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"DevOps for Beginners"

What makes us unique

★ Industry experts
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Polyglot IT Solutions - " A place where learning made easy."

DevOps for Beginners

(Linux+AWS+DevOps)

What is DevOps?

DevOps is said to be a culture evolving rapidly to automate the build, test and release phases of the application. DevOps practices will help you to enable continuous integration (CI), continuous deployment (CD) and Infrastructure as Code (IaC) reducing the manual effort and improving the efficiency. There are numerous tools to help us to automate various phases of SDLC. Organizations can use of any of the tools as part of DevOps practices.

Why DevOps?

The goal of the DevOps is to improve the collaboration between development and operations team where the primary focus of both the teams is different. The DevOps practices will help us minimizes the application downtime and improving the availability, scalability and security of the applications.

Who should attend?

- Application developers
- Scrum masters
- Project managers
- Testing engineers
- Application architects
- Anybody else who is aspiring career on either Cloud Computing or DevOps.

What you should know?

- You should be an application developer or system administrator or QA engineer to learn DevOps. However, the **"DevOps for beginners"** course includes all the prerequisites to learn DevOps.

What you will learn in this course?

- Understand DevOps culture
- Building web applications on AWS using resources like EC2, RDS and S3 etc.,
- Creating application stack using Cloudformation.

- Using configuration management tools like Chef, Puppet for deploying servers either on cloud or on premise.
- Enable continuous delivery using Jenkins including build, test, release and deploying applications.

Which job roles you are eligible for?

DevOps engineer, Site Reliability engineer, Cloud engineer, Cloud administrator, Linux administrator, System administrator

Duration

- **90hrs Theory**
- **150hrs Lab**

Certification

The course is aligned towards **AWS Solution Architect - Associate (Fee Not included)** level.

What Next?

Learn Python or Ruby

AWS Solutions Architect – Professional level

Explore how Microsoft Azure or Google Cloud work

Course content

RedHat Linux Administration

Linux Basics

- Linux Installation
- Introduction to Operating System
- Working with Unix Command Line
- Perform Basic File Management
- Filesystem Concepts
- Create and Change Hard and Symbolic Links

- Create, Monitor, and Kill Processes
- Modify Process Execution Priorities
- Job Control
- Login vs non-login shell
- Tools to compress and archive
  - zip,gzip,bzip and tar
- User administration
  - Use File Permissions to Control Access to Files
  - Manage File Ownership
  - Delegating permissions with sudo access
- Disk management
  - Create Partitions and Filesystems
  - Control Filesystem Mounting and Unmounting
  - RAID
  - LVM
  - Backup using snapshots
- Package management
  - Yum
  - Rpm
- Service management
- Tune the User Environment and System Environment Variables
- Configure and Use System Log Files
- Automate and Schedule System Administration Tasks

Linux Server administration

- DNS Server
  - Types of DNS records
  - bind installation
  - forward and reverse zones
- DHCP Server
  - DHCP states
  - DHCP client and servers
  - Installation and configuration
  - Lease file
- Samba
  - Overview
  - Installing Samba
  - Sharing files using Samba
  - Restricting access to authorized users
  - Access shares from windows
  - Mounting samba shares
- Mail Server
  - mail client and server
  - SMTP
  - POP3 vs IMAP
  - Installation and configuration

Configuring users
email client tools

- Web server
  - Installing apache web server
  - HTTP/HTTPS Protocols
  - Creating Virtual hosts
  - Deploying html content
  - Downloading content from version control
- Monitoring
  - Process monitoring using top
  - System performance monitoring using sar
  - Newrelic integration
  - Performance monitoring using Newrelic dashboards
- Virtualization
  - Introduction
  - Advantages
  - Types of Hypervisors
  - Virtualization software (VMWare vs Xen)

Amazon Web Services

Introduction to Cloud Computing

- Introduction cloud computing world
- History
- Cloud business models
- Public, Private and Hybrid cloud models
- Advantages of cloud computing

AWS Overview

- AWS Regions and Availability zones.
- Tools to access services.
- Overview of the console.

AWS EC2(Elastic Compute Cloud)

- Introduction to EC2.
- Pricing models On-demand vs Reserved vs Spot instances.
- Using Amazon Machine Images (AMIs) to create the instances.
- Public vs Private Images.
- Sharing Images to other accounts.
- Logging into instances using key pairs.
- Converting PEM files to ppk.
- Volumes and types.
- Using snapshots for backup.
- Increasing the size of the volumes.
- Backup and restore process of the EC2 instances.
- Adding network interfaces.

- Assigning static IPs using Elastic IPs.
- Control access to instances using Security Groups.

Elastic Load Balancer

- Introduction to Elastic Load Balancing.
- Creating ELB from Console.
- Attaching instances to ELB.
- Configuring Ports, Protocols and health checks.
- Enabling sticky session.
- Connection draining.
- Enabling SSL Certificates for https transactions.

Cloud Watch

- Introduction to CloudWatch monitoring service.
- Monitoring CPU, Memory and network utilization of different resources.
- Creating notifications.

Simple Notification Services

- Introduction to notifications
- Creating Topics
- Subscribing to Topic
- Publishing to SNS Topic
- Testing e-mail and SMS functionality.
- Other supported endpoints.

Relational Database Service

- Introduction to Managed database.
- Creating RDS instances using AWS console.
- Choosing an RDS engine and version.
- Public vs Private database instances.
- Multi-AZ setup.
- Backup using snapshots and point in restore.
- Parameter Group.
- Options Group.
- Control access to instances using Security Groups.

Auto-scaling

- Overview.
- Creating launch configuration.
- Creating auto-scaling group.
- Auto-scaling policies.

AWS S3(Simple Storage Service)

- Introduction to Simple Storage Server (S3).
- Storage options (default vs reduced redundancy vs Glacier).
- Creating buckets using Console.

- Uploading and downloading data tS3.
- Building static websites using S3.
- Enable version control on S3.
- S3 access policies.

Storage(Glacier)

- Introduction to Glacier.
- Moving data from S3 to Glacier.
- Setting archiving policies on S3.

Cloud Front (Content Delivery Network)

- Introduction to Content Delivery Networks.
- Overview of Amazon CDN
- Origins and Edge locations
- Configure S3 backend for CloudFront.
- Configure ELB backend from CloudFront.

Simple Email Services(SES)

- Introduction to SES.
- Advantages

Identity Access Management (IAM)

- Introduction to IAM.
- Access controls using IAM.
- Creating users, groups and roles.
- Assigning policies.
- Inline vs Managed policies.

Virtual Private Cloud (VPC)

- Introduction.
- Choosing a network design and CIDR.
- Design a simple network.
- Creating Subnets and setup routing as per the design.
- Using IGW tenable internet access.
- Access controls using Network ACLs.
- Network ACLs vs Security Groups.
- Creating Private connections from data center to AWS.
- Enabling VPC peering between VPCs.

CloudFormation

- Introduction.
- Understanding the template format.
- CloudFormation designer.
- Create a simple CloudFormation template.
- Managing dependencies.
- Updating the existing stacks.
- Intrinsic functions.
- Pseudo parameters.

- Updating CloudFormation stacks.
- Understanding event.
- Cloudformer.

Using CLI

- Installing AWSCli
- Installing CLI tools using rpm or pip
- Configuring credentials
- AWS CLI syntax
- Creating and managing resource using CLI
- Examples

Best practices

- Cost optimization
- Cloud migration
- Using 3rd party tools for health and billing monitoring

DevOps

Introduction

- What is DevOps?
- What is SDLC?
- Why DevOps?
- DevOps principles.
- Waterfall vs Agile vs DevOps
- DevOps tools

Configure Management Systems

- Introduction
- What is Idempotency
- Abstract layers
- Ansible vs Chef vs Puppet
- Push or Pull modes

Fundamentals of Ruby

- Ruby Overview
- Command-line Tools
- Core Ruby
- Syntax
- Functions
- Control Flow
- Built-in Types

- Collections
- Blocks and Iterators
- How ruby help in chef cookbooks and recipes.

Ansible

- Installing Ansible using RPM or Python PIP
- Inventory
- Ansible Modules
- Running ansible ad-hoc commands
- Creating ansible playbooks
    - Variables
    - Loops
    - Conditional execution
- Using ansible facts for customization
- Creating ansible roles
- What is Ansible Galaxy
- How to download ansible roles from Ansible galaxy

GIT

- Introduction to version control systems
- Centralized vs Distributed
- GIT advantages
- Installing GIT
- Creating repository
- Adding code and creating commits
- Creating GitHub account
- Push code to GitHub
- Cloning repo from GitHub
- Forking GitHub repo and working on it.

Jenkins

- Overview
- Installation
- Setting up authentication
- Manage plugins from console
- Installing GitHub plugin from repository
- Adding Ant/Maven support
- Configuring email notifications
- Continuous deployments using Jenkins
- Explore Jenkins system configuration
- Analyzing system logs

Chef

- Introduction

- Architectures
- Installing ChefDK on workstation
- Creating hosted chef account
- Configuring workstation
- Using knife
- Bootstrapping first node
- Node object
- Creating first cookbook
- Uploading cookbooks to chef server
- Updating node run-list
- Creating chef roles
- Creating data bags
- Configuring html website using chef
- Using community cookbooks from supermarket

Docker

- What is Docker
- Containers Vs Virtual Machines
- Docker platform overview and Terminology
- Docker engine
- Images
- Containers
- Registry
- Repositories
- Docker hub
- Docker orchestration tools

Trainer Profile

Satheesh Challa (Sr.Architect)

12+ years of experience in IT industry with 5 years on Cloud and DevOps.