

Cisco

Exam 400-101

CCIE Routing and Switching (v5.1)

Version: 30.0

[Total Questions: 995]

Topic break down

Topic	No. of Questions
Topic 1: Network Principles	57
Topic 2: Layer 2 Technologies	78
Topic 3: Layer 3 Technologies	219
Topic 4: VPN Technologies	85
Topic 5: Infrastructure Security	31
Topic 6: Infrastructure Services	78
Topic 7: Mix Questions	447

Topic 1, Network Principles

Question No : 1 DRAG DROP - (Topic 1)

Drag and drop the Cisco IOS XE subpackage on the left to the function it performs on the right.

RPBase	administers the shared port adaptor driver and related field-programmable device images
RPCControl	provisions the software needed to access the router
SIPSPA	manages the Cisco IOS Software and the rest of the platform via the control plane
RPAccess	provisions the operating system software route processor

Answer:

RPBase	SIPSPA
RPCControl	RPAccess
SIPSPA	RPCControl
RPAccess	RPBase

Question No : 2 - (Topic 1)

A TCP/IP host is able to transmit small amounts of data (typically less than 1500 bytes), but attempts to transmit larger amounts of data hang and then time out. What is the cause of this problem?

- A. A link is flapping between two intermediate devices.
- B. The processor of an intermediate router is averaging 90 percent utilization.
- C. A port on the switch that is connected to the TCP/IP host is duplicating traffic and sending it to a port that has a sniffer attached.
- D. There is a PMTUD failure in the network path.

Answer: D

Explanation:

Sometimes, over some IP paths, a TCP/IP node can send small amounts of data (typically less than 1500 bytes) with no difficulty, but transmission attempts with larger amounts of data hang, then time out. Often this is observed as a unidirectional problem in that large data transfers succeed in one direction but fail in the other direction. This problem is likely caused by the TCP MSS value, PMTUD failure, different LAN media types, or defective links.

Reference: <http://www.cisco.com/c/en/us/support/docs/additional-legacy-protocols/ms-windows-networking/13709-38.html>

Question No : 3 - (Topic 1)

Which Cisco IOS XE process administers routing and forwarding?

- A. Forwarding manager
- B. Interface manager
- C. Cisco IOS
- D. Host manager

Answer: C

Explanation:

Some of the processes are listed in the table below:

Process

Purpose

Affected FRUs

SubPackage Mapping

Host Manager

Provides an interface between the IOS process and many of the information-gathering functions of the underlying platform kernel and operating system.

RP (one instance per RP)

SIP (one instance per SIP)

ESP (one instance per ESP)

RPControl

SIPBase

ESPBase

Interface Manager

Provides an interface between the IOS process and the per-SPA interface processes on the SIP.

RP (one instance per RP)

SIP (one instance per SIP)

RPControl

SIPBase

IOS

The IOS process implements all forwarding and routing features for the router.

RP (one per software redundancy instance per RP). Maximum of two instances per RP.

RPIOS

Forwarding Manager

Manages the downloading of configuration to each of the ESPs and the communication of forwarding plane information, such as statistics, to the IOS process.

RP (one per software redundancy instance per RP). Maximum of two instances per RP.

ESP (one per ESP)

RPControl

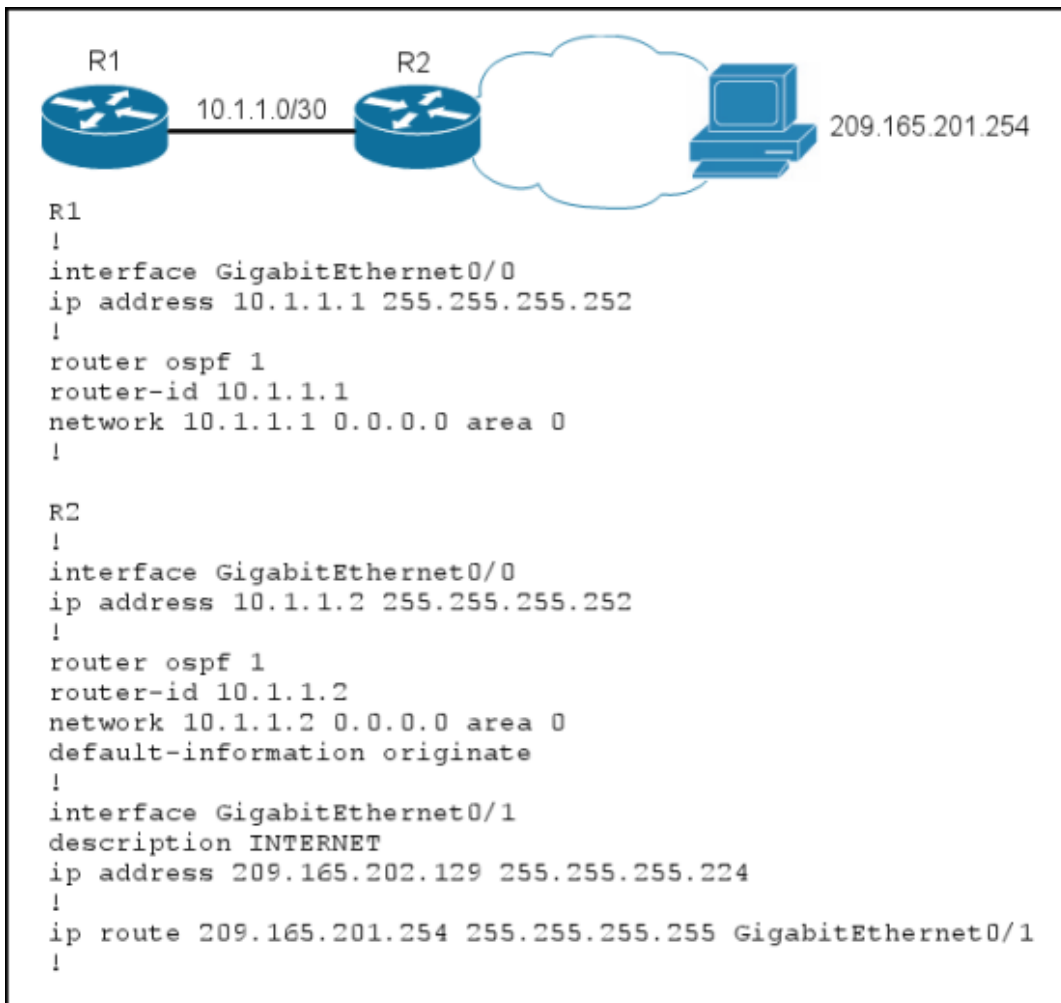
ESPBase

Reference:

http://www.cisco.com/c/en/us/td/docs/routers/asr1000/configuration/guide/chassis/asrswcfg/Software_Packaging_Architecture.html

Question No : 4 - (Topic 1)

Refer to the exhibit.



Routers R1 and R2 are configured as shown, and traffic from R1 fails to reach host 209.165.201.254.

Which action can you take to correct the problem?

- A. Ensure that R2 has a default route in its routing table.
- B. Change the OSPF area type on R1 and R2.
- C. Edit the router configurations so that address 209.165.201.254 is a routable address.
- D. Remove the default-information originate command from the OSPF configuration of R2.

Answer: A

Explanation:

Not sure that any of these answers are correct, it appears that this configuration is valid for reaching that one specific host IP. Answer A does have a route to that host so it would not need a default route to get to it. Choice B is incorrect as the area types have nothing to do with this. C is incorrect as that IP address is routable, and D is needed so that R1 will have a default route advertised to it from R2 so that it can reach this destination.

Question No : 5 - (Topic 1)

Which service is disabled by the no service tcp-small-servers command?

- A. the finger service
- B. the Telnet service
- C. the Maintenance Operation Protocol service
- D. the chargen service

Answer: D

Explanation:

The TCP small servers are:

- ✍ Echo: Echoes back whatever you type through the telnet x.x.x.x echo command.
- ✍ Chargen: Generates a stream of ASCII data. Use the telnet x.x.x.x chargen command.
- ✍ Discard. Throws away whatever you type. Use the telnet x.x.x.x discard command.
- ✍ Daytime. Returns system date and time, if it is correct. It is correct if you run Network Time Protocol (NTP), or have set the date and time manually from the exec level. Use the telnet x.x.x.x daytime command.

Reference: <http://www.cisco.com/c/en/us/support/docs/ios-nx-os-software/ios-software-releases-110/12815-23.html>

Question No : 6 - (Topic 1)

Which statement describes the purpose of the Payload Type field in the RTP header?

- A. It identifies the signaling protocol.
- B. It identifies the codec.
- C. It identifies the port numbers for RTP.
- D. It identifies the port numbers for RTCP.

Answer: B

Explanation:

PT, Payload Type. 7 bits: Identifies the format of the RTP payload and determines its interpretation by the application. A profile specifies a default static mapping of payload type codes to payload formats. Additional payload type codes may be defined dynamically through non-RTP means. An RTP sender emits a single RTP payload type at any given time; this field is not intended for multiplexing separate media streams. A full list of codecs and their payload type values can be found at the link below:

Reference: <http://www.networksorcery.com/enp/protocol/rtp.htm>

Question No : 7 - (Topic 1)

Which TCP mechanism prevents the sender from sending data too quickly for the receiver to process?

- A. Congestion control
- B. Error detection
- C. Selective acknowledgement
- D. Flow control

Answer: D

Explanation:

In data communications, flow control is the process of managing the rate of data transmission between two nodes to prevent a fast sender from overwhelming a slow receiver. It provides a mechanism for the receiver to control the transmission speed, so that the receiving node is not overwhelmed with data from transmitting node.

Reference: [http://en.wikipedia.org/wiki/Flow_control_\(data\)](http://en.wikipedia.org/wiki/Flow_control_(data))

Question No : 8 - (Topic 1)

What is the most efficient way to confirm whether microbursts of traffic are occurring?

- A. Monitor the output traffic rate using the show interface command.
- B. Monitor the output traffic rate using the show controllers command.
- C. Check the CPU utilization of the router.
- D. Sniff the traffic and plot the packet rate over time.

Answer: D

Explanation:

Micro-bursting is a phenomenon where rapid bursts of data packets are sent in quick succession, leading to periods of full line-rate transmission that can overflow packet buffers of the network stack, both in network endpoints and routers and switches inside the network.

In order to troubleshoot microbursts, you need a packet sniffer that can capture traffic over a long period of time and allow you to analyze it in the form of a graph which displays the saturation points (packet rate during microbursts versus total available bandwidth). You can eventually trace it to the source causing the bursts (e.g. stock trading applications).

Reference: Adam, Paul (2014-07-12). All-in-One CCIE V5 Written Exam Guide (Kindle Locations 989-994). Kindle Edition.


Question No : 9 - (Topic 1)

Which two Cisco IOS XE commands can install a subpackage onto a router? (Choose two.)

- A. request platform software package install rp rpSlotNumber file fileURL
- B. boot system flash bootflash:filename
- C. copy sourceUrl destinationUrl
- D. license install file storedLocationUrl
- E. issu loadversion rp identifier file diskType imageFilename
- F. config-register value

Answer: A,C

Explanation:

 Managing and Configuring a Consolidated Package Using the request platform software package install Command

In the following example, the **request platform software package install** command is

used to upgrade a consolidated package running on RP 0. The **force** option, which forces the upgrade past any prompt (such as already having the same consolidated package installed), is used in this example.

```
Router# request platform software package install rp 0 file bootflash:asr1000rp1-  
adventerprisek9.02.01.00.122-33.XNA.bin force
```

To upgrade a consolidated package on the Cisco ASR 1000 Series Routers using the **copy** command, copy the consolidated package into the bootflash: directory on the router using the **copy** command as you would on most other Cisco routers. After making this copy, configure the router to boot using the consolidated package file.

In the following example, the consolidated package file is copied onto the bootflash: file system from TFTP. The config-register is then set to boot using **boot system** commands, and the **boot system** commands instruct the router to boot using the consolidated package stored in the bootflash: file system. The new configuration is then saved using the **copy running-config startup-config** command, and the system is then reloaded to complete the process.

```
Router# dir bootflash:
```

```
Directory of bootflash:/
```

```
11 drwx 16384 Dec 4 2007 04:32:46 -08:00 lost+found  
86401 drwx 4096 Dec 4 2007 06:06:24 -08:00.ssh  
14401 drwx 4096 Dec 4 2007 06:06:36 -08:00.rollback_timer  
28801 drwx 4096 Mar 18 2008 17:31:17 -07:00.prst_sync  
43201 drwx 4096 Dec 4 2007 04:34:45 -08:00.installer  
13 -rw- 45977 Apr 9 2008 16:48:46 -07:00 target_support_output.tgz.tgz
```

```
928862208 bytes total (712273920 bytes free)
```

```
Router# copy tftp bootflash:
```

```
Address or name of remote host []? 172.17.16.81
```

```
Source filename []? /auto/tftp-users/user/asr1000rp1-adventerprisek9.02.01.00.122-  
33.XNA.bin
```

```
Destination filename [asr1000rp1-adventerprisek9.02.01.00.122-33.XNA.bin]?
```

Reference:

http://www.cisco.com/c/en/us/td/docs/routers/asr1000/configuration/guide/chassis/asrswcfg/Package_Management.html#78189

Question No : 10 - (Topic 1)

Which three features require Cisco Express Forwarding? (Choose three.)

- A. NBAR
- B. AutoQoS