HP2-Z31 Q&As

Creating HP Software-defined Networks

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QUESTION 1

A company has video, voice, and collaboration applications. The company is looking for a solution that improves performance. Which benefit does software-defined networking (SDN) provide tor this company?

A. SDN establishes a loop-free, non-baking architecture using Transparent interconnection of Lots of Links (TRILL) or Shortest Path Bridging (SPF3), as the company chooses.

B. SDN applications can automate the scripting of CLI commands- that adjust QoS policies as necessary

C. SDN applications can determine which traffic flows require prioritization and then program the infrastructure to prioritize these flows.

D. SDN adds three additional priority classes, specific to voice, video and collaboration, in addition to the eight classes provided by traditional QoS mechanisms.

Correct Answer: C

Unified Communications and Collaboration (UCandC) SDN Application--This application aims to improve the user experience of products such as Microsoft Lync within campus networks. It automates the deployment of quality-of-service policies and dynamically adjusts network priorities to securely support voice, video, and collaboration traffic, even in an environment integrating soft phones and BYOD user endpoints.

Reference: HP Virtual Application Networks SDN Controller

QUESTION 2

A single HP VAN SDN Controller is used to control OpenFlow enabled switches that operate in virtualization mode. An internal application is installed on the controller that redirects classified traffic to a specific VLAN. The connection between the controller and the network is lost. The HP OpenFlow enabled

switches\\' connection interruption mode is set to standalone mode.

What is the forwarding behavior of the OpenFlow enabled switches?

A. Based on the timeout values, the flow entries age out, and only OpenFlow traffic is discarded

B. All flow entries are removed, and traffic is forwarded using normal switch processing.

C. All flow entries are set not to age out, and the classified traffic is still redirected.

D. Based on the timeout values, the flow entries are removed from the flow tables, and all traffic is discarded on the switches.

Correct Answer: B

OpenFlow instance connection interruption mode You can set the type of behavior when the switch loses connection with the controller. fail-standalone If the switch loses connection with all of the controllers, packets and messages of new flows behave as a legacy switch or router would. Existing flows of this OpenFlow instance are removed.

Reference: HP OpenFlow Switches

(page 21) http://h20628.www2.hp.com/km-ext/kmcsdirect/emr_na-c03512348-4.pdf

QUESTION 3

An administrator wants to increase the number of log files held by the HP VAN SDN Controller. What would the administrator need to do to change this?

A. Modify the /opt/sdn/virgo/configuration/serviceability.xml configuration file.

B. Log in to the Virgo console and change the logging settings.

C. Adjust the logging setting via the Support Logs web interface.

D. Modify the /opt/sdn/virgo/bin/dmk.sh script.

Correct Answer: C

The Support Logs function automatically maintains an internal record of events of interest from the operations of an active SDN controller.

Configure the Support Log for Queue Size The default queue size is 100 lines. To configure a different queue size, change the value for the max.display.rows key in the adm.log.impl.LogManager Configurations component.

Reference: HP VAN SDN Controller Administrator Guide

QUESTION 4

Refer to the exhibit.

```
Mode                      : Active
Flow Location             : Hardware and Software
No. of Hw Flows           : 6
No. of Sw Flows           : 1
Hw. Rate Limit            : 0 kbps
Sw. Rate Limit            : 100 pps
Conn. Interrupt Mode      : Fail-Secure
Maximum Backoff Interval  : 60 seconds
Probe Interval            : 10 seconds
Hw. Table Miss Count      : NA
No. of Sw Flow Tables     : 1
Egress Only Ports         : None
Table Model               : Policy Engine and Software
```

A network engineer wants to use dpctl to make flow modifications directly on an HP 3800 switch flow table. Can the engineer make the changes using dpctl on the switch in the exhibit?

A. The engineer is unable to connect to the switch directly. Dpctl requires OpenFlow 1.0, and (he switch is currently configured to use OpenFlow 1.3.

B. The engineer is able to connect to the switch directly using dpctl, but is unable to use dpctl to update the flow entries on the switch. Ovs-ofctl is required to make flow modifications when using OpenFlow

1.3.

C. The engineer is able to connect to the switch directly using dpctl. The engineer will then need to use the correct OpenFlow 1 3 syntax to make flow modifications using dpctl.

D. The engineer is unable to connect to the switch directly. Once the correct configuration is completed on the switch, the engineer will be able to connect directly and then use the correct OpenFlow 1.3 syntax to make flow modifications using dpctl

Correct Answer: C

dpctl

The HP supports a passive listening port per OpenFlow instance. This is super-useful when you want to

debug an individual switch without going through the controller.

Add a listener port:

openflow listener ptcp:6633

Then use dpctl. Examples:

dpctl dump-tables tcp::

dpctl dump-flows tcp::

dpctl add-flow tcp:: \\'in_port=104 actions=output:98\\'

QUESTION 5

What are challenges when selecting traffic from UCandC soft devices for marking, in order to apply the appropriate prioritization? (Select two.)

A. UCandC traffic uses dynamic port numbers.

B. UCandC traffic is not peer-to-peer

C. UCandC traffic is routable.

D. UCandC traffic uses well-known port numbers.

E. UCandC traffic can share a port, mac, and VLAN combination with non-UCandC traffic.

Correct Answer: CD

C: UCandC signaling can be routed through centralized UCandC infrastructure components and that all

interactions.

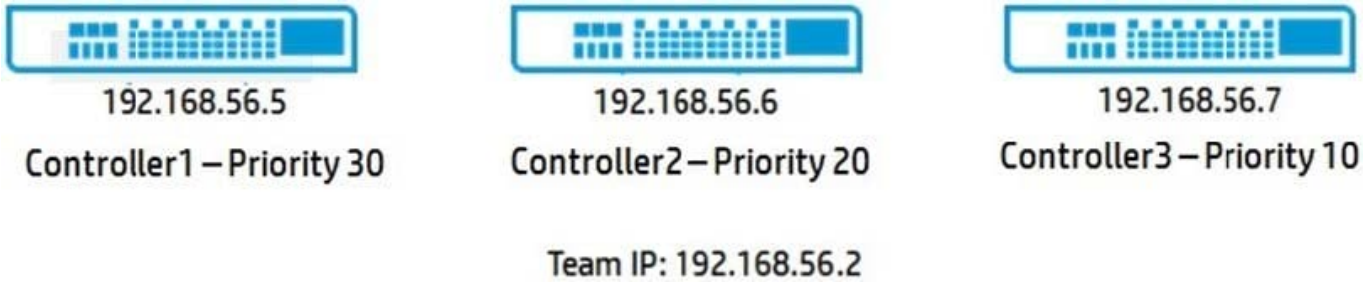
D (not A): UCandC signaling traffic is identified using the well know transport and port numbers used by the

UCandC signaling protocol.

Reference: Automating QoS (page 7, bullet # 2)
http://johnacook.files.wordpress.com/2014/03/2014_02_27_use_case.pdf

QUESTION 6

Refer to the exhibit



A team of HP VAN SDN Controllers has been configured using the controllers shown in the exhibit. Which controller will become the team leader by default?

A. 192.168.56.2

B. 192.168.56.7

C. 192.168.56.5

D. 192.168.56.6

Correct Answer: C

The controller with the highest priority.

Once a team is configured, the configuration and monitoring of team members and their associated OpenFlow switches is performed by the team manager. If the team manager goes down, the controller with the next highest priority in the team configuration becomes the team manager.

Note: Team Management Each controller belonging to a team is a team member. To centralize team management and control, one controller is designated as the team manager. Teaming is configured on one controller and is automatically

propagated to the other controllers in the team, regardless of which controller becomes the team manager.

Reference: HP VAN SDN Controller 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

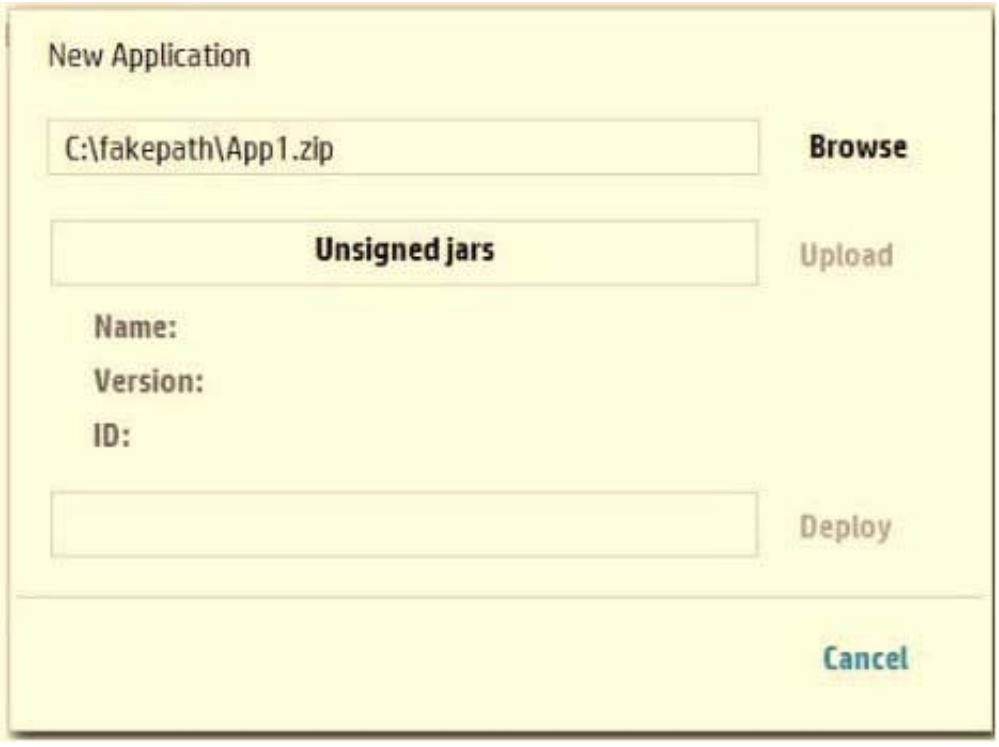
The HP VAN SDN Controller is a Java-based OpenFlow controller enabling SDN solutions such as network controllers for the data center, public cloud, private cloud, and campus edge networks. This includes providing an open platform for developing experimental and special- purpose network control protocols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

Refer to the exhibit.



A network administrator is trying to install a new internal application on the HP VAN SDN Controller and receives the error shown in the exhibit. Which valid options are available to ensure that the application is installed successfully? (Select two.)

A. Set up an internal CA server and digitally sign the application. This will be accepted by the HP VAN SDN Controller without further configuration.

B. Use the HP VAN SDN Controller software to digitally sign the application

C. Modify the /opt/sdn/virgo/configuration/serviceability .xml configuration file and include this line: Dsdn signedJar=none

D. Modify the /opt/sdn/virgo/bin\\'dmk sh script and include this line: Dsdn.signedJar=none

E. Ensure the application is signed by a CA recognized by the HP VAN SDN Controller.

Correct Answer: BD

D_ The SDN controller enforces jar-signing validation by default. For an experimental/development environment where unsigned applications need to be deployed, jar- signing validation can be turned off altogether:

Stop the SDN controller: sudo service sdnc stop

2.

Modify the /opt/sdn/virgo/bin/dmk.sh script to include the line "-Dsdn.signedJar=none \"

3.

Start the SDN controller:

sudo service sdnc start

B: Adding Certificates to Jar-Signing Truststore

To deploy other signed applications onto the controller, use the Java keytool to import the public certificate

that was used to sign the application jars into the controller jar-signing truststore (/opt/sdn/admin/

sdnjar_trust.jks):

keytool -importcert -keystore /opt/sdn/admin/sdnjar_trust.jks -file signed_app.cer -alias mysignedcert

The controller needs to be restarted for the new truststore to take effect.

Reference: HP VAN SDN Controller Administrator Guide

QUESTION 9

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 10

Which technology can be used in OpenFlow 1.3 that allows rate limiting of packets that are sent to the SDN Controller?

A. Slicing

B. sFlow support

C. Meter on IP ToS/DSCP bits

D. Meter table

Correct Answer: D

Per-flow meters OpenFlow 1.3 brings support for per-flow meters. These can be attached to flow entries and can measure and control the rate of packets. One of the main applications of perflow meters is to rate limit packets sent to

the controller.

Reference: Production-ready SDN with OpenFlow 1.3

http://h17007.www1.hp.com/docs/interop/2013/37958_HPN_SDN_Openflow_Brief_042913_lo.pdf (page 2)

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

Which HP IMC SDN Manager functionality provides a logical overview of the OpenFlow network?

A. SDN Manager reports

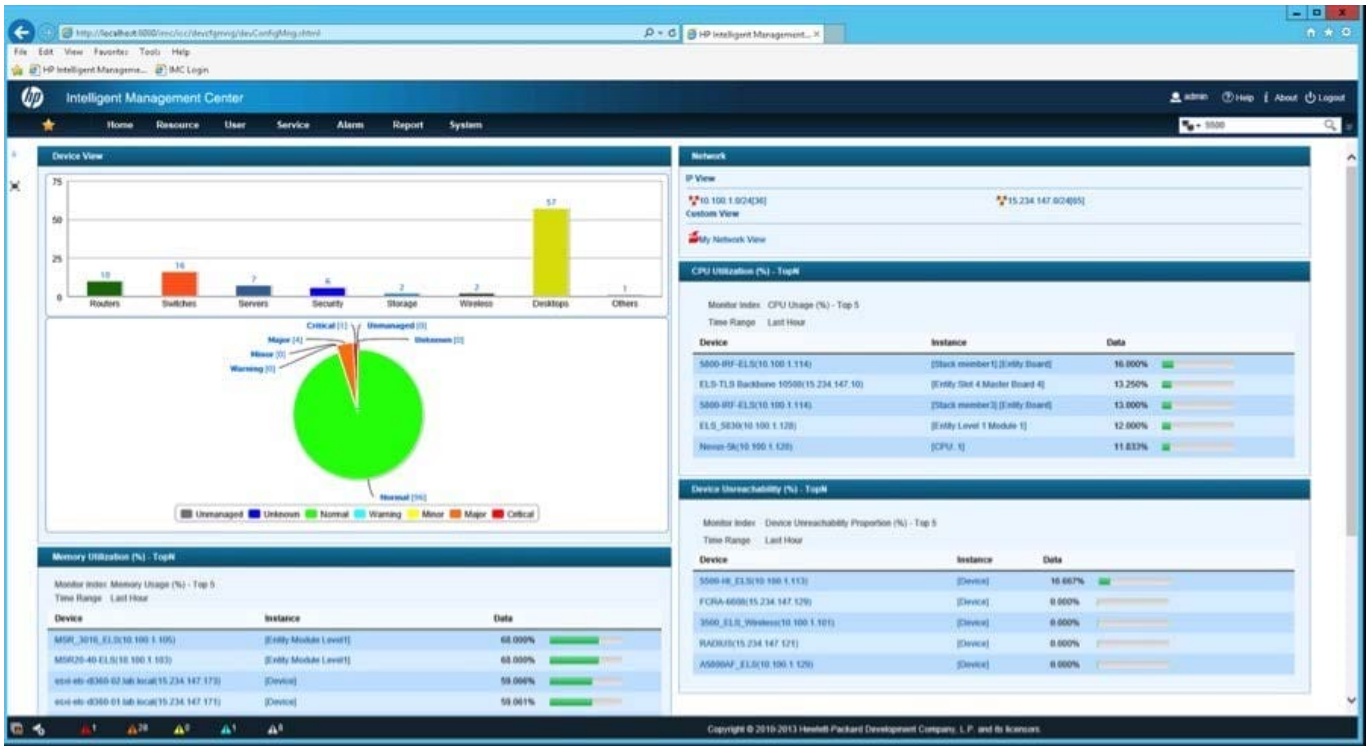
B. SDN Manager dashboard

C. SDN Manager flow entry management

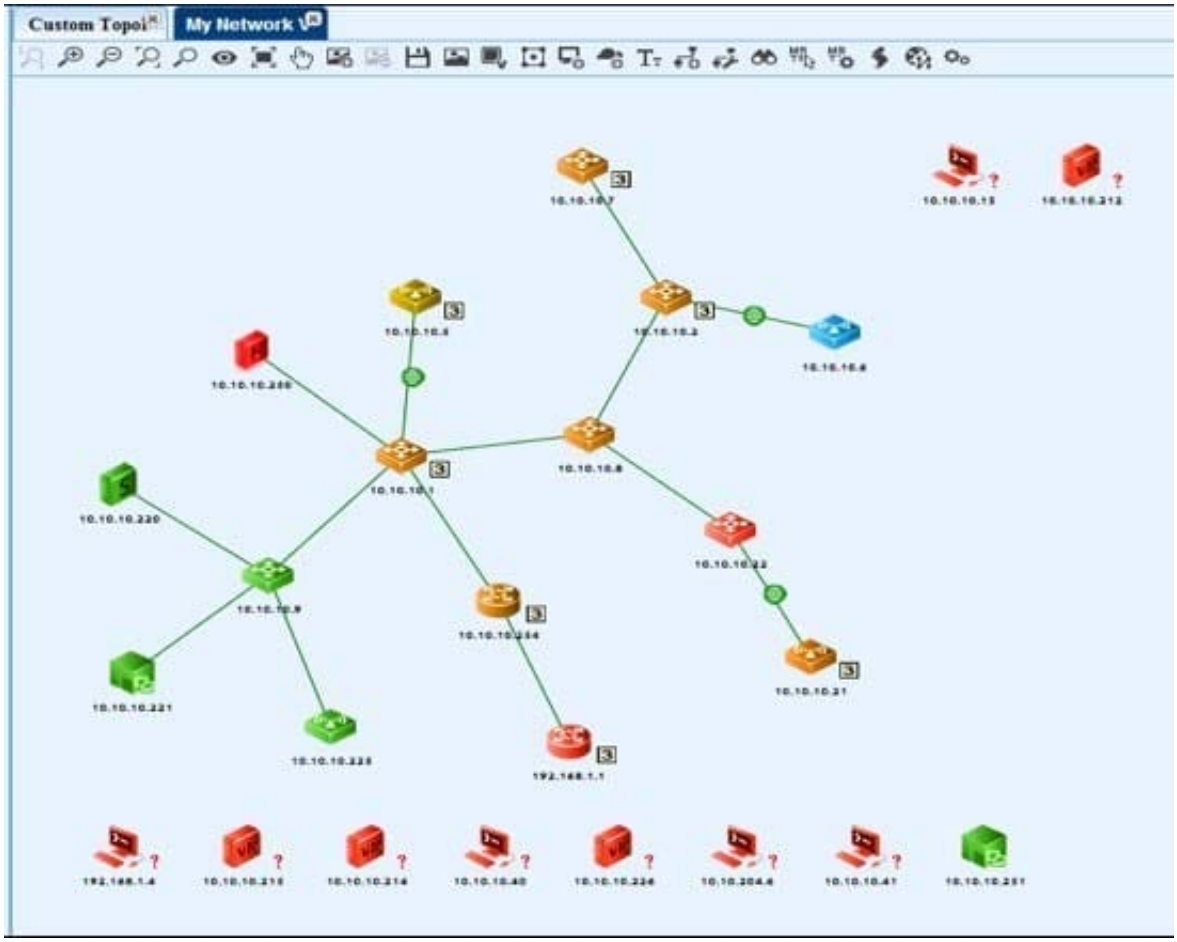
D. SDN Manager OpenFlow topology

Correct Answer: B

HP IMC Dashboard figure:



My Network view (within SDN Manager Dashboard):



Reference: Review: HP Intelligent Management Center (IMC)

QUESTION 13

Refer to the exhibit.

Name	Version	State
Network Protector	1.0.0.SNAPSHOT	RESOLVED
Path Diagnostics	2.1.0.SNAPSHOT	ACTIVE
Link Manager	2.1.0.SNAPSHOT	ACTIVE
Network Services	2.1.0.SNAPSHOT	ACTIVE
Node Manager	2.1.0.SNAPSHOT	ACTIVE
Path Daemon	2.1.0.SNAPSHOT	ACTIVE
Topology Manager	2.1.0.SNAPSHOT	ACTIVE
Topology Viewer	2.1.0.SNAPSHOT	ACTIVE

What is the status of the Network Protector Application in the exhibit?

A. The application has been uploaded to the controller and can now be installed.

B. The application is running and servicing requests.

C. The application is present, with all dependencies available, but is stopped and not servicing requests.

D. Some aspect of the selected application could not be started, but other aspects are operating

Correct Answer: C

Application States:

* RESOLVED The application is present, with all dependencies available, but is stopped and not servicing requests.
Reference: HP VAN SDN Controller Administrator Guide

QUESTION 14

A company has an IRF-based, 2-tier FlexFabric architecture in its data center. The company is now increasing the amount of server virtualization and also adding more redundant connections across the network infrastructure backbone. Which benefit does software-defined networking (SDN) provide for this FlexFabric solution?

A. SDN applications can extend the virtual switches inside hosts into the control plane of multiple physical infrastructure devices.

B. SDN can help core routing switches handle more routing table entries without sacrificing performance.

C. SDN extends the SNMP MIBs to include MIBs for virtual switches.

D. SDN applications can help to provision network connectivity for virtual machines and to forward traffic across complex meshes of links

Correct Answer: A

Q: What is HP\\'s SDN strategy?

A: Virtual Application Networks represent HP\\'s software-defined network vision. By leveraging SDN-enabled infrastructure, control plane, applications and integrated management systems HP is creating an open ecosystem to drive new innovation in networking.

Q: What is the HP Virtual Application Networks SDN Controller?

A: The HP Virtual Application Networks SDN controller is an integral part of HP\\'s Virtual Application Networks offering. The controller acts as the central building block for an abstracted control plane in the SDN architecture.

Reference: Virtual Application Networks Overview http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-4714ENW.pdf?jumpid=em_r1165_ww/en/large/eg/ RelatedLink/Virtual_Application_Networks_Overview_FAQs/resourcefinder/Jan_2013

QUESTION 15

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