LPI

305-300

LPIC-3: Virtualization and Containerization - Exam 305, version 3.0

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Question: 1

What is the purpose of the command vagrant init?

A. It executes a provisioning tool in a running box.
B. It starts a Vagrant box.
C. It creates a Vagrant configuration file.
D. It installs Vagrant on a Linux host.
E. It downloads a Vagrant box.

Answer: C

Explanation:
The command vagrant init is used to initialize the current directory to be a Vagrant environment by creating an initial Vagrantfile if one does not already exist1. The Vagrantfile contains the configuration settings for the Vagrant box, such as the box name, box URL, network settings, synced folders, provisioners, etc. The command vagrant init does not execute any provisioning tool, start any box, install Vagrant on a Linux host, or download any box. Those actions are performed by other Vagrant commands, such as vagrant provision, vagrant up, vagrant install, and vagrant box add, respectively. Reference:
1: vagrant init - Command-Line Interface | Vagrant | HashiCorp Developer

Question: 2

In order to use the option dom0_mem to limit the amount of memory assigned to the Xen Domain-0, where must this option be specified?

A. In the bootloader configuration, when Xen is booted.
B. In any of Xen's global configuration files.
C. In its .config file, when the Domain-0 kernel is built.
D. In the configuration file /etc/xen/Domain-0.cfg, when Xen starts.
E. In its Makefile, when Xen is built.

Answer: A

Explanation:
The option dom0_mem is used to set the initial and maximum memory size of the Domain-0, which is the privileged domain that starts first and manages the unprivileged domains (DomU) in Xen. The option dom0_mem must be specified in the bootloader configuration, such as GRUB or GRUB2, when Xen is booted. This ensures that the Domain-0 kernel can allocate memory for storing memory metadata and network related parameters based on the boot time amount of memory. If the option

dom0_mem is not specified in the bootloader configuration, the Domain-0 will use all the available memory on the host system by default, which may cause performance and security issues.
Reference:
Managing Xen Dom0's CPU and Memory
Xen Project Best Practices
Dom0 Memory — Where It Has Not Gone

Question: 3

Which functionality is provided by Vagrant as well as by Docker? (Choose three.)

A. Both can share directories from the host file system to a guest.
B. Both start system images as containers instead of virtual machines by default.
C. Both can download required base images.
D. Both can apply changes to a base image.
E. Both start system images as virtual machines instead of containers bv default.

Answer: A, C, D

Explanation:
Both Vagrant and Docker can share directories from the host file system to a guest. This allows the guest to access files and folders from the host without copying them. Vagrant uses the config.vm.synced_folder option in the Vagrantfile to specify the shared folders1. Docker uses the -v or --volume flag in the docker run command to mount a host directory as a data volume in the container2.
Both Vagrant and Docker can download required base images. Base images are the starting point for creating a guest environment. Vagrant uses the config.vm.box option in the Vagrantfile to specify the base image to use1. Docker uses the FROM instruction in the Dockerfile to specify the base image to use2. Both Vagrant and Docker can download base images from public repositories or local sources.
Both Vagrant and Docker can apply changes to a base image. Changes are modifications or additions to the base image that customize the guest environment. Vagrant uses provisioners to run scripts or commands on the guest after it is booted1. Docker uses instructions in the Dockerfile to execute commands on the base image and create a new image2. Both Vagrant and Docker can save the changes to a new image or discard them after the guest is destroyed.
Vagrant and Docker differ in how they start system images. Vagrant starts system images as virtual machines by default, using a provider such as VirtualBox, VMware, or Hyper-V1. Docker starts system images as containers by default, using the native containerization functionality on macOS, Linux, and Windows2. Containers are generally more lightweight and faster than virtual machines, but less secure and flexible. Reference: 1: Vagrant vs. Docker | Vagrant | HashiCorp Developer 2: Vagrant vs Docker: Which Is Right for You? (Could Be Both) - Kinsta® Web Development Tools

Question: 4

What is the default provider of Vagrant?

A. lxc
B. hyperv
C. virtualbox
D. vmware_workstation
E. docker

Answer: C

Explanation:
Vagrant is a tool that allows users to create and configure lightweight, reproducible, and portable development environments. Vagrant supports multiple providers, which are the backends that Vagrant uses to create and manage the virtual machines. By default, VirtualBox is the default provider for Vagrant. VirtualBox is still the most accessible platform to use Vagrant: it is free, crossplatform,
and has been supported by Vagrant for years. With VirtualBox as the default provider, it provides the lowest friction for new users to get started with Vagrant. However, users can also use other providers, such as VMware, Hyper-V, Docker, or LXC, depending on their preferences and needs. To use another provider, users must install it as a Vagrant plugin and specify it when running Vagrant commands. Users can also change the default provider by setting the VAGRANT_DEFAULT_PROVIDER environmental variable. Reference:
Default Provider - Providers | Vagrant | HashiCorp Developer1
Providers | Vagrant | HashiCorp Developer2
How To Set Default Vagrant Provider to Virtualbox3

Question: 5

In an IaaS cloud, what is a common method for provisioning new computing instances with an operating system and software?

A. Each new instance is connected to the installation media of a Linux distribution and provides access to the installer by logging in via SSH.
B. Each new instance is created based on an image file that contains the operating system as well as software and default configuration for a given purpose.
C. Each new instance is a clone of another currently running instance that includes all the software, data and state of the original instance.
D. Each new instance is connected via a VPN with the computer that started the provisioning and tries to PXE boot from that machine.
E. Each new instance contains a minimal live system running from a virtual CD as the basis from which the administrator deploys the target operating system.

Answer: B

Explanation:
In an IaaS cloud, the most common method for provisioning new computing instances is to use an

image file that contains a pre-installed operating system and software. This image file is also known as a machine image, a virtual appliance, or a template. The image file can be customized for a specific purpose, such as a web server, a database server, or a development environment. The image file can be stored in a repository or a library that is accessible by the cloud provider or the user. When a new instance is requested, the cloud provider copies the image file to a virtual disk and attaches it to the instance. The instance then boots from the virtual disk and runs the operating system and software from the image file. This method is faster and more efficient than installing the operating system and software from scratch for each new instance. It also ensures consistency and reliability across multiple instances that use the same image file. Reference:
LPI Virtualization and Containerization Exam Objectives, Topic 305.1: Virtualization Concepts and Theory, Objective: Describe the concept of machine images and templates
LPI Virtualization and Containerization Study Guide, Chapter 1: Virtualization Concepts and Theory, Section: Machine Images and Templates
LPI LPIC-3 305 Certification Sample Questions and Practice Exam, Question 10: In an IaaS cloud, what is a common method for provisioning new computing instances with an operating system and software?

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