**1. What is Hypervisor?**

A hypervisor is a software that makes virtualization possible. It is also called Virtual Machine Monitor. It divides the host system and allocates the resources to each divided virtual environment. You can basically have multiple OS on a single host system.

**2. What is virtualization?**

Virtualization is the process of creating a software-based, virtual version of something(compute storage, servers, application, etc.). A software called Hypervisor makes this kind of splitting possible. The virtual environment created by the hypervisor is called Virtual Machine.

**3. What is containerization?**

. Now when you wish to run the application on another system, the container is deployed which will give a bug-free environment as all the dependencies and libraries are wrapped together. Most famous containerization environments are Docker and Kubernetes.

**4. Difference between virtualization and containerization**

Containers provide an isolated environment for running the application. The entire user space is explicitly dedicated to the application. Any changes made inside the container is never reflected on the host or even other containers running on the same host. Containers are an abstraction of the application layer. Each container is a different application.

Whereas in Virtualization, hypervisors provide an entire virtual machine to the guest(including Kernal). Virtual machines are an abstraction of the hardware layer. Each VM is a physical machine.

**5. What is Docker?**

Docker containers, wrap a piece of software in a complete filesystem that contains everything needed to run: code, runtime, system tools, system libraries, etc. It wraps basically anything that can be installed on a server. This guarantees that the software will always run the same, regardless of its environment.

**6. What is a Docker Container?**

Docker containers include the application and all of its dependencies. It shares the kernel with other containers, running as isolated processes in user space on the host operating system. Docker containers are not tied to any specific infrastructure: they run on any computer, on any infrastructure, and in any cloud. Docker containers are basically runtime instances of Docker images.

**7. What are Docker Images?**

Docker image is the source of Docker container. In other words, Docker images are used to create containers. When a user runs a Docker image, an instance of a container is created. These docker images can be deployed to any Docker environment.

**8. What is Docker Hub?**

Docker images create docker containers. There has to be a registry where these docker images live. This registry is Docker Hub. Users can pick up images from Docker Hub and use them to create customized images and containers. Currently, the [Docker Hub](https://hub.docker.com/) is the world’s largest public repository of image containers.

**9. Explain Docker Architecture?**

Docker Architecture consists of a Docker Engine which is a client-server application with three major components:

1. A server which is a type of long-running program called a daemon process (the docker command).
2. A REST API which specifies interfaces that programs can use to talk to the daemon and instruct it what to do.
3. A command line interface (CLI) client (the docker command).
4. The CLI uses the Docker REST API to control or interact with the Docker daemon through scripting or direct CLI commands. Many other Docker applications use the underlying API and CLI.

**10. What is a Dockerfile?**

Docker can build images automatically by reading the instructions from a file called Dockerfile. A Dockerfile is a text document that contains all the commands a user could call on the command line to assemble an image. Using docker build, users can create an automated build that executes several command-line instructions in succession.

**11. Tell us something about Docker Compose.**

Docker Compose is a YAML file which contains details about the services, networks, and volumes for setting up the Docker application. So, you can use Docker Compose to create separate containers, host them and get them to communicate with each other. Each container will expose a port for communicating with other containers.

**12. What is Docker Swarm?**

Docker Swarm is native clustering for Docker. It turns a pool of Docker hosts into a single, virtual Docker host. Docker Swarm serves the standard Docker API, any tool that already communicates with a Docker daemon can use Swarm to transparently scale to multiple hosts.

**14. What is the lifecycle of a Docker Container?**

* Create a container
* Run the container
* Pause the container(optional)
* Un-pause the container(optional)
* Start the container
* Stop the container
* Restart the container
* Kill the container
* Destroy the container

**15. What is Docker Machine?**

Docker machine is a tool that lets you install Docker Engine on virtual hosts. These hosts can now be managed using the docker-machine commands. Docker machine also lets you provision Docker Swarm Clusters.

**19. How to login into docker repository?**

You can use the following command to login into hub.docker.com:

$ docker login

You’ll be prompted for your username and password, insert those and congratulations, you’re logged in.

**20. If you wish to use a base image and make modifications or personalize it, how do you do that?**

You pull an image from docker hub onto your local system

It’s one simple command to pull an image from docker hub:

$ docker pull <image\_name>

**21. How do you create a docker container from an image?**

Pull an image from docker repository with the above command and run it to create a container. Use the following command:

$ docker run -it -d <image\_name>

Most probably the next question would be, what does the ‘-d’ flag mean in the command?

**-d** means the container needs to start in the detached mode. Explain a little about the detach mode. Have a look at [this](https://www.edureka.co/blog/docker-commands/) blog to get a better understanding of different docker commands.

**22. How do you list all the running containers?**

The following command lists down all the running containers:

$ docker ps

**23. Suppose you have 3 containers running and out of these, you wish to access one of them. How do you access a running container?**

The following command lets us access a running container:

$ docker exec -it <container id> bash

**29. How to build a Dockerfile?**

Once you’ve written a Dockerfile, you need to build it to create an image with those specifications. Use the following command to build a Dockerfile:

$ docker build <path to docker file>

The next question would be when do you use “.dockerfile\_name” and when to use the entire path?

Use “.dockerfile\_name” when the dockerfile exits in the same file directory and you use the entire path if it lives somewhere else.

**46. How will you monitor Docker in production?**

Docker provides functionalities like docker stats and docker events to monitor docker in production. Docker stats provides CPU and memory usage of the container. Docker events provide information about the activities taking place in the docker daemon.

**47. Is it a good practice to run Docker compose in production?**

Yes, using docker compose in production is the best practical application of docker compose. When you define applications with compose, you can use this compose definition in various production stages like CI, staging, testing, etc.

**48. What changes are expected in your docker compose file while moving it to production?**

These are the following changes you need make to your compose file before migrating your application to the production environment:

* Remove volume bindings, so the code stays inside the container and cannot be changed from outside the container.
* Binding to different ports on the host.
* Specify a restart policy
* Add extra services like log aggregator

**49. Have you used Kubernetes? If you have, which one would you prefer amongst Docker and Kubernetes?**

Be very honest in such questions. If you have used Kubernetes, talk about your experience with Kubernetes and Docker Swarm. Point out the key areas where you thought docker swarm was more efficient and vice versa. Have a look at [this](https://www.edureka.co/blog/kubernetes-vs-docker/) blog for understanding differences between Docker and Kubernetes.

You Docker interview questions are not just limited to the workarounds of docker but also other similar tools. Hence be prepared with tools/technologies that give Docker competition. One such example is Kubernetes.