DevOps

Syllabus

Ratheesh
Kumar B

DevOps | **Cloud** | **VMware** | **Windows Server** – **Trainer**

Skill Set

- Linux
- Git
- Jenkins
- Nexus
- Sonarqube
- Prometheus
- Node Exporter
- Docker
- Kubernetes Ansible
- Terraform
- AWS Cloud
- Azure Cloud
- VMware
- Office 365

Experienced **DevOps/Cloud/Virtualization/Windows Server** Trainer with more than 12 years of industry experience, and ability to adapt to the new environment and to take more advantage of the unlimited access towards bottomless compendium of knowledge. Enthusiastic in learning new technology in a short period of time to improve the quality of training.

Trained over 1000 Students and IT professionals throughout the career with excellent reviews.

Certifications

- **MCSE 2008**
- **MCSE 2012**
- **Azure – AZ 104**
- **AWS – SAA C02**

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DevOps Course
Contents

Unit 1: Getting Started – DevOps Concepts, Tools, and Technologies (Demo)

1. Understanding the DevOps movement.
2. Understanding software Development.
3. Explanation about waterfall and Agile models.
4. How the DevOps will place on Agile Development.
5. The DevOps lifecycle – it's all about "continuous"
6. Is DevOps a Job in Software Development?
7. What is the tool list in DevOps?
8. What is the tool we need to learn to get in DevOps?
9. Learning procedure in DevOps.
10. What ate the tools needs to be learn in DevOps
11. Tools and technologies

Unit 2: Get into Linux Commands For DevOps

1. What is cloud computing.
2. Create account in AWS.
3. Create AWS ec2 instance in AWS.
4. Connect AWS ec2 instance through putty.
5. Connect AWS ec2 instance trough mobaXterm.
6. Discussion on daily used commands by DevOps (100+ commands)
7. what is crontab how to use crontab
8. what is softlink and hard link
9. ssh short cut command real time usage.
10. Linux commands curl wget chmod.
11. password less setup real time hands on.

Unit 3: Source code management.

1. what is version control?
2. what is Git? what is difference between GIT and SVN?
3. what is GitHub?

4. SSH with git and github
5. created a repository in Github.
6. git commands with hands-on .
7. working with Branches and merging branches.
8. Git tags
9. Git merge and rebase
10. Undo operations (checkout, reset, revert).
11. Git cherry pick Git stash
12. Git clone, git diff, git show, git reflog, git pull, git fetch....etc

Unit 4: Continuous Integration with Jenkins 2 (Maven, GitHub, Apache Tomcat)

1. Jenkins Introduction
2. Installing Jenkins on AWS ec2 instance.
3. Role-based Authorization Strategy
4. Apache Tomcat and related files and installation procedure step by step.
5. sample freestyle projects creation
6. Configuring Java project form GitHub.
7. build the source code
8. Build triggers
9. Build periodically
10. Poll SCM
11. Webhooks
12. Jenkins upstream and downstream jobs setup.
13. The Jenkins dashboard
14. What is Maven? Maven life cycle. Create maven project. Maven configuration files.
15. installing maven on AWS ec2 instance.
16. Creating and configuring a build job for a Java spring boot application with Maven
17. Configuring and authenticating source code on GitHub
18. Configuring Junit and generate reports.
19. The Dashboard View plugin – overview and usage
20. Build pipeline plugin and hands on
21. Managing nodes Creating and configuring slave node in Jenkins 2
22. Configuring the build job for master and slave node.

23. Sending e-mail notifications based on build status.
24. Sending e-mail notification along with log file on build status.

Unit 5: Building the Code and Configuring the Build Pipeline

1. Creating built-in delivery pipelines
2. types of pipeline code. difference between script-based pipeline and declarative pipeline.
3. Creating scripts
   Example 1 – creating a Groovy script to build a job
   Example 2 – creating a build step to publish test
   reports Example 3 – archiving build job artifacts
   Example 4 – running a build step on a node
   Example 5 – marking the definite steps of a build job
4. Creating a pipeline for compiling and executing test units
5. Using the Build Pipeline plugin
6. Write a Jenkins pipeline for deploy tomcat.
7. Write a Jenkins declarative pipeline code push artifact to nexus repo dynamically real-time code example.

Unit 6: Docker (Container Technology)

1. Overview of Docker containers
2. Understanding the difference between virtual machines and containers
3. Installing and configuring Docker on CentOS
4. Creating your first Docker container
5. Understanding the client-server architecture of Docker
6. Managing containers
7. Creating a Docker image from Dockerfile
8. Dockerfile commands
   explanation FROM
   ADD
   COPY
   ENV
   EXPOSE
   LABEL
   USER
   VOLUME
   WORKDI
   R CMD
   ENTRYPOINT
   RUN ONBUILD
   HEALTHCHECK
   ARG
9. RUN vs CMD vs ENTRYPONT and ADD vs
   COPY HEALTHCHECK and ONBUILD
10. Hands On Docker Commands with expert level used By DevOps.
11. Deploying real-time web application in Docker container.
12. Push docker images to docker hub.
13. Push docker images to ecr repository.
14. Push docker images to nexus repository.
15. Docker networking.
    Create custom network and port forwarding.
16. Hands-on practice using Docker-Compose.
17. Communicate with two docker containers using docker --link with real-time applications.
18. Docker integrate with Jenkins

(Interview Questions Discussion)

Unit 7: Ansible (Configuration Management Tool)

1. Getting started with Ansible.
2. Overview of Ansible
3. Differences between chef and Ansible.
4. Installing and configuring ansible with multi node setup.
5. Explanation about inventory file and groups.
6. Configuring Ansible Hosts.
7. Running Ad Hoc Commands with Modules ping, setup, copy, file, lineinfile, command, shell, yum, service module with example.
8. Working with Roles.
9. Working with ansible loops.
10. Working with ansible error-handling
11. Working on ansible tags.
12. Working with security using vault.
13. Hands-on real-time playbooks using different modules and roles.
14. Write a play book for git installation.

Unit 8: Kubernetes.

1. Introduction to Kubernetes
2. What is Kubernetes
3. Design Overview
4. Building Block of Kubernetes
5. Kubernetes Architecture
6. Master components
7. Node components
8. PODS
9. Kubernetes Setup and Configuration
10. Packages and Dependencies
11. Install and Configure Master Controller
12. Install and Configure the Nodes.
13. setup Kubernetes dashboard.
14. Create pod and deploy pod object.
15. what is replicaset. deploy pods suing replicaset.
16. What is service object.

17. What types of service types are available?
18. What is difference between ClusterIp, NodePort, LoadBalancer.
19. What is Deployment object. Deploy pods using Deployment object.
20. what is Namespace. create custom namespaces and deploy apps

Unit 9: Terraform Contents

1. What's infrastructure?
2. Infrastructure as Code.
3. Introducing Terraform.
4. Why not a configuration management tool?
5. Why not Cloud Formation?
6. What can you use Terraform for?
7. Understanding Resources & Providers
8. Create ec2 instance with terraform
9. Create key file with terraform
10. Create ec2 instance with key.
11. create s3 bucket with terraform
12. Terraform state file
13. Terraform Workspace
14. Implementing Terraform Workspace

End-to-End Automation: -

DevOps Tools along with the DevOps Lifecycle