

## **Exam Questions 642-887**

SPCORE Implementing Cisco Service Provider Next-Generation Core  
Network Services (SPCORE)

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Question No : 1

Which three conditions can occur when metering traffic using a dual token bucket traffic policing QoS mechanism on Cisco routers? (Choose three.)

- A. conform
- B. pass
- C. violate
- D. exceed
- E. burst
- F. matched

**Answer:** A,C,D

Explanation:

Question No : 2

What is the correct formula for determining the CIR?

- A.  $CIR = Bc/Tc$
- B.  $CIR = Bc \times Tc$
- C.  $CIR = Tc/Bc$
- D.  $CIR = Bc + Be$
- E.  $CIR = Tc/(Bc+Be)$
- F.  $CIR = (Bc+Be)/Tc$

**Answer:** A

Explanation:

Committed Information Rate (CIR) – the rate the device will send at (on average) over a one second period. The default CIR when traffic-shaping is enabled on the interface is 56K. CIR is also referred to as the “targetrate”. Since the device is forced to send at the AR, it does not send all of the time (within one second)

. in order to send an average amount of data that equals the CIR. Minimum CIR (mincir) – the rate the service provider guarantees to accept. Theoretically, the provider will set the DE bit for all traffic above this rate. Mincir is designed to be used in conjunction with adaptive shaping. With adaptive shaping, the router will throttle down in the event of congestion. The router will not throttle down below this value. Committed Burst (Bc) – the number of committed bits allowed to be sent during a given interval. The device sends an average amount of traffic to achieve the CIR. The Bc value defaults to 1/8 of the configured CIR for speeds below 650K. For speeds above that, it is roughly 1/16 of CIR. Excess Burst (Be) – the number of non-committed bits the router is allowed to send above Bc during the first interval (Tc). The amount of Be “credits” is derived from unused Bc credits in previous intervals. There is no limit to how long Be can “store” unused Bc credits. It is a common misconception that Be can only store credits from the previous interval or the previous second. There is no default Be value.

Committed Rate Measurement Interval (Tc) – the time interval over which Bc or Bc+Be can be transmitted. The max value is 125 ms and the minimum value is 10 ms.

#### The Formula

CIR, Tc, and Bc are related mathematically by the following formula:

$CIR = Bc / (Tc / 1000)$  Notice the division of Tc by 1000 is used to convert milliseconds into

seconds – the common measurement of CIR and Bc.

Question No : 3

DS-TE implementations on Cisco routers support which bandwidth pool(s) and class type(s)? (Choose two.)

- A. global pool only
- B. subpool only
- C. global pool and subpool
- D. class-type 0 only
- E. class-type 1 only
- F. class-type 0 and class-type 1

**Answer:** C,F

Explanation:

Differential Service Tunnels Differential Service Traffic Engineering (TE) is an extension of the regular MPLS Traffic Engineering (MPLSTE) feature. Regular TE does not provide bandwidth guarantees to different traffic classes. A single bandwidth pool (global pool) is used in regular TE that is shared by all traffic. In order to

support various class of service(CoS), the ability to provide multiple bandwidth pools is required. These bandwidth pools then can be treated differently based on the requirement for the traffic class using that pool.

In RSVP global and subpools reservable bandwidths are configured on a per interface basis to accommodate TE tunnels on the node. Available bandwidth from all configured bandwidth pools is advertised using Interior Gateway Protocol (IGP). RSVP is used to signal the TE tunnel with appropriate bandwidth pool requirements.

Question No : 4

Which field in the MPLS shim header is used to support different QoS markings?

- A. IP precedence
- B. DSCP
- C. EXP
- D. ToS
  
- E. S
- F. Label

**Answer: C**

Explanation:

MPLS EXP Marking The three MPLS EXP (experimental) bits in the shim header of an input or output MPLS packet header may be set or changed by a user configured value

Question No : 5

On a Cisco IOS XR router, which mechanism protects the router resources by filtering and policing the packets flows that are destined to the router that is based on defined flow-type rates?

- A. LLQ
- B. LPTS
- C. Committed Access Rate
- D. Control Plane Policing

E. Management Plane Protection

F. NetFlow

G. ACL

**Answer: B**

Explanation:

Local Packet Transport Services (LPTS) maintains tables describing all packet flows destined for the securedomain router (SDR), making sure that packets are delivered to their intended destinations. The Low Latency Queueing feature brings strict priority queueing to Class-Based Weighted Fair Queueing(CBWFQ).

Question No : 6

When configuring LLQ (strict priority queue) on a traffic class using the Cisco IOS XR priority command on a Cisco ASR9K router, which additional QoS command is required for this traffic class?

A. shape

B. police

C. random-detect

D. bandwidth

**Answer: B**

Explanation:

The Low Latency Queueing feature brings strict priority queueing to Class-Based Weighted Fair Queueing(CBWFQ).

Question No : 7

On the Cisco ASR9K router, when using the bandwidth command to specify the minimum guaranteed bandwidth to be allocated for a specific class of traffic, what will be used as the queuing algorithm?

A. custom queuing

B. CBWFQ

C. WFQ

D. FIFO

E. priority queuing

**Answer: B**

Explanation:

Class based weighted fair queuing (CB-WFQ) was initially released without the support of a priority queuing system, thus it could not guarantee the delay and jitter (delay variation) requirements of real-time, interactive voice and video conversations. Since for CBWFQ, the weight for a packet belonging to a specific class is derived from the bandwidth assigned to the class, which in turn determines the order in which packets are sent. All packets are serviced fairly based on weight and no class of packets may be granted strict priority. This scheme poses problems for voice traffic that is largely intolerant of delay, especially variation in delay

Question No : 8

When implementing MPLS DS-TE on Cisco IOS XR routers, all aggregate Cisco MPLS TE traffic is mapped to which class type by default?

A. class-type 0 (bandwidth global pool)

B. class-type 1 (bandwidth subpool)

C. class-type 2 (bandwidth priority)

D. class type class-default (bandwidth best-effort)

**Answer: A**

Explanation:

Differentiated Services Traffic Engineering MPLS Differentiated Services (Diff-Serv) Aware Traffic Engineering (DS-TE) is an extension of the regular

MPLS-TE feature. Regular traffic engineering does not provide bandwidth guarantees to different traffic classes. A single bandwidth constraint is used in regular TE that is shared by all traffic. To support various classes of service (CoS), users can configure multiple bandwidth constraints. These bandwidth constraints can be treated differently based on the requirement for the traffic class using that constraint.

MPLS diff-serv traffic engineering provides the ability to configure multiple bandwidth constraints on an MPLS enabled interface. Available bandwidths from all configured bandwidth constraints are advertised using IGP.

TE tunnel is configured with bandwidth value and class-type requirements. Path calculation and admission control take the bandwidth and class-type into consideration. RSVP is used to signal the TE tunnel with bandwidth and class-type requirements.

Diff-Serv TE can be deployed with either Russian Doll Model (RDM) or Maximum Allocation Model (MAM) for bandwidth calculations.

Question No : 9

On the Cisco IOS XR, which MQC configuration is different than on the Cisco IOS and IOS XE?

- A. On the Cisco IOS XR, WRED can only be applied in the output direction.
- B. On the Cisco IOS XR, marking can only be applied in the input direction.
- C. On the Cisco IOS XR, LLQ can be applied in the input or output direction.
- D. On the Cisco IOS XR, LLQ can use up to four priority queues: level 1, level 2, level 3, and level 4.

**Answer: C**

Explanation:

Question No : 10

On Cisco routers, how is hierarchical QoS implemented?

- A. Within the parent policy, reference another child policy using the policy-map command.
- B. Within the child policy, reference another parent policy using the policy-map command.
- C. Use the policy-map command within a service-policy to implement nested policy-maps.
- D. Within the parent policy-map, reference another child policy-map using the service-policy command.

**Answer: D**

Explanation:

Question No : 11

Refer to the Cisco IOS XR policy-map configuration exhibit.

What is wrong with the policy-map configuration?

- A. missing the priority percent command under class one and class two

- B. missing the police command under class one and class two
- C. missing the police command under class three
- D. missing the priority bandwidth command under class one and class two
- E. missing the bandwidth command under class one and class two

**Answer: B**

Explanation:

Hierarchical policing is also supported. In such a configuration, both parent and child policies have class-maps

containing policing statements, as in the following example: `! policy-map child class gold police rate percent 50 conform-action set precedence immediate exceed-action drop !! policy-map parent class match_all police rate 10000 kbps burst 15000 exceed-action drop service-policy child`

Question No : 12

When configuring class-based WRED on Cisco routers, which WRED parameter is not user configurable on a Cisco IOS XR but is user configurable on a Cisco IOS and IOS XE?

- A. the ingress or egress direction where the class-based WRED policy will be applied
- B. the maximum threshold
- C. the minimum threshold
- D. the mark probability denominator

**Answer: D**

Explanation:

Comparison of Cisco IOS QoS and Cisco IOS-XR QoS The Cisco IOS-XR software implementation of QoS is basically the same as the QoS implementation on Cisco IOS software, with the following exceptions:

.  
On Cisco IOS-XR software, the bandwidth command can be configured only in egress policies.



The following changes have been made to the class-map command on Cisco IOS-XR

software:

- Supports 4K per logical router.
- Maximum number of match criteria configurable in one class map is eight.

When a class is marked as high priority using the priority command on Cisco IOS-XR software, we recommend that you configure a policer to limit the priority traffic. Limiting the priority traffic will ensure that the priority traffic does not starve all of the other traffic on the line card. Use the police command to explicitly configure the policer.

On Cisco IOS-XR software, only one conform-action, exceed-action, or violate-action command can be configured at a time. To configure traffic policing, use the police command.

On Cisco IOS-XR software, policy modifications cannot be made on existing policies. Use the policy-map command to remove the policy from all attached interfaces, delete the policy map, and redefine a new policy.

When configuring a policy map on Cisco IOS-XR software, the maximum number of classes configurable in one policy map is 16, which includes both Level 1 and Level 2 classes. To configure a policy map, use the policy-map command.

When WRED is configured on Cisco IOS-XR software, the mark probability in the random-detect command is not configurable—it is always set to 1.

When the random-detect exp command is used on Cisco IOS-XR software, the exponential weighting constant is not configurable and will be programmed automatically by Cisco IOS-XR software.

When access control lists (ACLs) are used in QoS class maps, the underlying deny or permit actions associated with access control entries (ACEs) are ignored. ACEs are used as a classification mechanism in order to provide appropriate QoS behavior as specified in class maps. Use ACLs that include ACEs with permit actions only.

Question No : 13

Which of the following three statements are correct regarding IPv6 QoS? (Choose three.)

- A. The traffic class field in the IPv6 header can be used to set specific precedence or DSCP values.
- B. A 20-bit flow label field enables per-flow processing.
- C. DS-TE is not supported by IPv6.
- D. Per-hop behavior in IPv6 networks is based on EXP bits.
- E. IPv6 QoS features are configured using the modular QoS CLI on Cisco routers.

**Answer:** A,B,E

Explanation:

[http://www.cisco.com/en/US/technologies/tk648/tk872/technologies\\_white\\_paper0900aecd\\_8026004d.pdf](http://www.cisco.com/en/US/technologies/tk648/tk872/technologies_white_paper0900aecd_8026004d.pdf)

Question No : 14

With unmanaged CE routers, at which point in the service provider network is the QoS trust boundary, and what is required at the trust boundary?

- A. between the CE and PE router and mapping of the customer traffic classes into the service provider traffic

classes at the PE router ingress

B. between the CE and PE router and trusting the QoS markings from the CE router and applying the required QoS mechanisms based on the customer QoS markings

C. between the PE and the P router and mapping of the customer traffic classes into the service provider traffic classes at the P router ingress

D. between the PE and P router and trusting the QoS markings from the CE router and applying the required QoS mechanisms based on the customer QoS markings

E. between the customer network and the CE router ingress and applying the required egress QoS policy on the CE router

**Answer: A**

Explanation:

Question No : 15

On the Cisco IOS XR, when using the match protocol command within a class-map to classify traffic, you noticed that the match protocol option on the Cisco IOS XR shows much fewer protocol options than on the Cisco IOS or IOS XE, like there is no option such as the match protocol yahoo-messenger command on the Cisco IOS XR. Why is this?

A. because the Cisco IOS XR router does not have the correct software packages installed

B. because when defining the class-map, the class-map type should be set to type inspect: class-map type inspect class-map-name command

C. because NBAR is not supported on the Cisco IOS XR

D. because flexible packet matching has not been enabled on the Cisco IOS XR router

**Answer: C**

Explanation:

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