Docker Interview Questions And Answers

Docker Interview Questions And Answers

Interview Questions On Docker

What is Docker?

Docker is a platform to run each application isolated and securely. Internally it achieves it by using kernel containerization feature.

What is the advantage of Docker over hypervisors?

Docker is lightweight and more efficient in terms of resource uses because it uses the underlying host kernel rather than creating its hypervisor.

What is Docker Container?

Docker Container is the instantiation of docker image. In other words, it is the run time instance of images. Images are set of files whereas containers are the one who run the image inside isolated.

Is Container technology new?

No, it is not. Different variations of containers technology were out there in *NIX world for a long time.Examples are:-Solaris container (aka Solaris Zones)-FreeBSD Jails-AIX Workload Partitions (aka WPARs)-Linux OpenVZ

How is Docker different from other container technologies?

Well, Docker is a quite fresh project. It was created in the Era of Cloud, so a lot of things are done much nicer than in other container technologies. Team behind Docker looks to be full of enthusiasm, which is of course very good. I am not going to list all the features of Docker here, but I will mention those which are important to me.

Docker can run on any infrastructure, you can run docker on your laptop, or you can run it in the cloud.

Docker has a Container HUB, it is a repository of containers which you can download and use. You can even share containers with your applications.

Docker is quite well documented.

What are the networks that are available by default?

bridge	It is the default network all containers connect to if you don’t specify the network yourself
none	connects to a container-specific network stack that lacks a network interface
host	connects to the host’s network stack - there will be no isolation between the host machine and the container, as far as network is concerned

Difference between Docker Image and container?

Docker container is the runtime instance of docker image.

Docker Image does not have a state, and its state never changes as it is just set of files whereas docker container has its execution state.

What is the use case for Docker?

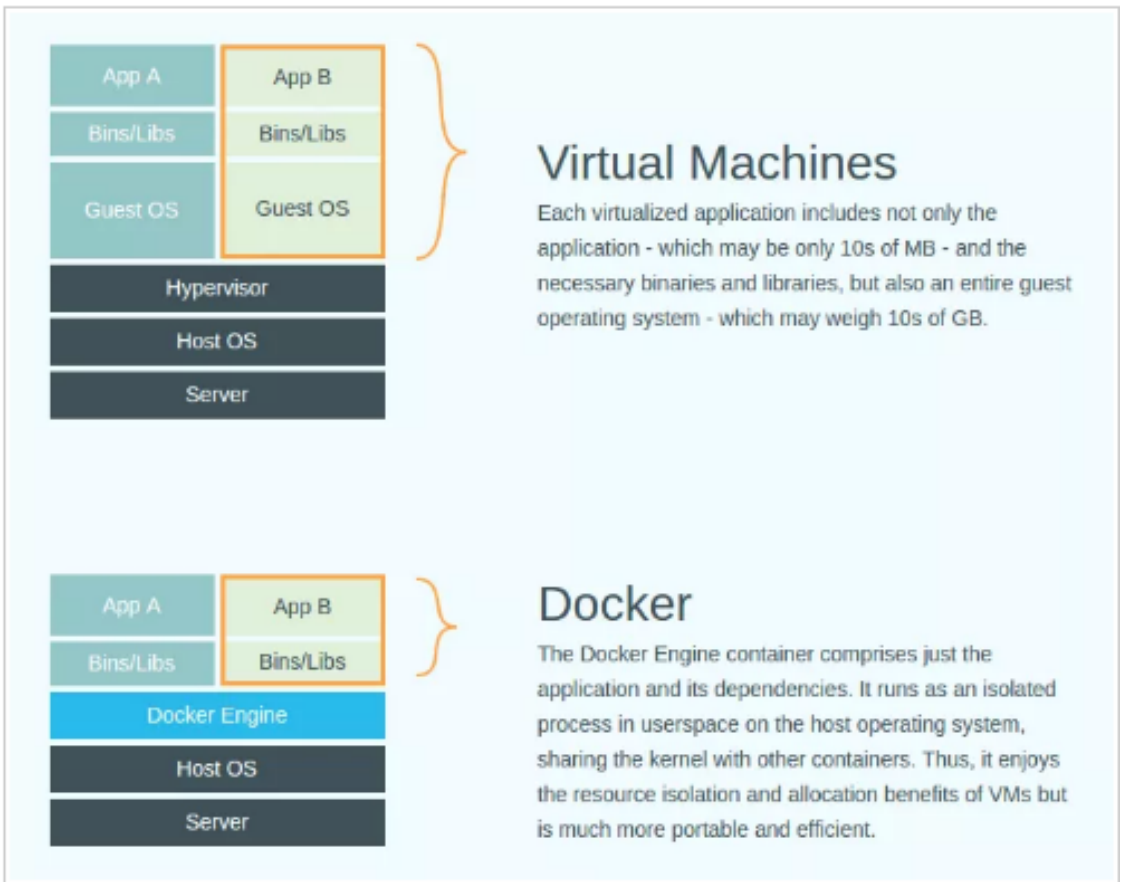
Well, I think, docker is extremely useful in development environments. Especially for testing purposes. You can deploy and re-deploy apps in a blink of an eye.

Also, I believe there are use cases where you can use Docker in production. Imagine you have some Node.js application providing some services on the web. Do you need to run full OS for this?

Eventually, if docker is good or not should be decided on an application basis. For some apps, it can be sufficient, for others not.

How exactly are containers (Docker in our case) different from hypervisor virtualization (v

To run an application in a virtualized environment (e.g., vSphere), we first need to create a VM e application. To run the same application in docker, all you need is to deploy that application in D r. You just deploy the application with its dependent libraries, docker engine (kernel, etc.) provides t e shows it in a quite clear way.



Another benefit of Docker, from my perspective, is speed of deployment. Let's imagine a scenario:

ACME inc. needs to virtualize application GOOD APP for testing purposes.

Conditions are:

Application should run in an isolated environment.

Application should be available to be redeployed at any moment in a very fast manner.

Solution 1.

In vSphere world what we would usually do, is:

- Deploy OS in a VM running on vSphere.
- Deploy an application inside OS.
- Create a template.
- Redeploy the template in case of need. Time of redeployment around 5-10 minutes.
- Sounds great! Having app up and running in an hour and then being able to redeploy it in 5 minutes.

Solution 2.

- Deploy Docker.
- Deploy the app GOODAPP in container.
- Redeploy the container with an app when needed.

Benefits: No need of deploying full OS for each instance of the application. Deploying a container takes seconds.

How did you become involved with the Docker project?

I came across Docker not long after Solomon open sourced it. I knew a bit about LXC and containers (a past life includes working on Solaris Zones and LPAR on IBM hardware too), and so I decided to try it out. I was blown away by how easy it was to use. My prior interactions with containers had left me with the feeling they were complex creatures that needed a lot of tuning and nurturing. Docker just worked out of the box. Once I saw that and then saw the CI/CD-centric workflow that Docker was building on top I was sold.

Docker is the new craze in virtualization and cloud computing. Why are people so excited about it?

I think it's the lightweight nature of Docker combined with the workflow. It's fast, easy to use and a developer-centric DevOps-ish tool. Its mission is basically: make it easy to package and ship code. Developers want tools th t process. They just want to see their code working. That leads to all sorts of conflicts with S d turns out not to work somewhere other than the developer's environment. Docker turns t s portable as possible and making that portability user-friendly and simple.

What, in your opinion, is the most exciting potential use for Docker?

It's the build pipeline. I mean I see a lot of folks doing hyper-scaling with containers, indee t, and they are blindingly fast. But that doesn't excite me as much as people using it to autom

How is Docker different from standard virtualization?

Docker is operating system level virtualization. Unlike hypervisor virtualization, where virtu n inter-mediation layer ("the hypervisor"), containers instead run userspace on top of an o n very lightweight and very fast.

Docker Container Interview Questions Experienced

Do you think open source development has heavily influenced cloud technology developme

I think open source software is closely tied to cloud computing. Both in terms of the software running in the cloud and the development models that have enabled the cloud. Open source software is cheap, it's usually low friction both from an efficiency and a licensing perspective.

How do you think Docker will change virtualization and cloud environments? Do you think cloud technology has a set trajectory, or is there still room for significant change?

I think there are a lot of workloads that Docker is ideal for, as I mentioned earlier both in the hyper-scale world of many containers and in the dev-test-build use case. I fully expect a lot of companies and vendors to embrace Docker as an alternative form of virtualization on both bare metal and in the cloud.

As for cloud technology's trajectory. I think we've seen a significant change in the last couple of years. I think they'll be a bunch more before we're done. The question of OpenStack and whether it will succeed as an IAAS alternative or DIY cloud solution. I think we've only touched on the potential for PAAS and there's a lot of room for growth and development in that space. It'll also be interesting to see how the capabilities of PAAS products develop and whether they grow to embrace or connect with consumer cloud-based products.

Can you give us a quick rundown of what we should expect from your Docker presentation at OSCON this year?

It's very much a crash course introduction to Docker. It's aimed at Developers and SysAdmins who want to get started with Docker in a very hands on way. We'll teach the basics of how to use Docker and how to integrate it into your daily workflow.

Your bio says "for a real job" you're the VP of Services for Docker. Do you consider your other open source work a hobby?

That's mostly a joke related to my partner. Like a lot of geeks, I'm often on my computer, tapping away at a problem or writing something. My partner jokes that I have two jobs: my "real" job and my open source job. Thankfully over the last few years, at places like Puppet Labs and Docker, I've been able to combine my passion with my paycheck.

Why is Docker the new craze in virtualization and cloud computing?

It's OSCON time again, and this year the tech sector is abuzz with talk of cloud infrastructure. One of the more interesting startups is Docker, an ultra-lightweight containerization app that's brimming with potential

I caught up with the VP of Services for Docker, James Turnbull, who'll be running a Docker crash course at the con. Besides finding out what Docker is anyway, we discussed the cloud, open source contributing and getting a real job.

Why do my services take 10 seconds to recreate or stop?

Compose stop attempts to stop a container by sending a `SIGTERM`. It then waits for a default timeout of 10 seconds. After the timeout, a `SIGKILL` is sent to the container to kill it forcefully. If you are waiting for this timeout, it means that your containers aren't shutting down when they receive the `SIGTERM` signal.

There has already been a lot written about this problem of processes handling signals in containers.

To fix this issue, try the following:

Make sure you're using the JSON form of `CMD` and `ENTRYPOINT` in your Dockerfile.

For example use `["program", "arg1", "arg2"]` not`"program arg1 arg2"`. Using the string form causes Docker to run your process using `bash` which doesn't handle signals properly. Compose always uses the JSON form, so d or entrypoint in your Compose file.

-If you are able, modify the application that you're running to add an explicit signal handler

-Set the `stop_signal` to a signal which the application knows how to handle:

-web: build: . stop_signal: SIGINT

-If you can't modify the application, wrap the application in a lightweight init system (like). Either of these wrappers take care of handling `SIGTERM` properly.

How do I run multiple copies of a Compose file on the same host?

Compose uses the project name to create unique identifiers for all of a project's containers s of a project, set a custom project name using the `-p` command line option or the`COMPOSE_PR`

Docker Container Interview Questions

What's the difference between `up`, `run`, and `start`?

Typically, you want `docker-compose up`. Use `up` to start or restart all the services defi lt "attached" mode, you'll see all the logs from all the containers. In "detached" mode (`-d`), Compose exits after starting the containers, but the containers continue to run in the background.

The `docker-compose run` command is for running "one-off" or "ad-hoc" tasks. It requires the service name you want to run and only starts containers for services that the running service depends on. Use `run` to run tests or perform an administrative task such as removing or adding data to a data volume container. The `run` command acts like `docker run -ti` in that it opens an interactive terminal to the container and returns an exit status matching the exit status of the process in the container.

The `docker-compose start` command is useful only to restart containers that were previously created but were stopped. It never creates new containers.

What is the base image required to build a Docker container?

The base image depends on the tool or script. You can pursue available images by searching Docker Hub for the domain (e.g., "biology", "science") and read the documentation for specific images.

Most frequently used CyVerse base images:

ubuntu:12.04

ubuntu:14.04

Can I use json instead of yaml for my Compose file?

Yes. Yaml is a superset of json so any JSON file should be valid Yaml. To use a JSON file with Compose, specify the filename to use, for example:

```
docker-compose -f docker-compose.json up
```

Should I include my code with `COPY`/`ADD` or a volume?

You can add your code to the image using `COPY` or `ADD` directive in a `Dockerfile`. This is useful if you need to relocate your code along with the Docker image, for example when you're sending the code to another environment (production, CI, etc).

You should use a `volume` if you want to make changes to your code and see them reflected immediately, for example when you're developing code and your server supports hot code reloading or live-reload.

There may be cases where you'll want to use both. You can have the image include the code using a `COPY`, and use a `volume` in your Compose file to include the code from the host during development. The volume overrides the directory contents of the image.

Where can I find example compose files?

There are many examples of Compose files on github.

Compose documentation

- Installing Compose
- Get started with Django
- Get started with Rails
- Get started with WordPress

- Command line reference
- Compose file reference

Are you operationally prepared to manage multiple languages/libraries/repositories?

Last year, we encountered an organization that developed a modular application while all o build individual components. It was a nice concept but a total organizational nightmare — t considering the impact of this complexity on their operations.

The organization was then interested in Docker to help facilitate deployments, but we stron t use Docker before addressing the root issues. Making it easier to deploy these disparate e difficulties of maintaining several different development stacks for long-term maintenance

Do you already have a logging, monitoring, or mature deployment solution?

Chances are that your application already has a framework for shipping logs and back t times. To implement Docker, you not only need to replicate the logging behavior you exp t you also need to prepare your compliance or governance team for these changes. New e time, but many do not match the stability and maturity of existing solutions. Partial update t tasks may need to be re-engineered to accommodate a containerized deployment.

If it's not broken, don't fix it. If you've already invested the engineering time required t s delivery (CI/CD) pipeline, containerizing legacy apps may not be worth the time investment.

Docker Questions And Answers

Will cloud automation overtake containerization?

At AWS Re:Invent last month, Amazon chief technology officer Werner Vogels spent a significant portion of his keynote on AWS Lambda, an automation tool that deploys infrastructure based on your code. While Vogels did mention AWS' container service, his focus on Lambda implies that he believes dealing with zero infrastructure is preferable to configuring and deploying containers for most developers.

Containers are rapidly gaining popularity in the enterprise, and are sure to be an essential part of many professional CI/CD pipelines. But as technology experts and CTOs, it is our responsibility to challenge new methodologies and services and properly weigh the risks of early adoption. I believe Docker can be extremely effective for organizations that understand the consequences of containerization — but only if you ask the right questions.

You say that Ansible can take up to 20x longer to provision, but why?

Docker uses cache to speed up builds significantly. Every command in Dockerfile is building in another docker container, and its results are stored in a separate layer. Layers are built on top of each other.

Docker scans Dockerfile and try to execute each steps one after another, before executing it probes if this layer is already in cache. When a cache is hit, building step is skipped, and from the user perspective is almost instant.

When you build your Dockerfile in a way that the most changing things such as application source code are on the bottom, you will experience instant builds.

Another way of amazingly fast building docker images is using a good base image - which you specify in `FROM` command, you can then only make necessary changes, not rebuild everything from scratch. This way, the build will be quicker. It's especially beneficial if you have a host without the cache like Continuous Integration server.

Summing up, building Docker images with Dockerfile is faster than provisioning with Ansible, because of using docker cache and good base images. Moreover, you eliminate provisioning, by using ready to use configured images such stgresus.

```
$ docker run --name some-postgres -d postgres No installing postgres at all - it's ready to run.
```

Also, you mention that docker allows multiple apps to run on one server.

It depends on your use case. You probably should split different components into separate containers. It will give you more flexibility.

Docker is very lightweight and running containers is cheap, especially if you store them in RAM - it's possible to spawn new container for every http callback, however, it's not very practical.

At work, I develop using a set of five different types of containers linked together.

In production some of them are replaced by real machines or even clusters of machine - however, settings on application level don't change.

It's possible because everything is communicating over the network. When you specify links in docker`run` command - docker bridges containers and injects environment variables with information about IPs and ports of linked

This way, in my app settings file, I can read those values from the environment. In python it

```
import os VARIABLE = os.environ.get('VARIABLE')
```

There is a tool which greatly simplifies working with docker containers, linking included. It' it here.

Finally, what does the deploy process look like for dockerized apps stored in a git repo?

It depends on how your production environment looks like.

Example deploy process may look like this:

- Build an app using `docker build .` in the code directory.
- Test an image.
- Push the new image out to registry `docker push myorg/myimage`.
- Notify remote app server to pull image from registry and run it (you can also do it directly usi
- Swap ports in a http proxy.
- Stop the old container.

You can consider using amazon elastic beanstalk with docker or dokku.

Elastic beanstalk is a powerful beast and will do most of the deployment for you and provide features such as auto-scaling, rolling updates, zero deployment deployments and more.

Dokku is a very simple platform as a service similar to heroku.

How is Docker different from other container technologies?

Docker containers are easy to deploy in the cloud. It is capable of getting more applications running on the same hardware when compared with other technologies like Kubernete, Amazon Elastic Contain, etc. Thus making learners who take Kubernetes Training Hyderabad and developers create, ready-to-run containerized applications and make them manage, deploy and share easily.

Mention some commonly used Docker Commands?

Some among the most commonly used Docker Commands are as follows:

Command	Description
Dockerd	Launch the Docker Daemon
Info	Displays information System-Wide
Version	Displays the Docker Version information
Build	Builds images for Docker files
Inspect	Returns low-level information on an image or container
History	Shows Image History
Commit	Creates new images from Container changes
Attach	Attaches to a running container
Load	Load an image from STDIN or tar archive
Create	Create a new container
Diff	Inspect changes on a container's file system
Kill	Kill a running container

Create A DockerExplore More of Docker:

- Docker Index
- Docker Commit
- Docker Commands
- How To Save A Docker File

Drop us a Query

DROP US A QUERY

US (+1)

Contact Us

US (+1)

Contact Us

About Us

Tekslate - Get access to the world's best learning experience at our online learning community where millions of learners learn cutting-edge skills to advance their careers, improve their lives, and pursue the work they love. We provide a diverse range of courses, tutorials, resume formats, projects based on real business challenges, and job support to help individuals get started with their professional career.

Stay up to date with learning you'll love!

Company

Home

About us

Corporate Training

Become an Instructor

Blog

Disclaimer

Courses

AWS Training

ServiceNow Training

Selenium Training

Devops Training

RPA Training

Blockchain Training

Our Locations

3722 Windmill Creek Dr Richmond, TX 77407, USA

+1 972 370 3060

info@tekslate.com

#677, 1st Floor, Suite No.506, 27th Main, 13th Cross HSR Layout, Sector 1 Bangalore - 560102

+91 9052 943 388

info@tekslate.com