HP2-Z31 Q&As

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QUESTION 1

What are examples of information that the Topology Service returns for an OpenFlow switch port? (Select two.)

A. Whether the port is a connection point

B. Whether the port can be used as an observation point

C. Whether the port has BDDP enabled

D. Whether the port has LLDP medium endpoint discovery enabled

E. Whether the port can participate in forwarding mode in a looped topology

Correct Answer: AE

QUESTION 2

A network integrator plans to implement the HP Network Protector SDN application in a network. What is a key consideration with regards to the OpenFlow protocol implementation and switch selection?

A. If the access switch supports PACKETIN

B. If the core switch supports PACKETIN

C. If the access switch supports FORWARD_NORMAL

D. if the core switch supports FORWARD_NORMAL

Correct Answer: A

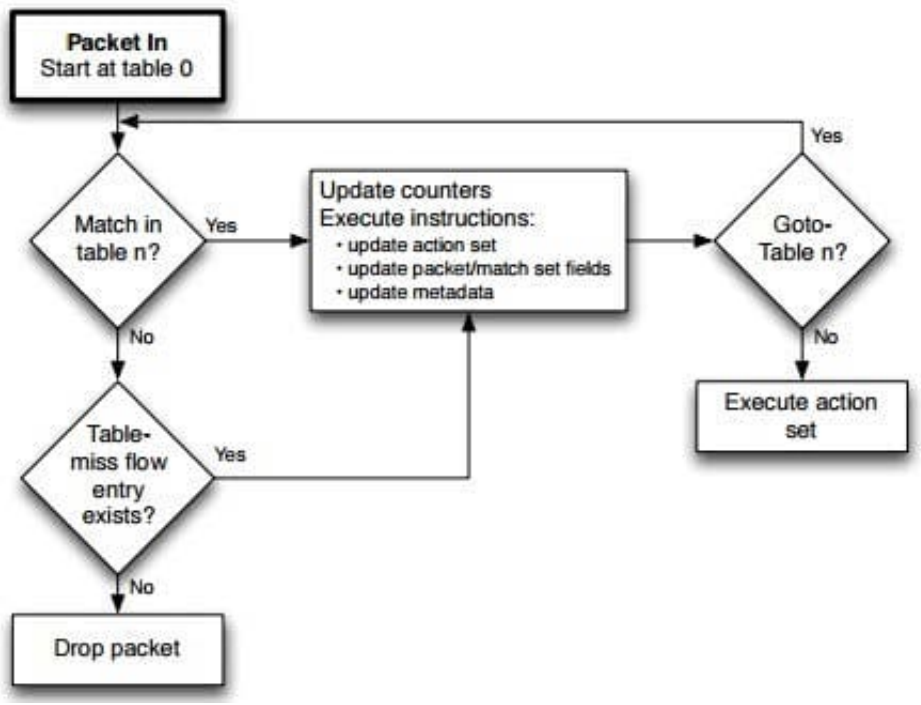
Note:

*

The PacketIn message is a way for the switch to send a captured packet to the controller. There are two reasons why this might happen; there could be an explicit action as a result of a match asking for this behavior, or from a miss in the match tables, or a ttl error.

*

Flowchart detailing packet flow through an OpenFlow switch.



Reference: OpenFlow Switch Specification Version 1.3.1

QUESTION 3

An HP Provision switch loses its OpenFlow connection to the HP VAN SDN Controller. How is traffic processed by default if no controller teaming is configured?

A. Packets and messages destined to the controller are dropped. Flows continue to expire according to their time-outs. This is because the default setting on HP Provision switches is fail- standalone.

B. Packets and messages of new flows behave as a legacy switch or router would. Existing flows of this OpenFlow instance are removed. This is because the default setting on HP Provision switches is fail-standalone.

C. Packets and messages of new flows behave as a legacy switch or router would. Existing flows of this OpenFlow instance are removed. This is because the default setting on HP Provision switches is fail-secure.

D. Packets and messages destined to the controller are dropped. Flows continue to expire according to their time-outs. This is because the default setting on HP Provision switches is fail- secure.

Correct Answer: D

OpenFlow instance connection interruption mode

You can set the type of behavior when the switch loses connection with the controller.

OpenFlow instance connection interruption mode

fail-secure

If the switch loses connection with all of the controllers, packets and messages destined to the current

controller are dropped. Flows continue to expire according to their time-outs.

Default: fail-secure

Reference: HP OpenFlow Switches

(page 21)

http://h20628.www2.hp.com/km-ext/kmcsdirect/emr_na-c03512348-4.pdf

QUESTION 4

What is the minimum number of HP VAN SDN Controllers supported in a team?

A. One

B. Two

C. Three

D. Four

Correct Answer: C

The minimum number of team members for an HP VAN SDN Controller team is three.

Reference: HP VAN SDN Controller Installation Guide

QUESTION 5

Which environmental component is used to handle authentication requests to the HP VAN SDN Controller?

A. Zookeeper

B. Cassandra

C. Neutron

D. Keystone

Correct Answer: D

The SDN controller uses Openstack Keystone as an identity management for managing users, generating tokens, as well as token validation.

Reference: HP VAN SDN Controller Administrator Guide

QUESTION 6

A switch connects to the HP VAN SDN Controller, which has the HP Network Protector SDN Application installed. These are the switch details:

Switch: 3800-24G-2XG Firmware: KA15.14.003

OpenFlow negotiated: 1.3

Which channel will be used for communication with the HP Network Protector application?

A. OpenFlow Channel

B. Normal Forwarding

C. Service Insertion Tunnel

D. GRE Tunnel

Correct Answer: A

The application uses the switch firmware information to decide if the communication with the switch is through OpenFlow channel or through the application Insertion tunnel. For firmware versions K.15.14 and lower, the application communicates with the switch through OpenFlow channel. For firmware versions KA.15.15.0015 and greater, the application can communicate with the switch either through OpenFlow channel or Service Insertion tunnels.

Reference: HP Network Protector SDN Application Administrator Guide

QUESTION 7

Which important functions does the HP VAN SDN Controller provide for an SDN deployment? (Select two.)

A. It discovers HP switches using SNMP. configures OpenFlow on them, and enables the OpenFlow instances.

B. It provides a platform for SDN applications and mediates between these applications and network infrastructure devices.

C. It delivers comprehensive, policy-based management for both traditional networks and SDN networks, enabling gradual integration of SDN applications.

D. It uses APIs to expose an abstracted and centralized control plane to network applications.

E. It provides built-in templates for provisioning virtual machine network connectivity and automatically applies those templates as required.

Correct Answer: BC

The HP VAN SDN Controller is a Java-based OpenFlow controller enabling SDN solutions such as network controllers for the data center, public cloud, private cloud, and campus edge networks. This includes providing an open platform for developing experimental and special- purpose network control protocols using a built-in OpenFlow controller.

The HP VAN SDN Controller is a platform for developing SDN applications and deploying SDN applications. The controller can be characterized as providing a Base Control Platform, a Distributed Platform for High-Availability and Scalability, and an Extensible Platform.

Reference: HP VAN SDN Controller Administrator Guide

QUESTION 8

An administrator wants to navigate to the HP VAN SDN Controller graphical user interface to view options such as the

OpenFlow Topology, Alerts, and installed applications. Which URL is correct for release 2.0 of the HP VAN SDN Controller configured with IP address 192.168.56.7?

A. https://192.168.56.7:8443/api

B. https://192.168.56.7:8080/sdn/ui

C. https://192.168.56.7:8443/sdn/ui

D. http://192.168.56.7:8443/sdn/ui

Correct Answer: C

Start the SDN Graphical User Interface

1.

Use the Google Chrome browser to access the controller\\'s GUI at the controller IP address:

https://:8443/sdn/ui

For example:

https://127.0.0.1:8443/sdn/ui

2.

Enter user name and password credentials, then click Login.

The default user name is "sdn".

The default password is "skyline".

The main controller GUI screen then appears:

Reference: HP VAN SDN Controller Administrator Guide

QUESTION 9

A network administrator wants to back up the HP VAN SDN Controller. Which files will need to be downloaded and kept

together? (Select two.)

A. sdn_controller_backcup_.rar

B. sdn_concroller_backup_.rar.MD5

C. sdn_cont;roller_backcup_.zip

D. sdn_controller_backcup_.zip.MD5

E. sdn controller backup .tgz

Correct Answer: CD

Download a Backup From the Controller to Another Location Both the .zip file and the .MD5 (checksum) file (zip.MD5) should be downloaded to the same, secure location. Choose the correct name now; you cannot rename the files later Details (check the file extensions):

1.

Download the Backup .zip File: curl --noproxy --header "X-Auth-Token:" --fail -ksSfL --request GET --url "https://:8443/sdn/v2.0/systems//backup?csum=false" > .zip

2.

Download the backup .MD5 (Checksum) File curl --noproxy --header "X-Auth-Token:" --fail -ksSfL --request GET --url "https://:8443/sdn/v2.0/systems//backup?csum=true" > .zip.MD5

Reference: HP VAN SDN Controller Administrator Guide

QUESTION 10

Refer to the exhibit.

```
<5900-1>display openflow instance 10 flow-table
Flow entry 17 information:
 cookie: 0x0, priority: 30000, hard time: 0, idle time: 60, flags: none,
 byte count: --, packet count: 23542
Match information:
 Ethernet type: 0x0800
 IPv4 source address: 10.10.10.0, mask: 255.255.255.0
 IPv4 destination address: 192.168.56.0, mask: 255.255.255.0
Instruction information:
 Write actions:
  Output interface: Normal
```

A customer has configured a VLAN to use OpenFlow. An HP Comware switch is used and configured to communicate with an HP VAN SDN Controller version 2.0. How was the flow entry in the exhibit added to the flow table of the switch?

A. An application added the flow entry by making an API call against the southbound OpenFlow API of the HP VAN SDN Controller.

B. The HP VAN SDN Controller topology service added this flow entry to the switch\\'s flow table

C. The HP VAN SDM Controller link discovery service added this flow entry to the switch\\'s flow table

D. An application added the flow entry by making an API call against the northbound REST API or JAVA API of the HP VAN SDN Controller.

Correct Answer: D

Incorrect:

Not A: Southbound API is not used by external Applications.

Not B:

Topology service to create a network graph and compute the shortest path between two hosts.

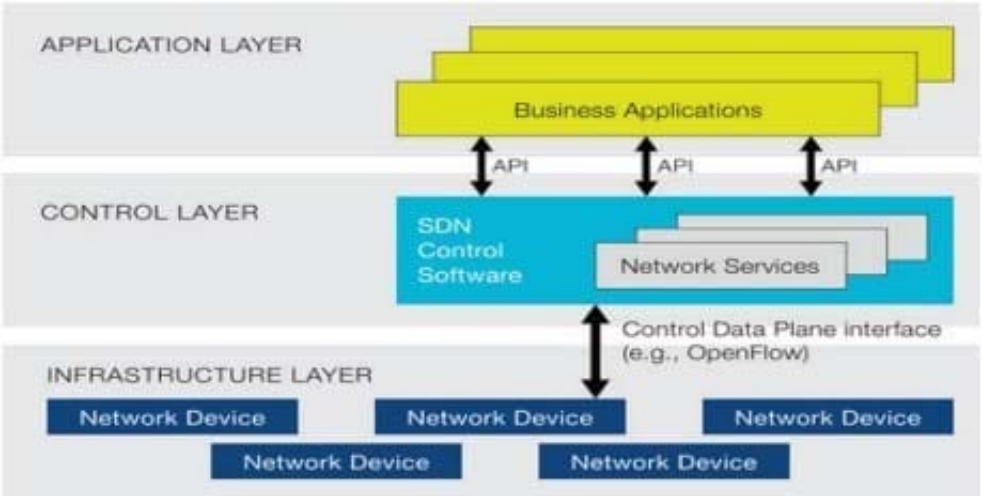
Not C:

The link discovery service is responsible for discovering and maintaining the status of links in the OpenFlow network. The link discovery would record Mac Addresses, not IP addresses.

* Northbound API Relative to figure 1 below, the Northbound API is the API that enables communications between the control layer and the application layer (external business applications. Southbound API

Relative to Figure 1 below, the Southbound API is the API that enables communications between the control layer and the infrastructure layer (OpenFlow).

Figure 1. ONF\\'s SDN architecture



*

Putting the region configurations in place in a controller team ensures seamless failover and failback among the configured controllers for the specified network devices in a region. That is, when a master controller experiences a

fault, the Role Orchestration Service ensures that a slave controller immediately assumes the master role over the group of network devices to which the failed controller was in the master role. Reference: Technical white paper, Mock RFI for Enterprise SDN Solutions Reference: HP VAN SDN Controller Administrator Guide

Note:

*

The exhibit shows that the IPv4 source address, 10.10.10.0 is a private network. The exhibit shows that the IPv4 destination address, 192.168.56.0 is also a private network.

*

display openflow instance instance-id flow-table [table-id] Display flow table entries for an OpenFlow instance.

QUESTION 11

What are the OpenFlow flow entry timeout values? (Select two.)

A. Flow timeout

B. Idle timeout

C. Soft timeout

D. Controller timeout

E. Hard timeout

Correct Answer: BE

OpenFlow flow entry timers include the idle timeout, the hard timeout, and the purge flow timer.

Reference: Understanding OpenFlow Flow Entry Timers on Devices Running Junos OS http:// www.juniper.net/techpubs/en_US/junos13.3/topics/concept/junos-sdn-openflow-flow- entry-timersoverview.html

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QUESTION 12

Refer to exhibit.

Time	Event	Remote ID	Message
12:51:30.399	MESSAGE_RX	00:14:00:9c:02:d8:18:00	[ofm:[V_1_3,PACKET_IN,110,108],inPort=0x1(1),reason=NO_MA...
12:51:30.399	MESSAGE_TX	00:14:00:9c:02:d8:18:00	[ofm:[V_1_3,PACKET_OUT,100,108],acts=[[Act:[OUTPUT,len=16]...
12:51:30.570	DATAPATH_CONNECT...	192.168.56.103/52076	
12:51:30.570	MESSAGE_RX	192.168.56.103/52076	[ofm:[V_1_3,HELLO,16,10],elems=VERSION_BITMAP]
12:51:30.570	MESSAGE_TX	192.168.56.103/52076	[ofm:[V_1_3,HELLO,16,10],elems=VERSION_BITMAP]
12:51:30.571	MESSAGE_TX	192.168.56.103/52076	[ofm:[V_1_3,FEATURES_REQUEST,8,40587]]
12:51:30.770	MESSAGE_RX	00:0a:00:9c:02:d8:18:00	[ofm:[V_1_3,FEATURES_REPLY,32,40587],dpid=00:0a:00:9c:02:...
12:51:30.772	MESSAGE_TX	00:0a:00:9c:02:d8:18:00	[ofm:[V_1_3,MULTIPART_REQUEST,16,40588],PORT_DESC,flgs=n...
12:51:30.772	MESSAGE_TX	00:0a:00:9c:02:d8:18:00	[ofm:[V_1_3,SET_CONFIG,12,40589],flags=[fragReasm],msLen=...
12:51:30.772	MESSAGE_TX	00:0a:00:9c:02:d8:18:00	[ofm:[V_1_3,MULTIPART_REQUEST,16,40590],TABLE_FEATURES,...
12:51:30.774	MESSAGE_RX	00:0a:00:9c:02:d8:18:00	[ofm:[V_1_3,MULTIPART_REPLY,1616,40588],PORT_DESC,flgs=[]...
12:51:30.902	MESSAGE_RX	00:0a:44:31:92:5f:aa:3b	[ofm:[V_1_3,PACKET_IN,110,0],inPort=0x2(2),reason=NO_MATC...
12:51:30.902	MESSAGE_TX	00:0a:44:31:92:5f:aa:3b	[ofm:[V_1_3,PACKET_OUT,100,0],acts=[[Act:[OUTPUT,len=16],p...
12:51:30.904	MESSAGE_RX	00:0a:00:9c:02:d8:ff:c0	[ofm:[V_1_3,PACKET_IN,110,1970282596],inPort=0x7(7),reaso...
12:51:30.943	MESSAGE_RX	00:14:00:9c:02:d8:18:00	[ofm:[V_1_3,PACKET_IN,110,1970282596],inPort=0x7(7),reaso...

Which HP VAN SDN Controller interface can a network administrator use to troubleshoot the southbound interface of the controller and displays the output shown in the exhibit?

A. Audit Log

B. OpenFlow Monitor

C. OpenFlow Tracer

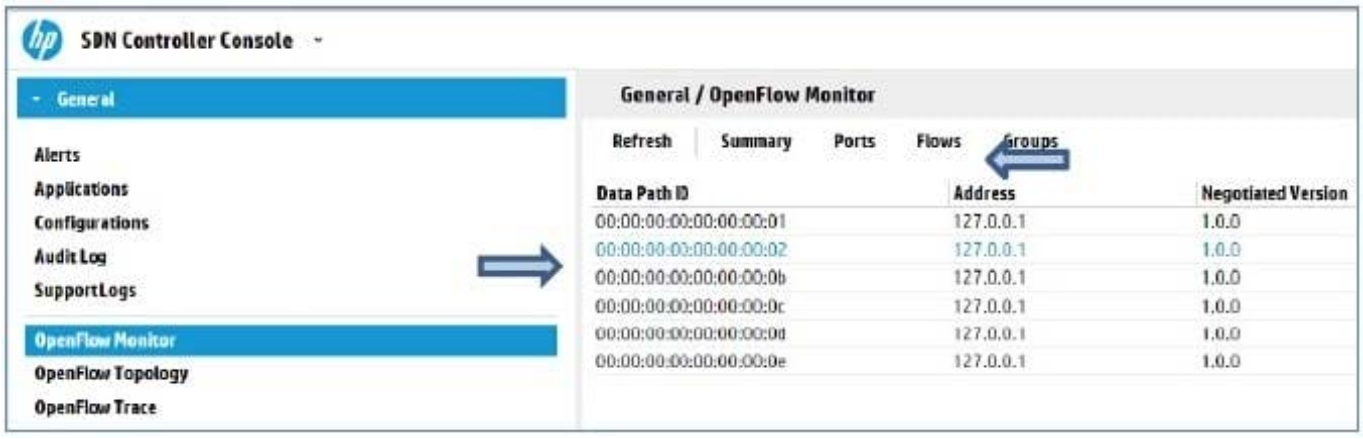
D. Dissector

Correct Answer: C

The OpenFlow Tracer is a built-in packet sniffer similar to Wireshark.

Incorrect:

Not Openflow Monitor:



QUESTION 13

A customer wants to implement an OpenFlow solution where packets that do not match any flow entries in the OpenFlow table on the switch are not sent to the controller Rather, packets not matching should be handled normally by the switch. Which command enables this functionality on an HP 3800 series switch?

A. openflow instance sales mode active

B. openflow instance sales mode normal

C. openflow instance sales mode passive

D. openflow instance sales mode hybrid

Correct Answer: C

OpenFlow instance mode

OpenFlow can work either in active or passive mode.

Passive mode

There is one-way communication from the OpenFlow controller to the switch. Packets that do not match

any flow in the flow table on the switch are not sent to the controller. Such packets of new flows are

handled normally by the switch.

Active mode

New packets of a flow that the switch is not aware of are sent to the OpenFlow controller.

Reference: HP Switch Software OpenFlow Administrator\\'s Guide K/KA/WB 15.14 http://

h20628.www2.hp.com/km-ext/kmcsdirect/emr_na-c03991489-1.pdf (OpenFlow instance mode, passive

mode)

QUESTION 14

Which framework allows for dynamic insertion and removal of applications in an HP VAN SDN Controller?

A. cURL

B. JSON

C. OSI

D. OSGi

Correct Answer: D

OSGi was thus selected to allow elasticity of applications. The applications can be dynamically introduced and dynamically removed from a running environment without having to shut down the whole controller and then restart it. Using a network analogy again, the applications are "hot- swappable".

Reference: HP Virtual Application Networks SDN Controller Technical Solution Guide http://www8.hp.com/

h20195/v2/GetPDF.aspx%2Fc04219919.pdf (page 11 and 12)

QUESTION 15

A network environment consists of multiple switches. Some of the switches are configured for OpenFlow 1.0, and some of the switches are configured for OpenFlow 1.3. These switches are configured to communicate with an HP VAN SDN Controller. What is the result of the negotiation?

A. All OpenFlow switches successfully negotiate to use OpenFlow 1.3 with the controller, and OpenFlow

1.0 switches ignore OpenFlow 1.3 extensions.

B. OpenFlow 1.3 switches successfully negotiate to use OpenFlow 1.3 with the controller, and the OpenFlow 1.0 switches fail to connect

C. All switches negotiate to use OpenFlow 1.0 as the highest common version.

D. OpenFlow 1.3 switches negotiate to use OpenFlow 1.3, and OpenFlow 1.0 switches negotiate to use OpenFlow 1.0.

Correct Answer: D

The controller:

Supports multiple OpenFlow versions at the same time.

Negotiates with each OpenFlow switch for the highest common

OpenFlow version between the switch and controller.

Reference: HP VAN SDN Controller and Applications Support Matrix, Supported OpenFlow versions