

Dockers and Kubernetes

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Day 1

Introduction

- * What can you use Docker for?
- * How Docker fits into the development lifecycle
- * How Docker ensures consistency from development through UAT and staging, and on to production
- * Example use cases of Docker in the real world

The components of Docker

Underlying technology

- * Docker client and server
- * Filesystem images
- * Registries * Containers
- * Networking

Getting set up to start using Docker

- * Getting set up on Windows
- * Trying out our first container
- * Getting set up for production on Linux
- * Tweaking your production environment for best performance

Container management

- * Container naming
- * Starting and stopping containers
- * Attaching to a container
- * Seeing what is happening in a container
- * Running a process inside a container
- * Daemonizing a container
- * Automatic container restarts

- * Deleting containers when we are finished with them

Docker images and repositories

- * Docker images explained
- * How Docker images work
- * Getting a list of images
- * Searching for images on a repository
- * Pulling an image

Day 2

- * Creating our own image
- * Specify an image in a Dockerfile
- * Building Dockerfile images
- * Using the build cache for templating
- * Viewing the image we have created
- * Launching a container using our new image

Registries

- * What is the Docker hub?
- * Pushing images to the Docker hub
- * Running your own internal Docker registry
- * Testing the internal registry

A simple use case

- * A single container static website
- * Setting up a container running Nginx

* Launching our static site

Day 3

Introduction to Kubernetes
Brief history of Deployment era
Features of Containers
Working of Kubernetes (overview)
Installation of Kubernetes

Kubernetes Architecture
Understand Kubernetes Architecture
What are Kubernetes objects?

What are YAML files?
Name, Namespaces, Labels & selectors , Annotations

Introduction to Pods and Services
What are Pods?
What are Replication Controllers?
What is a Deployment?

Day 4

Introduction to Kube Services and its types
Stateful and Daemon sets

Jobs

Introduction to autoscaling

The Horizontal Pod Autoscaler

The Kubernetes metrics registry

Exposing metrics from your apps

Tuning the Horizontal Pod Autoscaler

Introduction to Volumes

What are volumes?

Types of volumes

Persistent volumes

Day 5

Networks

Introduction to secrets

Taints and tolerations

Config Object

Ingress, Dashboard and Kubernetes best security practices

What is Ingress

What is a Kubernetes Dashboard?

Setting up Kubernetes Dashboard

Security practices for Kubernetes

Monitoring