Vendor:HP

Exam Code:HP2-Z31

Exam Name: Creating HP Software-defined Networks

Version: Demo

QUESTION 1

Refer to the exhibits.

```
<5900-2>dis openflow instance 10
Instance 10 information:

Configuration information:
 Description   : vlan10
 Active status : active
 Inactive configuration:
  none
 Active configuration:
  Classification VLAN, total VLANs(1)
   10
  In-band management VLAN, total VLANs(0)
   empty VLAN
  Connect mode: multiple
  MAC address learning: Enabled
  Flow table:

   Table ID(type): 0(Extensibility), count: 0
  Flow-entry max-limit: 65535
  Datapath ID: 0x000a44319261869e
Port information:
 GigabitEthernet1/0/2
 GigabitEthernet1/0/4
 GigabitEthernet1/0/5
 GigabitEthernet1/0/7
 GigabitEthernet1/0/8
Active channel information:
 Failopen mode: secure

<5900-2>
```

```
[5900-2]display openflow instance 10 controller
Instance 10 controller information:
 Reconnect interval: 60 (s)
 Echo interval     : 5  (s)

 Controller ID           : 1
 Controller IP address   : 192.168.56.7
 Controller port         : 6633
 Controller role         : Equal
 Connect type            : TCP
 Connect state           : Established
 Packets sent            : 440
 Packets received        : 888
 SSL policy              : --
 VRF name                : --

[5900-2]
```

What happens when the switch shown in the exhibit loses connectivity to the HP VAN SDN Controller?

A. The switch removes all flow entries and reverts to the normal forwarding process,

B. The switch removes all flow entries and continues to use the OpenFlow pipeline.

C. The switch forwards traffic based on flow tables and does not delete unexpired flow entries.

D. The switch uses the normal forwarding process and does not delete the flow entries.

Correct Answer: C

QUESTION 2

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

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QUESTION 3

Which OpenFlow version introduces multiple flow tables?

A. 1.0

B. 1.1

C. 1.2

D. 1.3

Correct Answer: D

Openflow 1.3.1: Support for multiple flow tables is introduced Reference: Open Flow 1.3.1 Support: Controller View https://wiki.opendaylight.org/images/d/dc/Openflow1.3_Support_for_Opendaylight.pdf

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QUESTION 4

What is a key advantage of implementing malware protection by using the HP Network Protector SDN application?

A. To provide central management of antivirus software

B. To provide rule-based access control

C. To provide VLAN assignment without supplicant

D. To provide clientless operation

Correct Answer: B

About VLAN group policies Policies are a collection of filters or rules that provide a method for setting up security configuration options for VLAN groups. You can create customized policies for each VLAN group based on the requirements and the threat type for each group.

You can customize the policies for the groups by setting the reputation scores. You can set up policies for each group to protect your network from the following threat types: Botnet, Malware, etc

Reference: HP Network Protector SDN Application Administrator Guide

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QUESTION 5

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

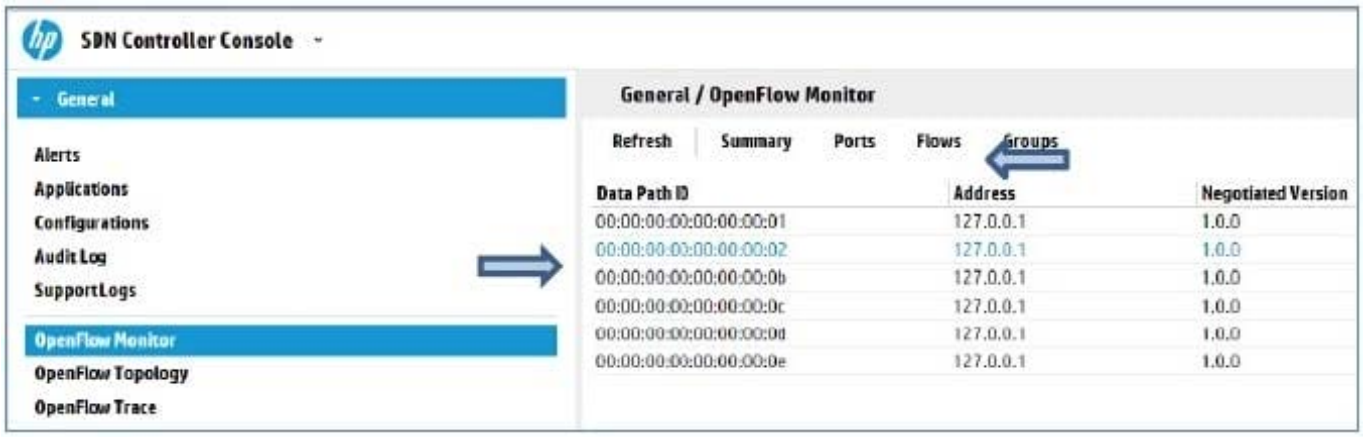
D. Dissector

Correct Answer: C

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

Incorrect:

Not Openflow Monitor:



QUESTION 6

Which switches will initiate an QpenFlow connection to the HP VAN SDN Controller? (Select two.)

A ☐

```
openflow instance 1
 description vlan10
 controller 1 address ip 192.168.56.7
 activate instance
```

B ☐

```
openflow instance 1
 description vlan10
 classification vlan 10
 activate instance
```

C ☐

```
configure
 openflow
   controller-id 1 ip 192.168.56.7 controller-interface vlan 192
   instance "vlan10"
      member vlan 10
      controller-id 1
      enable
     exit
   enable
   exit
```

D ☐

```
openflow instance 1
 classification vlan 10
 controller 1 address ip 192.168.56.7
 activate instance
```

E ☐

```
configure
 openflow
   controller-id 1 ip 192.168.56.7 controller-interface vlan 192
   instance "vlan10"
      member vlan 10
      controller-id 1
      version 1.3
     exit
   enable
   exit
```

A. Option A

B. Option B

C. Option C

D. Option D

E. Option E

Correct Answer: CE

You must enable openflow.

Enable/disable Openflow:

openflow {enable/disable}

Note:

Openflow Configuration (required)

Once you\\'ve set up a VLAN, you need to enable and configure an OpenFlow instance on that VLAN.

Show the set of configured OpenFlow instances:

show openflow

Enter the VLAN for the instance you\\'d like to configure:

vlan

Show the Openflow configuration, including configurable state, controller connectivity, and switch MAC

addr:

show openflow

Set the controller string (6633 is NOX\\'s default port):

openflow controller tcp:: Enable/disable Openflow:

openflow {enable/disable}

Reference: Configuring HP Procurve

http://archive.openflow.org/wk/index.php/Configuring_HP_Procurve

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QUESTION 7

An SDN developer wants to develop a new OpenFlow proactive application using the HP VAN SDN Controller. The controller is configured with IP address 192.168.56.7 and is using release 2.0. The developer is unsure of the REST APIs available on the controller.

To which URL should you recommend the developer navigate?

A. https://192.168.56.7:8443/api

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

C. http://192.168.56.7:8443/api

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

Correct Answer: A

{base uri}/{api}

This is an unauthenticated API

Use https not http.

Example:

https://15.255.121.2:8443/api

Response codes

· Normal: OK (200)

· Error: Not Found (404), Service Unavailable (503) Reference: HP VAN SDN Controller 2.2 REST AP

QUESTION 8

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 9

What happens to an incoming packet that does not have a match in any of the Open Flow tables on an HP Provision switch that operates in passive mode?

A. The packet is forwarded using legacy forwarding mechanisms.

B. The packet is forwarded to the HP VAN SDN Controller.

C. The packet is sent to the control plane of the switch.

D. The packet is dropped.

Correct Answer: A

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 (that is using legacy forwarding mechanisms).

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

QUESTION 10

HP IMC provides comprehensive Fault Configuration, Accounting. Performance and Security functionality. Which functionality does the HP IMC SDN Manager provide? (Select three.)

A. Accounting

B. Reporting

C. Performance

D. Fault

E. Configuration

Correct Answer: ACE

A, B, C IMC VAN SDN Manager will feature full-fault, configuration, accounting, performance and security management for HP enabled SDN domains.. · Enable deployment, monitoring and management of HP OpenFlow enabled switches

*

Visualize traffic flow and performance monitoring in HP SDN Domains

*

Backup and restore configurations and software of HP SDN Controllers · Provide graphical OpenFlow troubleshooting with path analysis

Reference: HP IMC Virtual Application Networks Modules

QUESTION 11

A customer writes an internal application that does not run properly and crashes. Which component of the HP VAN SDN Controller framework offers protection so that other applications continue to function?

A. OSGi

B. Zookeeper

C. Cassandra

D. Keystone

Correct Answer: A

Note:

The OSGi specification describes a modular system and a service platform for the Java programming language that implements a complete and dynamic component model, something that does not exist in standalone Java/VM environments. Applications or components, coming in the form of bundles for deployment, can be remotely installed, started, stopped, updated, and uninstalled without requiring a reboot; management of Java packages/classes is specified in great detail. Application life cycle management is implemented via APIs that allow for remote downloading of management policies. The service registry allows bundles to detect the addition of new services, or the removal of services, and adapt accordingly.

Incorrect:

Not Zookeeper: ZooKeeper is a centralized service for maintaining configuration information, naming, providing distributed synchronization, and providing group services. Not Cassandra: Apache Cassandra is an open source distributed database management system designed to handle large amounts of data across many commodity servers, providing high availability with no single point of failure.

Not Keystone: The SDN controller uses Openstack Keystone as an identity management for managing users, generating tokens, as well as token validation.

QUESTION 12

What are internal applications that are included with the HP VAN SDN Controller? (Select three.)

A. Capacity Planner

B. OpenFlow Daemon

C. Topology Manager

D. Node Manager

E. Path Daemon

F. Time Daemon

Correct Answer: CDE

The HP VAN SDN Controller ships with a default set of core network service components, which provide an out-of-box experience in terms of enabling connectivity across network applications in the Openflow network.

They include:

Topology Manager

Node Manager

Path Daemon

OpenFlow Node Discovery

Link Manager

OpenFlow Link Discovery

Reference: HP VAN SDN Controller Programming Guide