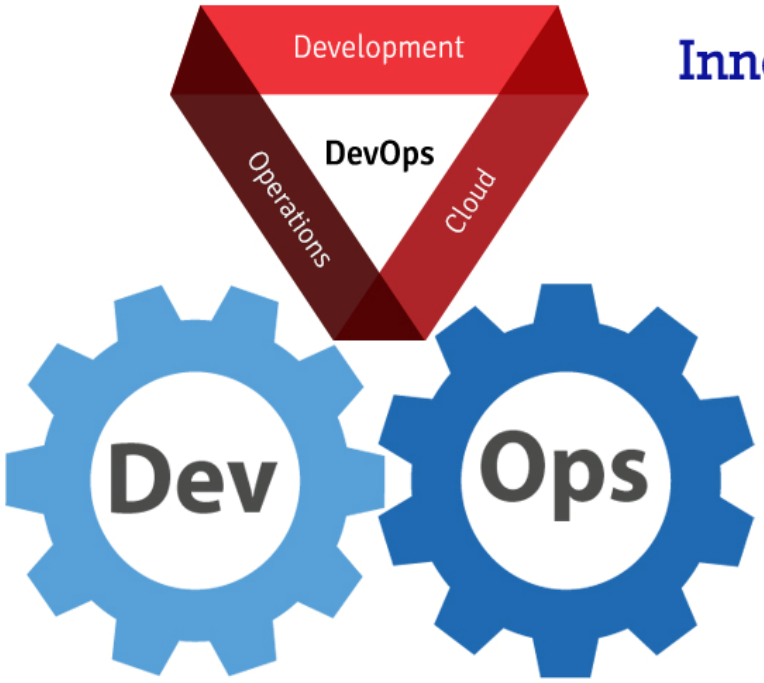
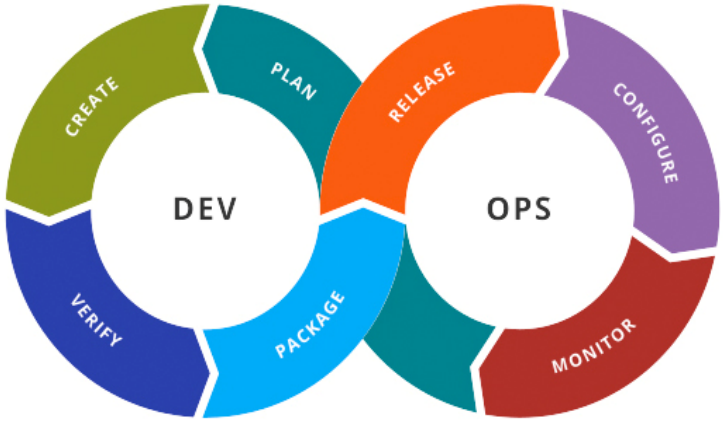


Innovate faster with DevOps

DevOps strategy



REXTON IT SOLUTIONS

Innovate faster with DevOps - Dev-Ops Strategy With KUBERNETES

Course content

INTRODUCTION TO DEVOPS

- What is DevOps?
- History of DevOps
- Different Teams Involved
- DevOps definitions
- DevOps and Software Development Life Cycle
    i. Waterfall Model
    ii. Agile Model
- DevOps main objectives
- Prerequisites for DevOps
- Continuous Testing and Integration
- Continuous Release and Deployment
- Continuous Application Monitoring
- Configuration Management

- What is Cloud?
- History and evolution of cloud
- Cloud Computing Concepts
- Public, Private, Hybrid Clouds
- IAAS, SAAS, PAAS Cloud Models
- Public Clouds
    i. Amazon Web Services, Azure, Oracle Cloud, IBM Cloud
- DevOps with Cloud

BEFORE DEVOPS:

LINUX: BASICS & ADMIN

- Linux OS Introduction
- Importance of Linux in DevOps
- Fetching OS and Hardware information
- Linux Basic Command Utilities
- File and Directory Management.
- Linux File Editors (VIM)
- Utilities to download software into Linux from Internet
- User Administration
- File permission management
- Package Management
- Service Management

LINUX: NETWORKING

- Introduction to network.
- Introduction to network in Cloud.
- Firewall
- Load Balancer
- Port
- Protocol
- IP Address
- DNS
- DHCP
- Static IP

WEB APPLICATION ARCHITECTURE

- Enterprise 3-tier Application layout
- Apache Web Server
- Apache Tomcat Server
- MariaDB Server
- MOD_JK Module
- Integration of Web Server with Application Server.

- Integration of Application Server with DB Server.
- Haproxy Load balancer.

DEVOPS TOOLS:

VERSION CONTROL – GIT

- Version Control System
- Centralized & Distributed Version Control System
- Advantages of Git

- **GIT**
- Anatomy of GIT
- GIT Features
- 3-Tree Architecture
- GITHUB Projects
- GITHUB Management
- GIT Clone / Commit / Push / Merge
- GITLAB Installation & Configuration
- GITLAB Management
- Introduction to GITLAB-CI

BUILD TOOLS – MAVEN

- Java Compiler
- Maven Life Cycle
- Maven Installation
- Maven build requirements
- Maven POM XML File
- Maven **G A V** explained
- Add a custom life cycle in Maven
- Integrate Artifact manager to Maven

REPOSITORY TOOLS – SONATYPE NEXUS

- What is Aritifact manager
- Artifact manager tools
- Sonatype Nexus Installation
- Nexus with Maven Integration
- Using default repositories
- Create Roles in Nexus
- Create Users to Nexus
- Assign Roles to Nexus Users

CONTINUOUS INTEGRATION – JENKINS

- INTRODUCTION TO JENKINS-CI
- Continuous Integration with Jenkins Overview
- Installation of Jenkins Master and Jenkins Slave.
- Configure Jenkins
- Jenkins management
- Support for the Git version control systems
- Different types of Jenkins Jobs
- Setting up a Jenkins job
- Scheduling build Jobs
- Maven Build Scripts
- Securing Jenkins
  - Authentication
  - Authorization
  - Confidentiality
  - Creating users
- Jenkins Plugin
  - Installing Jenkins Plugins
  - SCM plugin
  - Build and test
  - Analyzers
- Distributed builds with Jenkins
- Best Practices for Jenkins
- **Jenkins Pipeline Projects.**
- **Groovy Scripting Basics.**
- **Jenkins Blue Ocean Projects.**

CONFIGURATION MANAGEMENT - ANSIBLE

- Introduction
- Ansible and Infrastructure Management
- Ansible Inventory
  i. Ungrouped Hosts
  ii. Grouped Hosts
  iii. Groups of Groups
- Ansible Server Installation.
  - Ansible Server Configuration file
    i. Update Username
    ii. Update Keys
    iii. Update SSH Parameters
    iv. Update Roles
    v. Update Inventory
    vi. Update MISC parameters

- How Ansible picks the configuration

- Setting up SSH KEYS to and checking connection to remote nodes.
- Ansible Facts.
  - Default facts from nodes
  - Create custom facts on nodes.
  - How to print facts

- Ansible Playbooks
  - Define and use of 'hosts' parameter
  - Define and use of 'become' parameter
  - Define and use of 'gather_facts' parameter
  - Define and use of 'tasks' parameter
  - Define and use of 'vars' parameter
  - Define and use of 'vars_files' parameter
  - Define and use of 'vars_prompt' parameter
  - Define and use of 'handlers' parameter
  - Define and use of 'roles'
  - List of Modules to be discussed:
    - setup, ping, yum, yum_repository, service, copy, get_url, shell, command, set_fact, authorized_key, user, debug, file, find, fetch, hostname, include, include_vars, mail, package, stat, unarchive, gce, ec2, wait_for, wait_for_connection
  - Conditions
    • when
  - Loops
    • with_items
  - How to store output of one task and use it in another task.
  - Variables From:
    - vars
    - vars_files
    - vars_prompt
    - vars from inventory hosts
    - vars from inventory groups
    - Roles
- Roles
    - Create Role
    - Define Role
    - Write roles
    - Role Dependencies
    - Variables from Roles
    - Variable Precedence.
- MISC
    - Ansible Vault
    - Ansible Pull

- Ansible Galaxy

- Ansible in Real Time
- Ansible Tower
  - Role-based access control
  - Job scheduling
  - Portal mode
  - Fully documented REST API
  - Tower Dashboard
  - Cloud integration

CONFIGURATION MANAGEMENT – TERRAFORM with AWS

- Terraform syntax, internals, and patterns
- Creating and accessing compute instances
- Provisioning resources with Terraform
- Working with remote state
- Authoring and using Terraform modules

CONTAINERS – DOCKERS

- What are containers.
- Difference between VM's and Containers
- Hypervisor Vs Docker Engine
- Docker Introduction
- Docker Installation
- Docker Images
- Docker Commands and different options
- Creating own Docker images using commit.
- Creating own images using Dockerfile
- Automating Image creation with DockerHub and Jenkins
- Docker UCP
  - Docker UCP Installation
  - Docker UCP Configuration
  - Creating a Service in UCP
- Docker Compose.
  - Usage of Docker Compose.
  - Create Stack with Docker Compose.
  - Setup a stack service in Docker Compose.

KUBERNETES – CORE CONCEPTS

- Introduction to Kubernetes
- Kubernetes Architecture

- Deploy an app to Kubernetes Cluster
- Expose App, Scale App And Update App in Kubernetes

ADDITIONAL OVERVIEW

- v Shell Scripting
- v SonarQube
- Installation and Configuration of SonarQube.
- Integration of SonarQube with Jenkins
- VAGRANT
- Google Cloud
- GitLab-CI
- JIRA
- Nagios

ELK – CORE CONCEPTS

- Introduction to ELK stack
- Parsing with Logstash
- Searching with Elasticsearch
- Visualization with Kibana
- Implementing ELK stack

ZABBIX – CORE CONCEPTS

- History of Zabbix
- Zabbix architecture and functionality
- Server, frontend and agent installation
- Initial Zabbix configuration
- Zabbix frontend overview
- Zabbix definitions
- Hosts, items, triggers

Real Time Projects

Contact Us

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