmap)# class bulk
router(config-pmap)# bandwidth 128
router(config-pmap-c)# random-detect dscp-based
router(config-pmap-c)# random-detect dscp af31 32 40 10
router(config-pmap-c)# random-detect dscp af32 28 40 10
router(config-pmap-c)# random-detect dscp af33 24 40 10
router(config-pmap-c)# random-detect ecn
A.The CB-WRED min threshold is too low.
B.The CB-WRED max threshold is set too high.
C.The CB-WRED mark probability denominator is set too low.
D.The endpoints generating the bulk traffic packets are not ECN capable.
E.Some of the routers within the traffic path are not ECN capable.

Answer: D

QUESTION 310
The following commands have been configured under the fa0/1 interface on the 2950 switch:
wrr-queue bandwidth 20180 0
mls qos trust cos
mls qos trust device cisco-phone
Voice traffic from the IP phone that is directly connected to the fa0/1 interface is experiencing excessive delays. What could be the cause of this problem?
A.The wrr-queue bandwidth weightings are not correct.

B.The default wrr-queue cos-map is being used.
C.The default cos-to-dscp map is being used.
D.The default dscp-to-cos map is being used.
E.The trust boundary configuration is not correct.

Answer: B

QUESTION 311
What does the following command accomplish?
router(config-pmap-c)# shape fecn-adapt
A.Enables the router to lower the shaping rate when BECN bits are received.
B.Enables the router to lower the shaping rate when FEC bits are received.
C.Enables the router to respond to FEC bits by creating test frames in the opposite direction with the BECN bit set.
D.Enable the router to respond to BECN bits by creating test frames in the opposite direction with the FECN bit set.
E.Enables the router to increase the shaping rate when BECN bits are received.
F.Enables the router to increase the shaping rate when FECN bits are received.

Answer: C

QUESTION 312
Which three characteristics are drawbacks to the use of a best-effort with over-provisioning backbone design? (Choose three)
A.The design costs more to implement than a DiffServ backbone.
B.Denial of Service attacks on one service can affect all network traffic.
C.The design uses a different over-provisioning ratio for the different traffic classes.
D.It requires complex QoS mechanisms at the network edge.
E.It requires complex QoS mechanisms at the network core.
F.Unplanned network failures can cause unexpected congestion in the network.

Answer: A, B, F

QUESTION 313
Which type of logical interface must be defined when configuring PPP multilink LFI?
A.tunnel interface
B.Null0 interface
C.Multilink interface
D.Loopback interface
E.Virtual access interface
F.Dialer interface

Answer: C

QUESTION 314
While using the show auto qos command, you notices that the QoS configuration generated by AutoQoS

is not correct. What should you verify to troubleshoot this problem?
A.IP CEF configuration
B.Bandwidth configuration on the interfaces
C.Class-map configuration
D.NBAR configuration
E.Clock rate configuration on the interfaces
F.Policy-map configuration

Answer: B

QUESTION 315
Which policy-map configuration, when applied to an interface in the output direction, will always rate-limit the kazaa1 traffic to 8000 bps going out on the interface even when there is no congestion on the interface?
A.class-map p2p
match protocol kazaa2
policy-map limitp2p
class p2p
bandwidth 8
B.class-map p2p
match protocol kazaa2
policy-map limitp2p
class p2p
police 8000 conform-action transmit exceed-action drop

Answer: B

QUESTION 316
Which QoS mechanism calculates the mean queue depth to determine its operation?
A.WRED
B.LLQ/CBWFQ
C.WFQ
D.Class-based shaping
E.Class-based policing

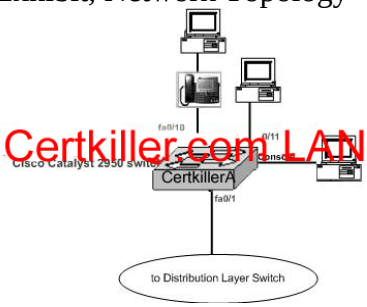
Answer: A

QUESTION 317
What will be the peak shape rate based on the configuration that follows?
policy-map setpeak
class all-traffic
shape peak 32000
A.16000 bps
B.32000 bps
C.48000 bps
D.64000 bps

E.80000 bps
F.96000 bps

Answer: D

QUESTION 318
Exhibit, Network Topology



You work as a network technician at Certkiller .com. You are required to configure the fa0/1, fa0/10 and fa0/11 ports on the Cisco Catalyst 2950 switch according to the following:
On port fa0/1, trust all incoming DSCP settings.
On port fa0/1, trust all incomingCoSsettings.
On port fa0/10, trust the incoming CoS setting only if a Cisco IP Phone is connected to the fa0/10 port: otherwise do not trust anyCoSor DSCP markings coming in.

Answer:
Certkiller A(config)#cdp enable
Certkiller A(config)#interface fastethernet0/1
Certkiller A(config-if)#mls qos trust dscp
Certkiller A(config-if)#interface fastethernet0/11 ----------assume this must be fa0/11 question has misprint
Certkiller A(config-if)#mls qos trust cos
Certkiller A(config-if)#interface fastethernet0/10
Certkiller A(config-if)#mls qos trust device cisco-phone
Certkiller A(config-if)#end
Certkiller A#show mls qos interface fastethernet0/1
Certkiller A#show mls qos interface fastethernet0/11
Certkiller A#show mls qos interface fastethernet0/10
Certkiller A#copy running-config startup-config
This weblink seems to support this:
http://www.cisco.com/univercd/cc/td/doc/product/lan/cat2940/12122ea2/2940scg/swqos.htm

---

QUESTION 319

```
Certkiller3 #show class-map
Class Map match-any class-default (id 0)
  Match any
Class Map match-all financeA (id 1)
  Match protocol ip
  Match qos-group 2
Class Map match-any financeZ (id 2)
  Match class-map financeA
  Match input-interface Ethernet0/0
  Match dscp af11
Certkiller3  #show policy-map
 Policy Map finance
   Class financeZ
    police cir 1000000 bc 500000 be 500000
      conform-action transmit
      exceed-action set-frde-transmit
```


Refer to the exhibit, Which traffic will have FrameRelayDEbit set when transmitted out the interface or interfaces that the policy-map is assigned to, assuming that CIR has been exceeded?
A.IP packets assigned to qos-group 2
B.IP packets with any DSCP setting
C.IP packets exiting the Ethernet0/0 interface
D.Class-default traffic
E.All traffic

Answer: A

QUESTION 320
Which four of the following bit values are used for bits 5-7 of the DSCP field to select AF PHB? (Choose four.)
A.000
B.001
C.010
D.011
E.100
F.101

Answer: B, C, D, E

QUESTION 321
Which QoS mechanism adds IP Precedence information for prefixes into the FIB table?
A.QoS pre-classify
B.AutoQos
C.QPPB
D.Class-Based Marking
E.LLQ
F.Class-Based WRED

Answer: C

QUESTION 322
Based on the following 2950 switch configuration, which statement is correct?
no wrr-queue cos-mapwrr-queue bandwidth 20 10 70 1wrr-queue cos-map 4 5wrr-queue cos-map 1 0 1 2 3wrr-queue cos-map 3 6 7
A.Queue 1 is setup as the expedite queue.
B.Queue 2 is setup as the expedite queue.
C.Queue 3 is setup as the expedite queue.
D.Queue 4 is setup as the expedite queue.
E.No queue is setup as the expedite queue.

Answer: E

QUESTION 323
Whichshowcommand is used to examine class-based WRED drop statistics?
A.show queue {interface}
B.show queueing
C.show queueing random-detect
D.show interface
E.show interface random-detect
F.show policy-map interface {interface}

Answer: F

QUESTION 324
Which parameter must be set to a value greater than 0 to enable traffic shaping to temporarily burst above the committed rate?
A.Bc
B.Be
C.CIR
D.PIR
E.MinCIR
F.Tc

Answer: B

QUESTION 325
Which algorithm (discard method) does WRED use to determine which packets will be dropped when the average queue length becomes larger than the user-specified maximum threshold?
A.tail discard
B.random discard
C.weighted early discard
D.packet size based discard

Answer: A

QUESTION 326
QoS policy propagation through BGP (QPPB) supports which two QoS markers? (Choose two.)
A.DSCP
B.IP precedence
C.QoS group
D.COS
E.MPLS EXP

Answer: B, C

QUESTION 327
What does the term serialization delay refer to?
A.a fixed delay referring to the time it takes for a frame to transit the physical media
B.a fixed delay referring o the time it takes to encode bits of packets onto the physical interface
C.a variable delay caused by packet loss across a congested serial WAN link
D.a variable delay caused by the processing tasks of a network device, such as route lookup, header changes, and switching

Answer: B

QUESTION 328
What is the purpose of theip nbar port-mapcommand?
A.configures stateful NBAR to recognize applications based on dynamic port numbers
B.configures NBAR to search for a particular protocol using a port number other than the well-known port number
C.configure NBAR to recognize non-TCP and non-UDP applications
D.configure NBAR for subport classifications (like HTTP URLs or MIME)
E.configures NBAR to recognize applications that use FastTrack (like Kazaa, and Morpheus)

Answer: B

QUESTION 329
This policy-map is applied to a 128-kbps serial interface in the output direction. Which set of additional commands within this policy-map will improve the link efficiency on the serial interface?
policy-map testclass voicepriority 25class telnetbandwidth remaining percent 20class ftpbandwidth remaining percent 30
A.class voiceno priority 25bandwidth percent remaining 25
B.class voicecompression header ip tcp
C.class telnetcompression header ip tcp
D.class telnetfair-queue
E.class ftpfair-queue
F.class ftpcompression header up

Answer: C

QUESTION 330
To determine the bandwidth requirement for each VoIP call, not including layer 2 overhead, how much bandwidth per call should be added to account for the voice signaling traffic?
A.20 bps
B.40 bps
C.150 bps
D.240 bps
E.480 bps
F.640 bps

Answer: C

QUESTION 331
Which two different traffic types have the most similar sensitivity to latency, jitter, and packet loss? (Choose two.)
A.SQL transactions
B.Voice
C.Voice signaling
D.Streaming video
E.Video conferencing
F.Peer-to-peer file sharing

Answer: B, E

QUESTION 332
Where is the error in the following policy-map configuration?
policy-map testclass voicepriority 168class mission-criticalbandwidth 192random-detectclass class-default fair-queuebandwidth 128
A.Thebandwidthcommand is not a valid command for the class-default traffic class in this case.
B.The voice traffic class is missing therandom-detectcommand.
C.Themission-criticaltraffic class bandwidth guarantee should be lower than the voice traffic class priority bandwidth guarantee.
D.Themission-criticaltraffic class is mission thequeue-limitcommand.
E.Fair-queueshould be enabled for themission-criticaltraffic class.

Answer: A