

DevOps & Docker

By Akshay Ithape - DevOps Engineer

Session Agenda

Section 1 (Theory) :

- What is DevOps ?
- DevOps Roadmap
- Why do we need Containers ?
- Difference between VMs & Containers
- What is Docker ?
- Docker Architecture
- Docker Terminologies

Section 2 (Hands-On) :

- Hands-on lab 1 : Run First Container

Section 3 (Hands-On) :

- Hands-on lab 2 : Run Container for Java Application
- Q&A Session
- QUIZ
- Closing Note

Break : 15 Mins

\$whoami

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empowering your software

Passionate About  &  DEVOPS

Writer @

OpenSource
The complete portal on open source **For U .com**

I truly believes in Open Source so I like to share my knowledge with community in as many ways possible and helping people.



 [akshayithape](#)

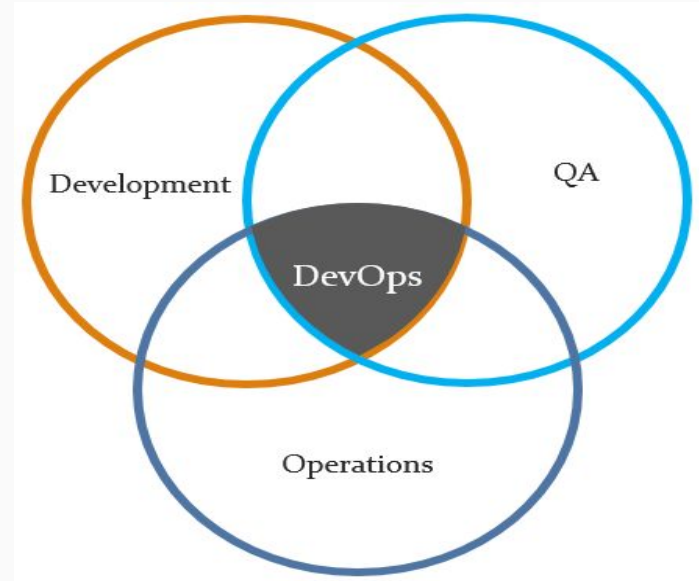
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What is DevOps ?

Simple Definition

- DevOps is a set of practices that combines software development and IT operations. It aims to shorten the application release cycle and provide continuous delivery with high software quality.
- Many DevOps aspects came from the agile way of working.

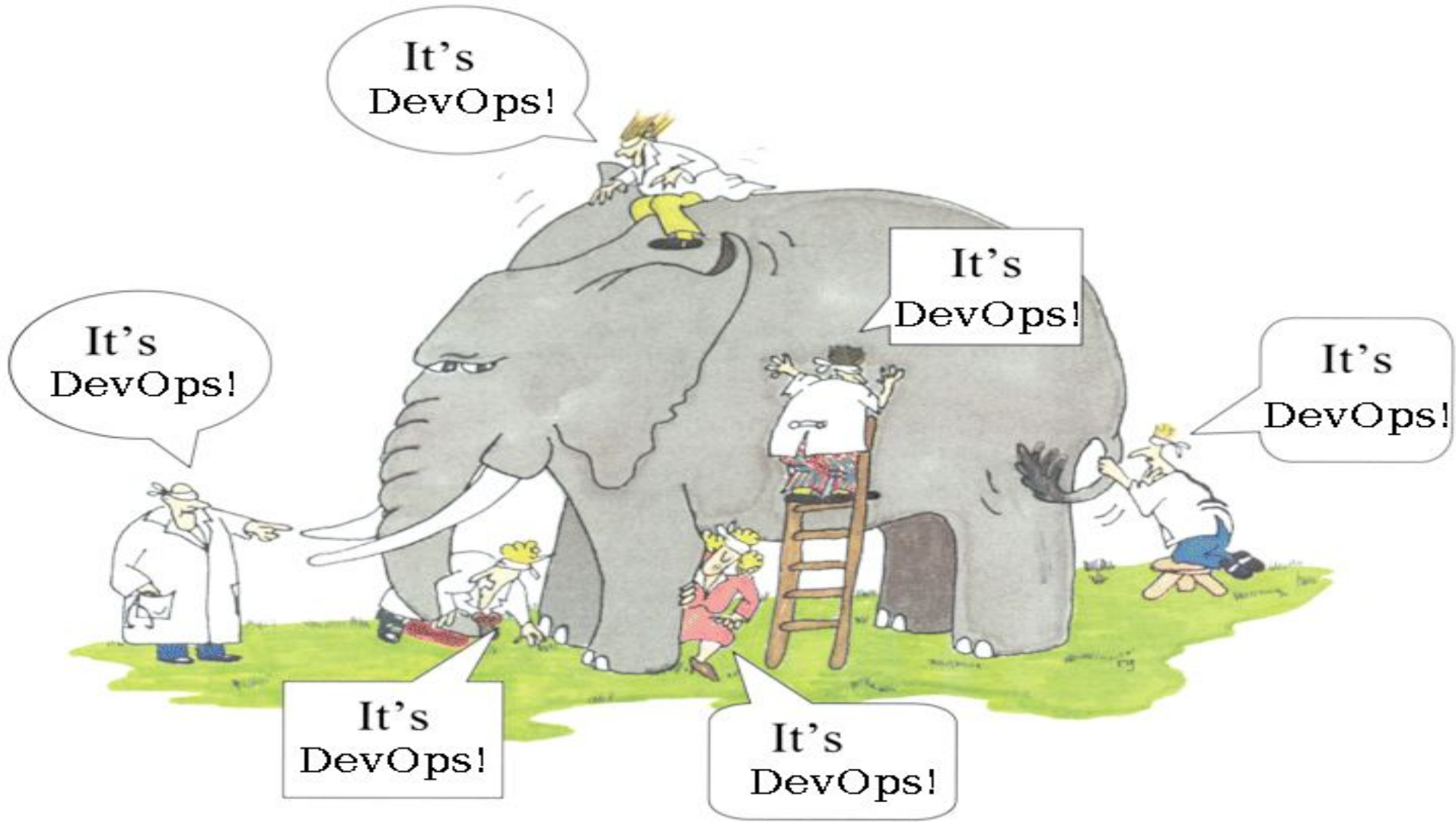


WHEN YOU THINK THAT YOU CAN BE A DEVOPS

<https://roadmap.sh/devops/>



AFTER A 6 MONTH COURSE



Containers

Why do we need Containers ?



**SAY ONE MORE
TIME**



WORKS ON MY MACHINE
memegenerator.net

Why do we need Containers ?

- Resolve Dependencies issues
- Resolve Compatibility issues
- Build Once and Run Anywhere
- Reduce Deployment Timing
- Easy for Automation
- Runs in Isolated environment

Difference between VMs & Containers

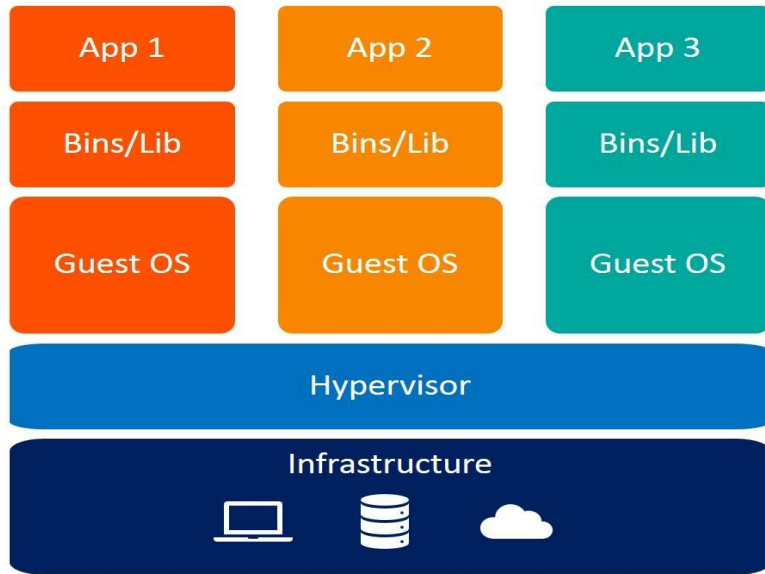
Virtual Machines



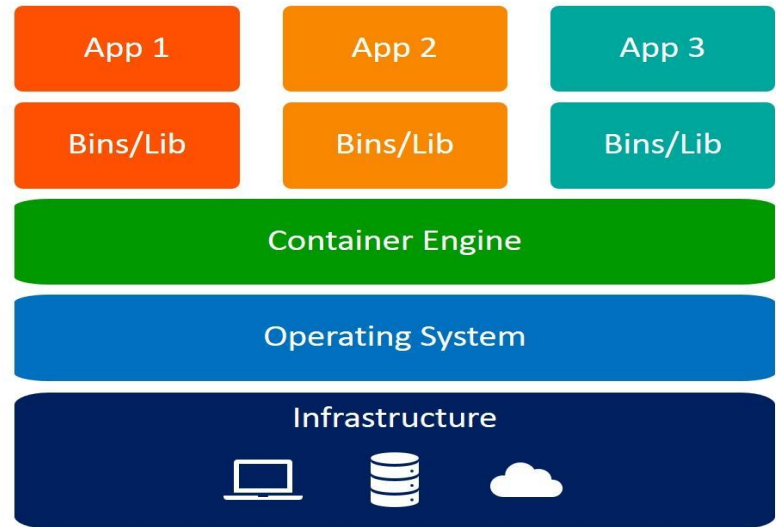
Containers



Difference between VMs & Containers



Virtual Machines



Containers

Difference between VMs & Containers

Virtual Machines

- Heavyweight
- Each VM run on its own OS
- Hardware Virtualization
- Start up time is more
- More secure due to full isolation

Containers

- Lightweight
- Container shares the host OS
- OS Virtualization
- Start up time is less
- Less secure due to process level isolation

What is Docker ?

- Docker is the leader in the containerization market.
- Docker is an open platform for developing, shipping, and running applications.
- Docker uses Client-Server Architecture.
- Docker Client communicate with Docker Daemon via REST API which does main task of building, creating & running containers.
- Docker/Containers uses features of the Linux kernel such as pivot_root, cgroups, namespaces, capabilities, seccomp-bpf & overlay file systems.

Docker : Build, Ship, Run Workflow

Developers

IT Operations

BUILD

Development Environments



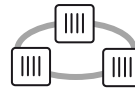
SHIP

Create & Store Images

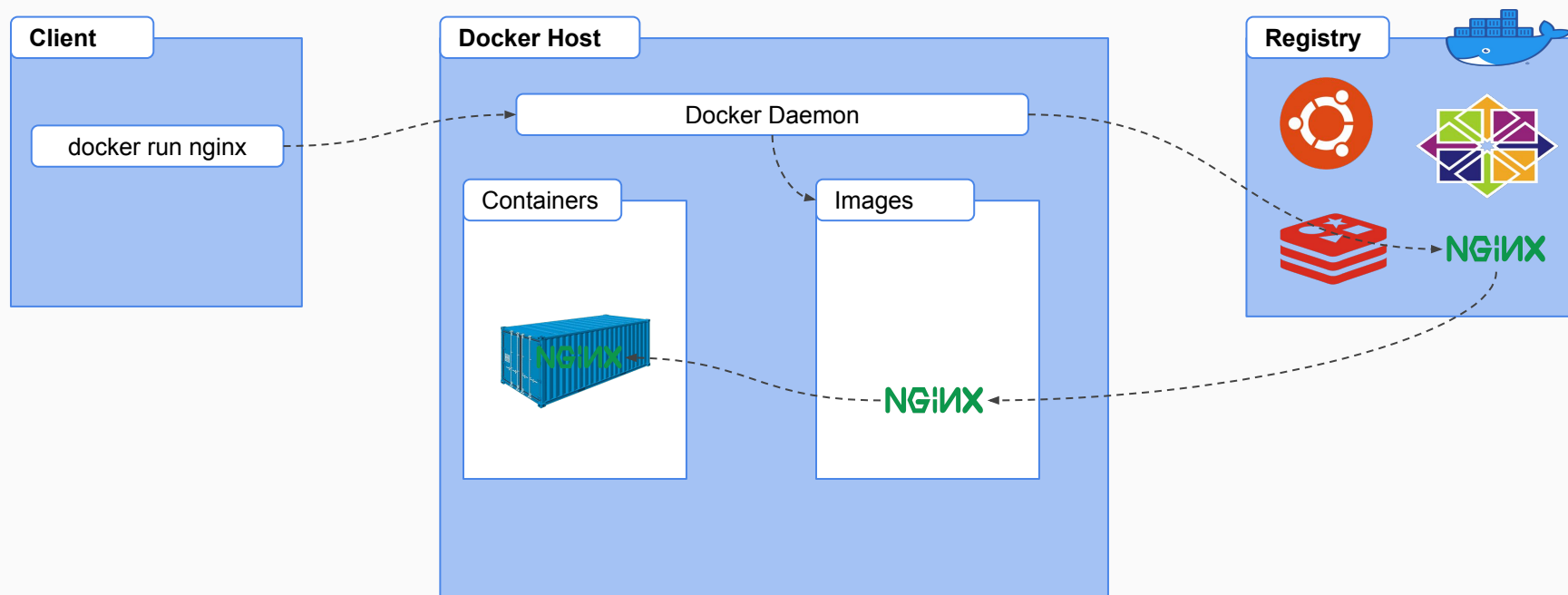


RUN

Deploy, Manage, Scale



Docker Architecture



Docker Terminologies

**Docker Daemon
(dockerd)**

**Docker Client
(docker cli)**

**Docker Desktop
(Application)**

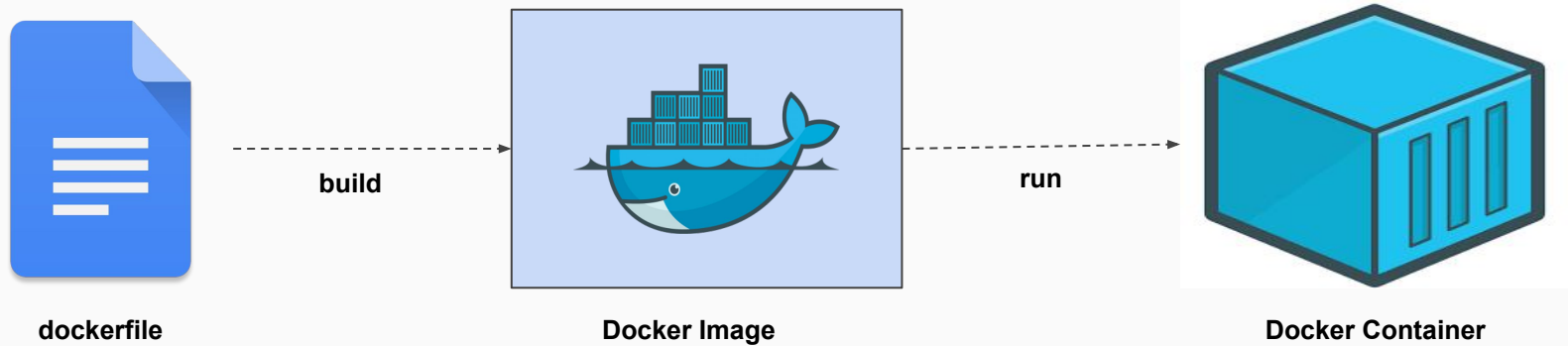
**Docker
Registries
(Images)**

Docker Objects

Docker Image

**Docker
Containers**

How To Build Docker Image ?



Docker Command Format

- Old Format

```
docker <command> options
```

- New Format

```
docker <management-command> <sub-command> options
```


Hands-On Labs

Github Repository



<https://github.com/akshayithape-devops/Mastering-Docker>

Lab #1 : Run first container

- Get docker information
- Run a first container
- Run multiple containers
- Remove the containers

Lab #2 : Run Container For Java Application

- Build & Run Java application without using Docker
- Build & Run Java application using Docker
- Make changes Persistent
- Push changes to Docker Hub
- Rerun the container with new image(Persistent Changes)
- Remove everything

Essential Docker Command

`docker
version`

`docker
search`

`docker
pull`

`docker
run`

`docker
stop`

`docker
rm`

`docker
images`

`docker
rmi`

`docker
ps`

`docker
exec`

`docker
info`

`docker
inspect`

`docker
commit`

`docker
tag`

`docker
push`

Q&A Session

QUIZ



● In-Person Meetup

GIT WITH BITBUCKET CLOUD

January 28th, 2023

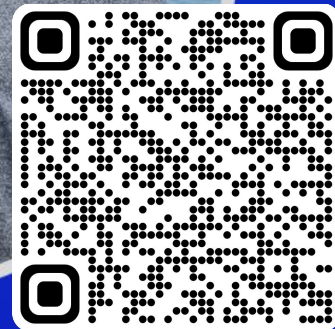
10:15 AM To 12:30 PM(IST)

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Speaker

Akshay Ithape

(DevOps Engineer, Eastern Enterprise)



18th February, 2023
10 AM To 02 PM

Part 2 : Docker Deep Dive

This is the second meetup in **Docker Series**.

Speaker : **AKSHAY ITHAPE** (*DevOps Engineer, Eastern Enterprise*)



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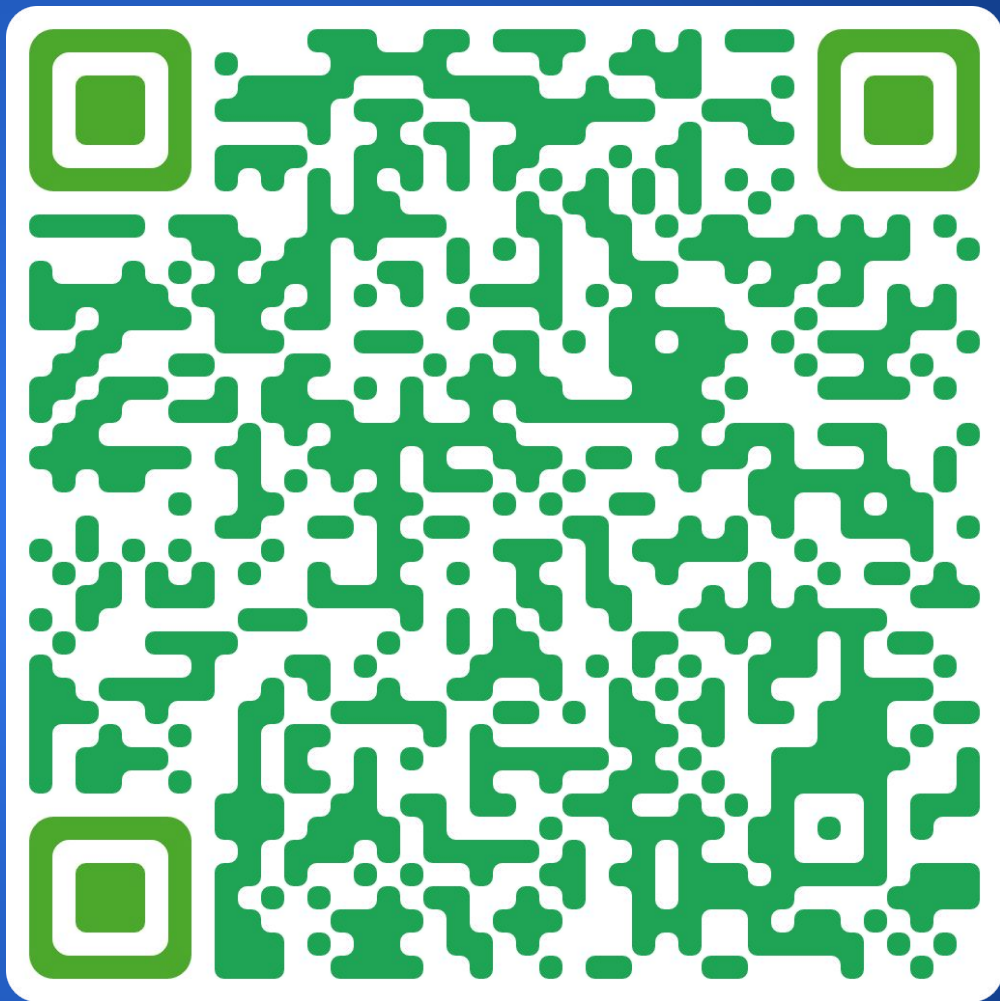
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Towers, Senapati Bapat Rd, Pune

Registration



Feedback



Reference Link

- <https://www.statista.com/statistics/1256245/containerization-technologies-software-market-share/>
- <https://docs.docker.com/get-started/overview>
- <https://www.techtarget.com/searchitoperations/feature/Dive-into-the-decades-long-history-of-container-technology>

Thank You EveryOne

Be In Touch

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