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Enabling Collaborative Development & Innovation

DevOps for Networking Category: Enterprise IT & Operations (Dev & Business)

Date: 3rd – 5th April'19 Venue : San Jose, CA, USA



Development & Innovation

PRESENTERS & CONTRIBUTORS



JAY SHAH

DevOps & Network Engineer

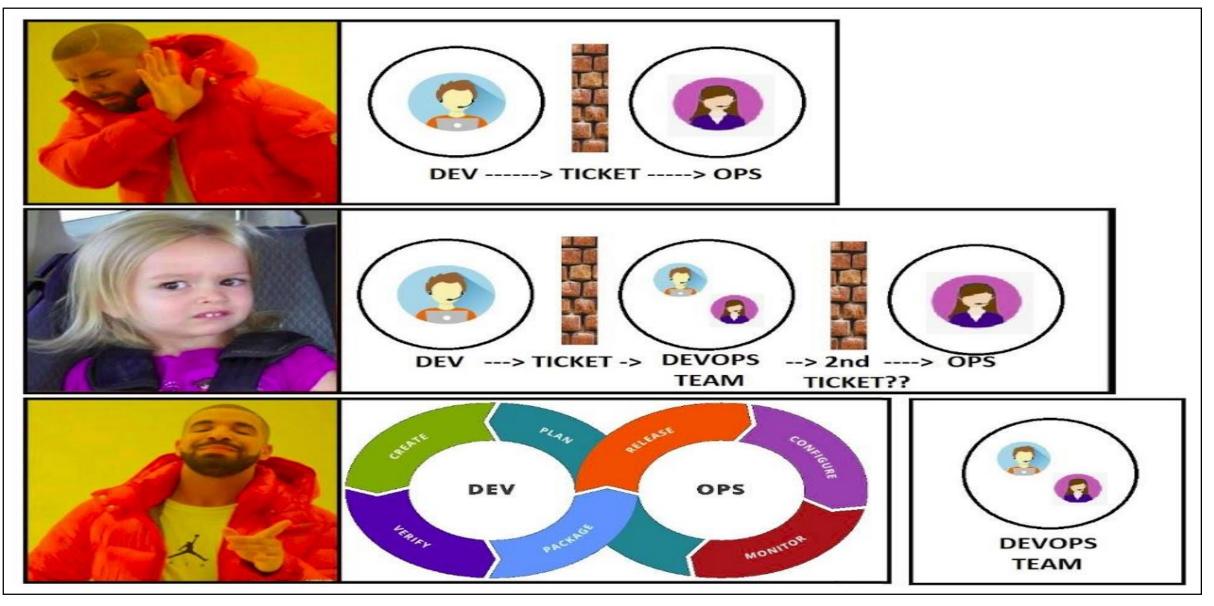
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ABSTRACT

AGILE METHODOLOGY

DEVOPS CULTURE/ COLLABORATION

DEVOPS LIFECYCLE & TOOLS

CONTAINERIZATION & CLOUD

DOCKER / KUBERNETES

TEST USE CASES

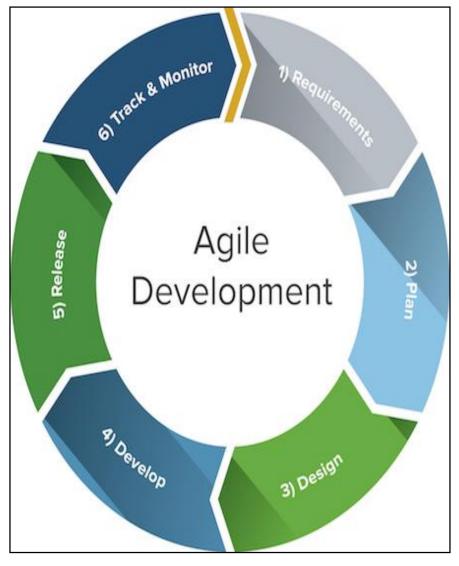
WRAP UP

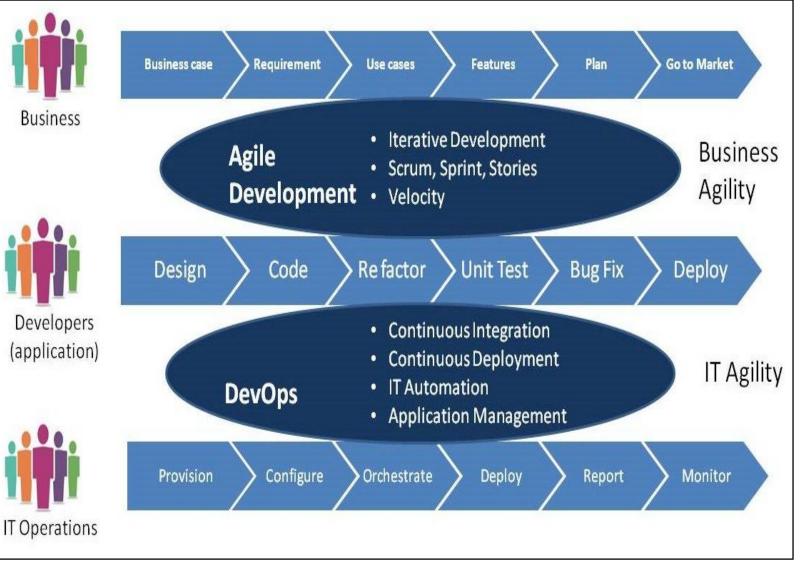
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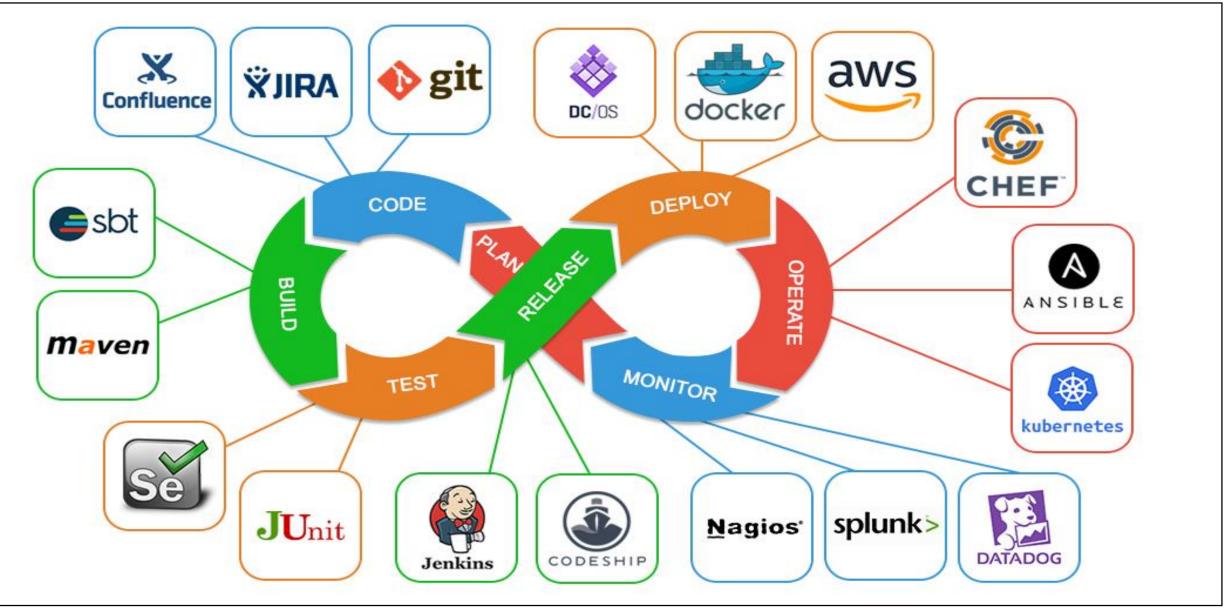
- DevOps is a new methodology that combines developers and operations team.
- It closely integrate people, processes and technology for an automated software delivery that is agile, scalable and cost-effective.
- DevOps delivery is a combination of two previous methods; agile software development and the collaboration between developments and operations team.
- By changing the way we think to deploy an infrastructure through the entire product life-cycle, from the design through the production phase, we can deliver consistent and repeatable designs.
- By abstracting the configuration needed to launch server instances with specific configurations into consistently repeatable recipes or manifests, the entire technology stack becomes converged.
- In order to do this, both operation and development skills are required.
- To demonstrate the power of DevOps tool we have deployed a web-based ticket booking website using GIT, Ansible, Vagrant, Docker and Jenkins.





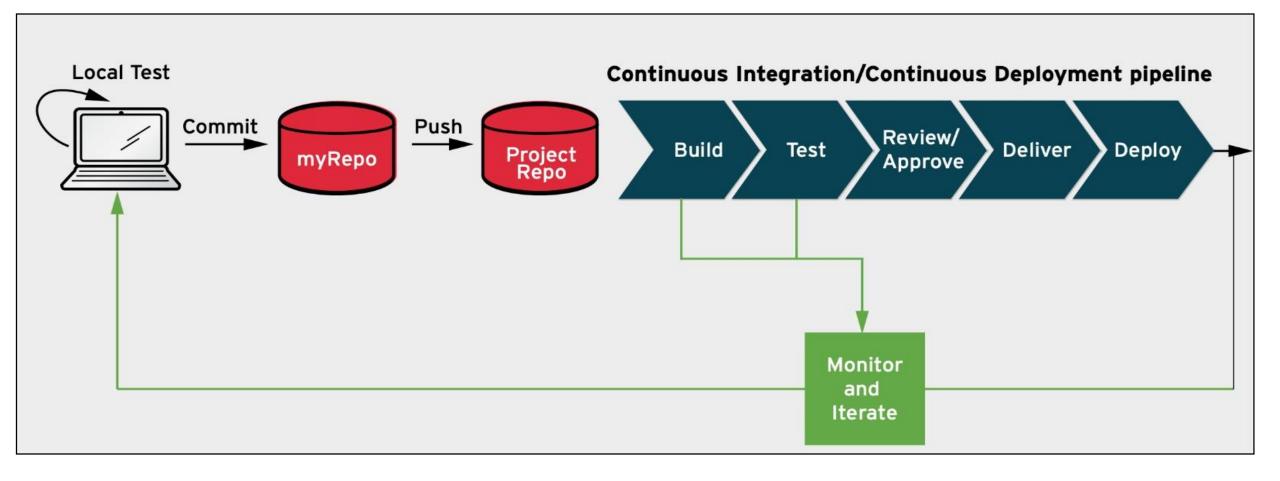


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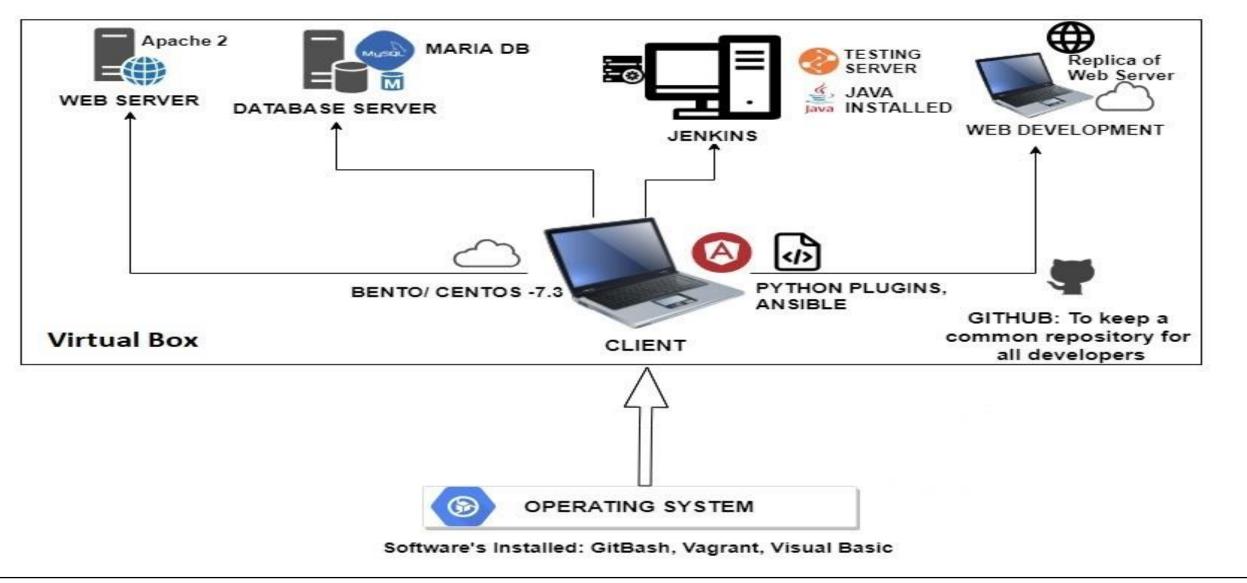
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DEVOPS CULTURE OF COLLABORATION

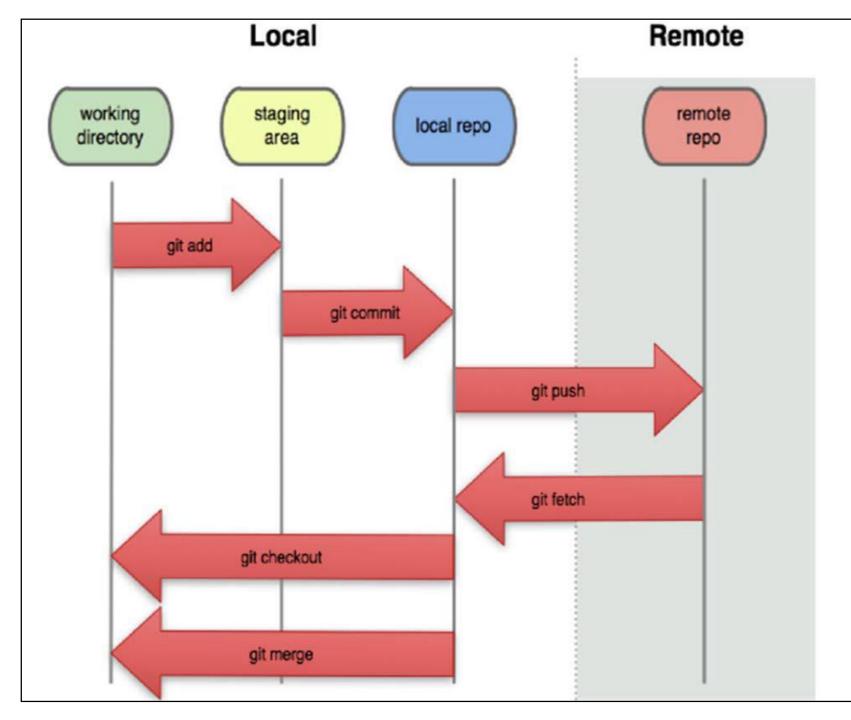


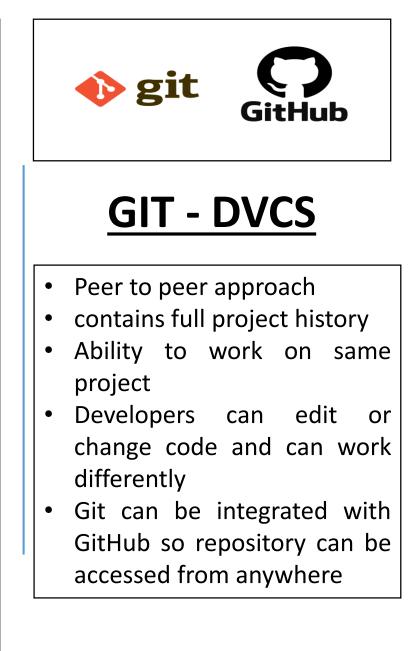
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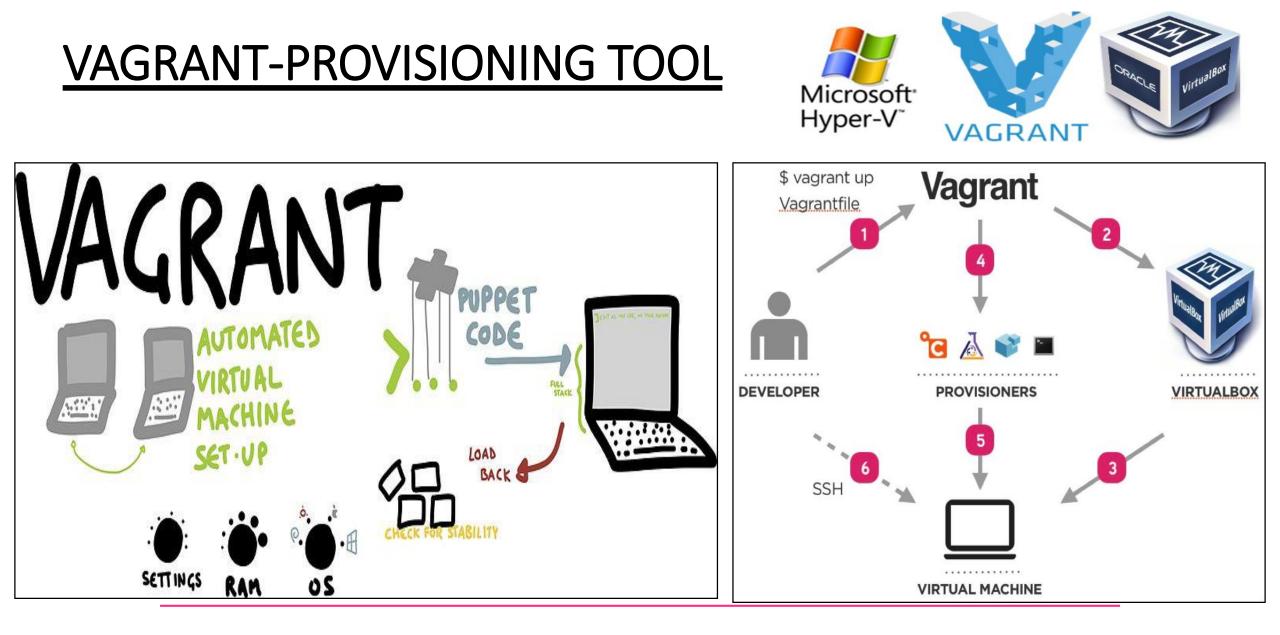


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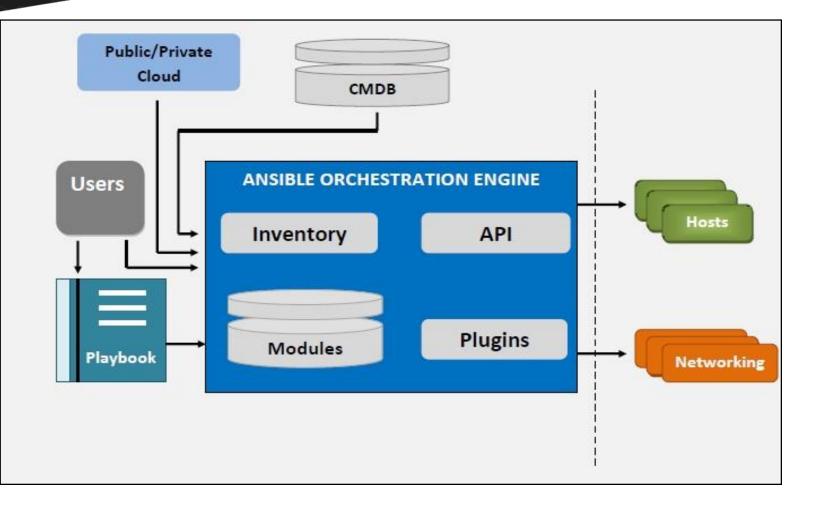




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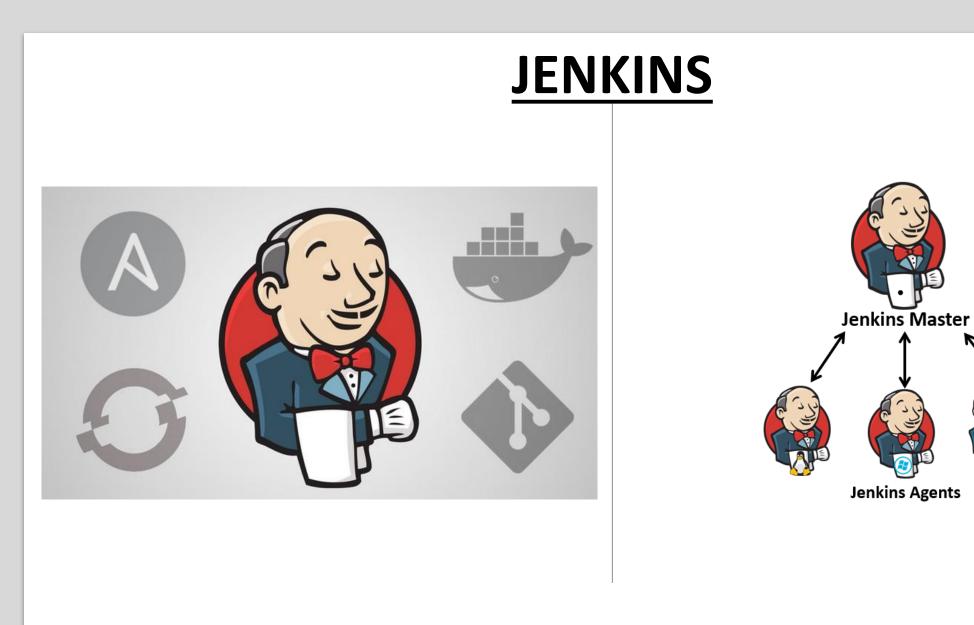




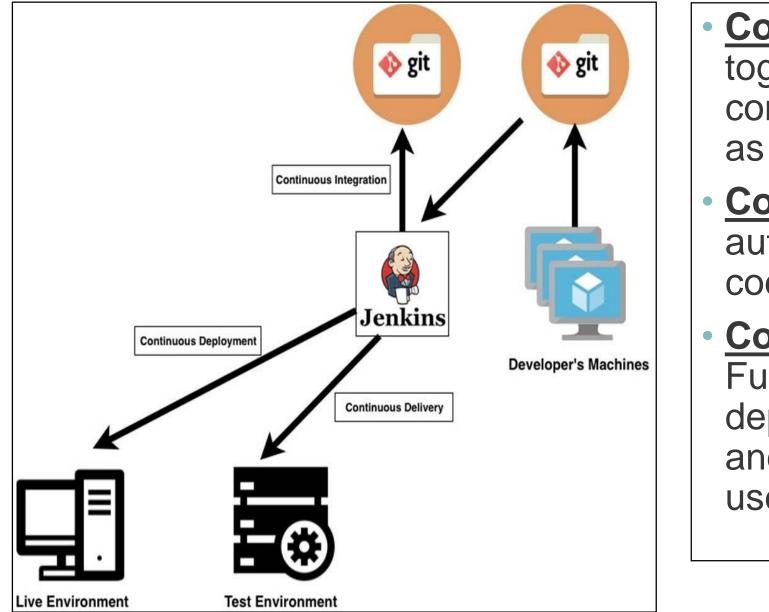




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CI/CD PIPELINE



- Continuous Integration: Pull together various software components- build and test as single unit
- <u>Continuous Delivery</u>: More automation, delivers app code from master to non-prod
- Continuous Deployment: Full automation, code is deployed to binary artifacts and to live prod servers for users

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TEST-USE CASES: WEB-BASED BOOKING APPLICATION

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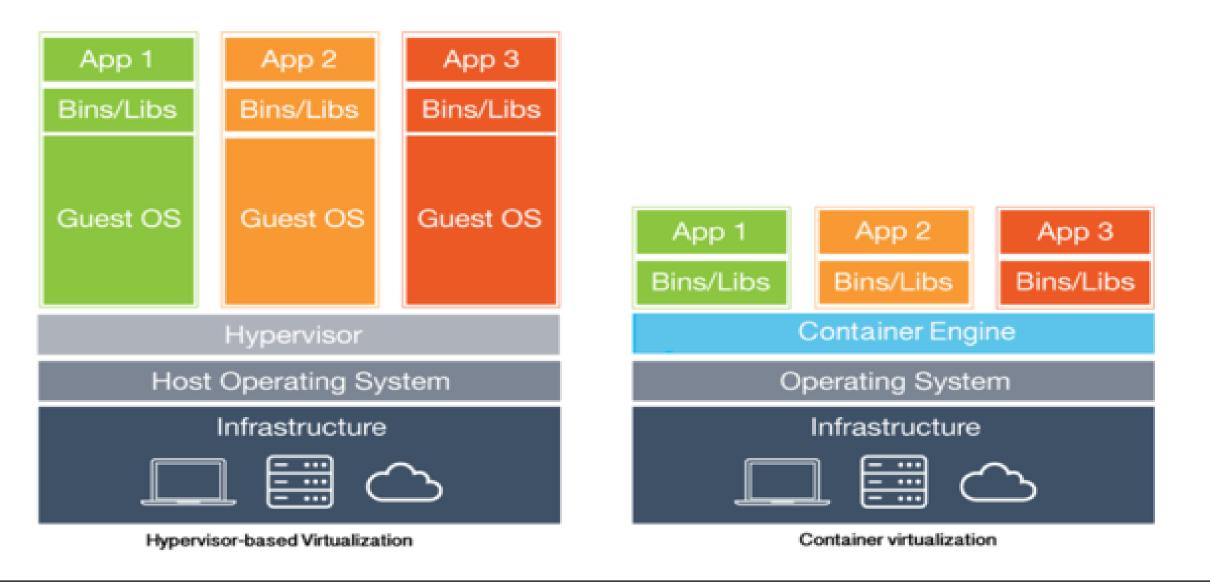
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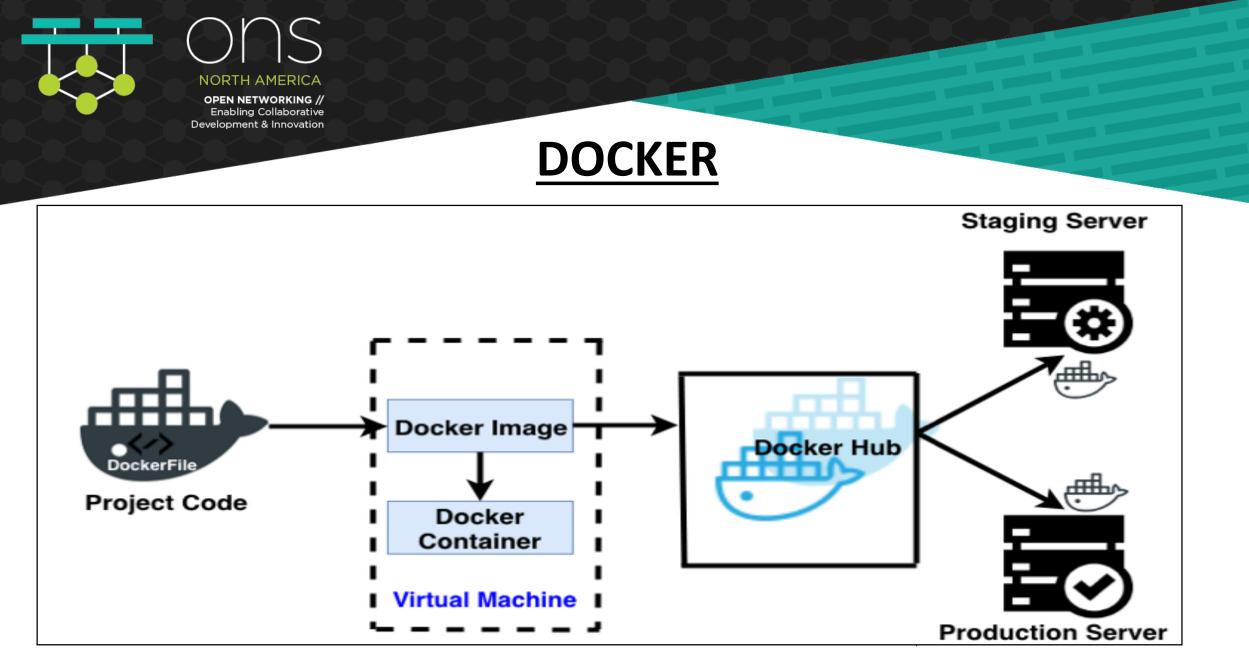
Cloud Providers



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CONTAINERIZATION V/s VIRTUALIZATION







DOCKER COMMANDS & STORAGE

docker run – Runs a command in a new container

- docker start Starts one or more stopped containers
- docker stop Stops one or more running containers
- ocker build Builds an image form a Docker file
- docker pull Pulls an image or a repository from a registry
- docker push Pushes an image or a repository to a
 registry
- docker export Exports a container's filesystem as a tar archive
- docker exec Runs a command in a run-time container
- docker search Searches the Docker Hub for images
- docker attach Attaches to a running container

VOLUMES

• It is stored in a part of the host file system managed by the docker

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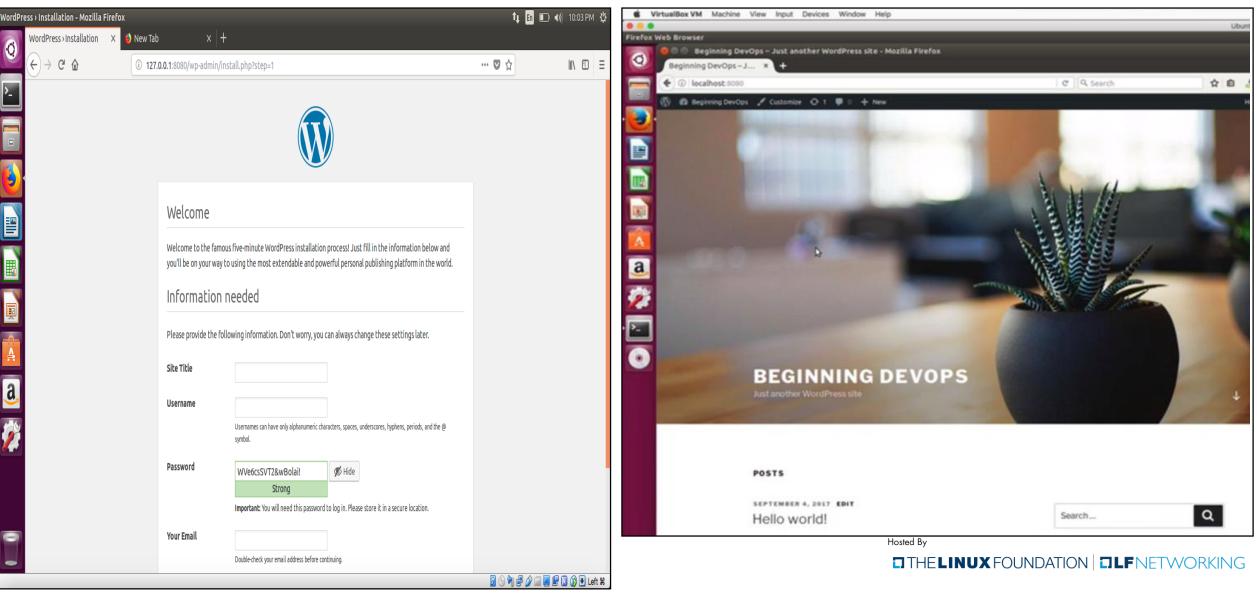
 It can be stored anywhere on host system whether they are important file system or directories. This mount can be modified by nondocker processes as well

* <u>MOUNTS</u>

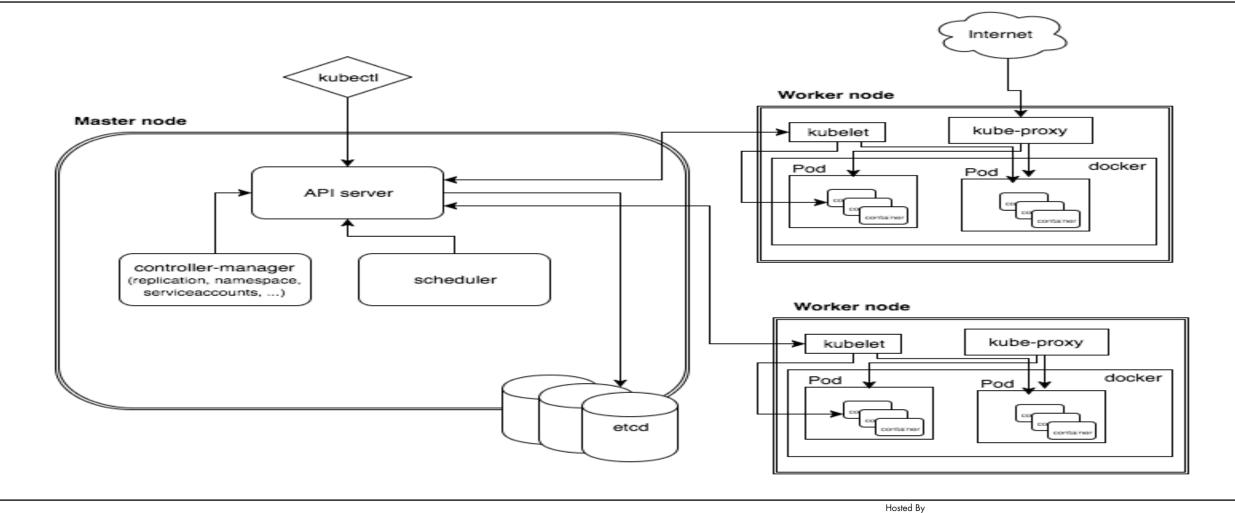
• it stores data in memory of the host system

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WORD-PRESS INSTALLATION USING DOCKER



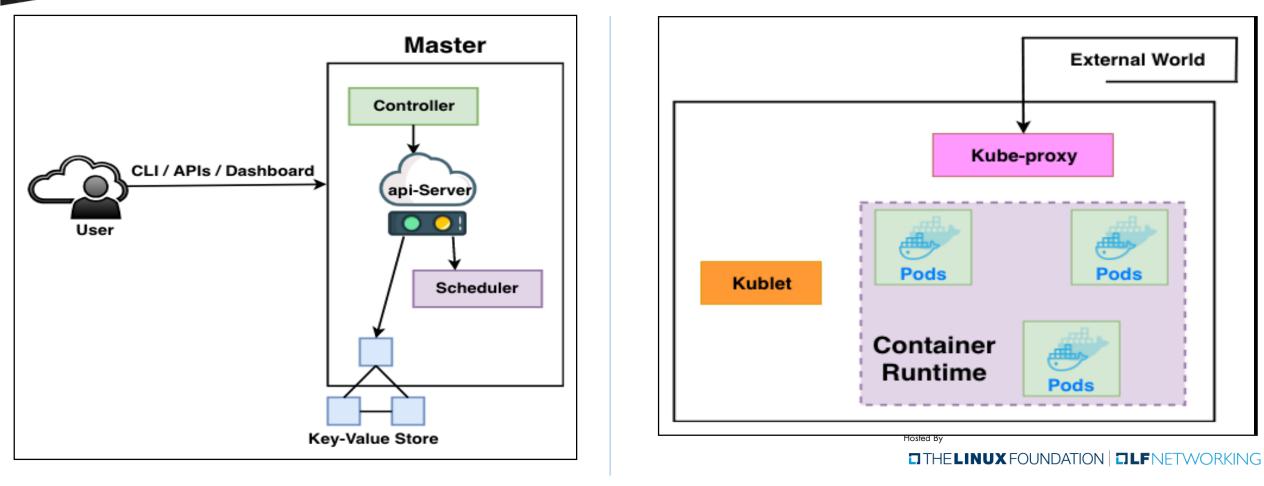
KUBERNETES – K8'S



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KUBERNETES ARCHITECTURE





HELM CHART & KUBE COMMANDS

- Helm is a package management tool and can be used to add packages, services etc to the APPs which are deployed using Kubernetes.
- Helm-Charts helps the user to install, upgrade any applications of Kubernetes
- The advantages of Helm-Chart is that they are easy to create, is faster, easy to version and easy to publish and share
- Helm-Charts describe even the most complex Kubernetes apps, they provide reliable application installation, and they serve as a single point of authority

- kubectl get pods
- kubectl get deployments
- kubectl get replicaSets
- kubectl get secrets
- kubectl get events

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Usage of Kubernetes

- Developing a complex application and requires high resource computing without restrictions
- For deployment and monitoring option
- For fast and reliable response times
- Deploying a big cluster

Usage of Docker

- To initiate with the tool without spending time on configuration and installation
- Developing a basic and standard application with default use of docker image
- Testing and running the same application on the different operating system is not an issue
- Functionality is provided and limited by Docker API

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DEVOPS TROUBLESHOOTING TOOLS





Nagios





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CHECK OUR LIVE PROJECTS & FOLLOW US ON

() GitHub

- Dushyant8858
- Shahjay9315



shah-jaydushyant8858

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INTERNATIONAL CONFERNECE PAPERS

- Published Paper in ITERA on "Software Defined Networking (SDN) in Telecommunication Industry" at Lexington, Kentucky, Mar'18
- Published Paper in 'IEEE-UEMCON', on "A Survey of DevOps tools for Networking" at Columbia University, New York, Nov'18
- Published Paper in 'IEEE-CCWC' on "Building Modern Clouds: Using Docker, Kubernetes & Google Cloud Platform" held in Las Vegas, Nevada, Jan'19





So, get your Hands Dirty on DevOps !!

THANK YOU !

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