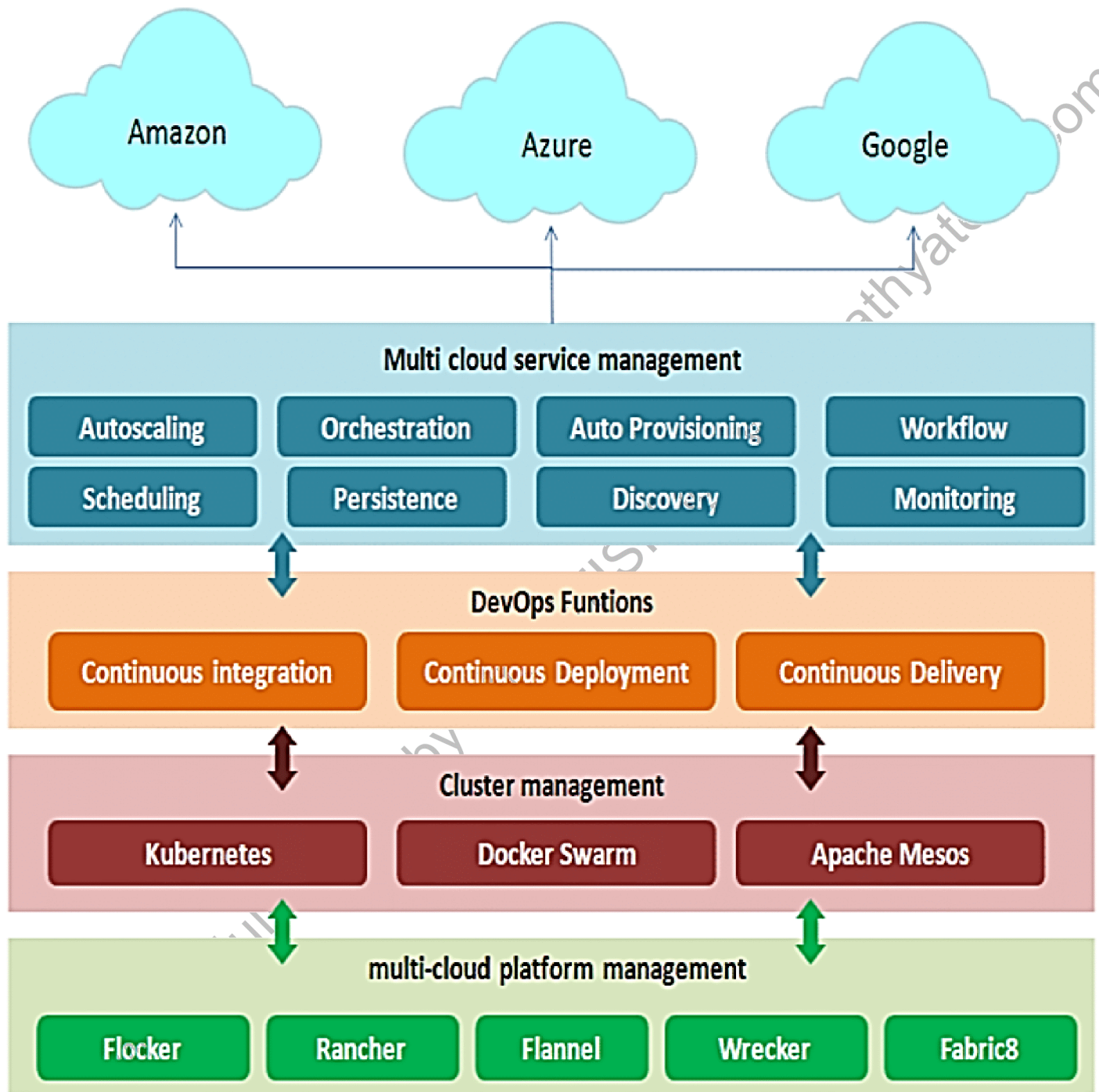
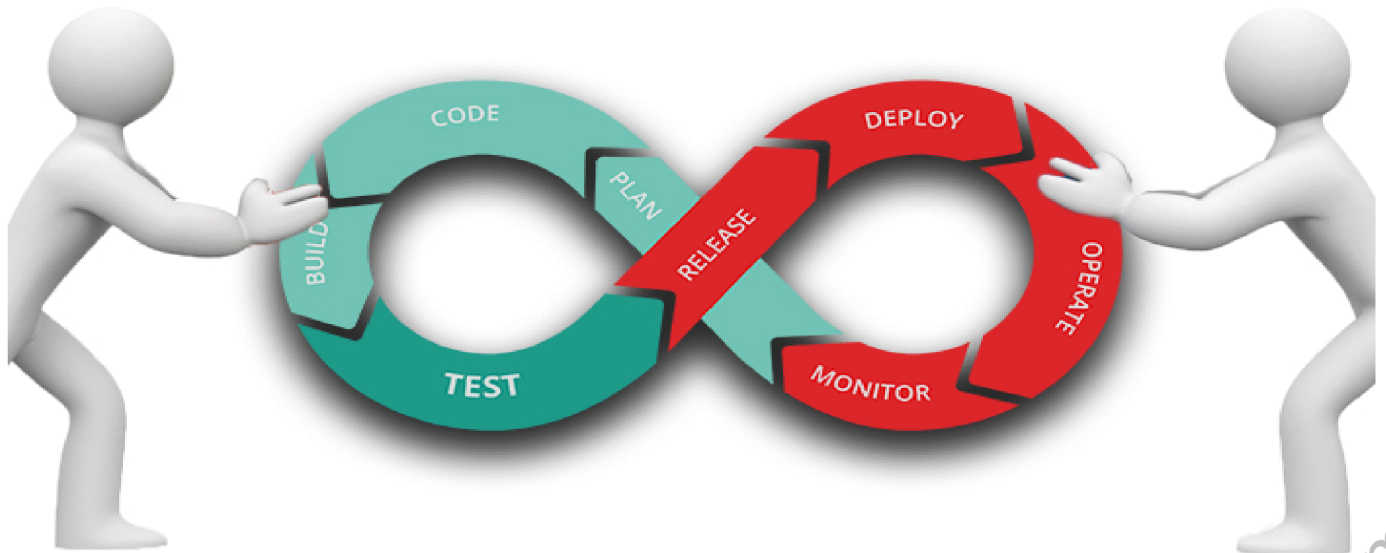


NEW  **DevOps with Multi Cloud**



DEVELOPMENT

OPERATIONS



Version control



Continuous integration



Automation



Deployment



Containerisation



Orchestration



Monitoring



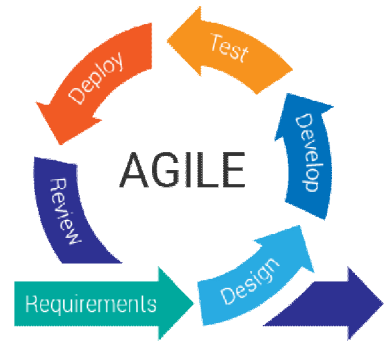
Cloud



DevOps Tools

Introduction to DevOps

- What is Devops ?
- History of Devops
- Devops definition
- DevOps Culture
- DevOps Main Objectives
- DevOps and Software Development Life Cycle
 - Waterfall Model
 - Agail Model
 - CI/CD Process



HA-Proxy (High Availability Proxy)

- HA Proxy Installation
- HA Proxy Configuration(haproxy.cfg)
- Backend Servers & Ports
- Load Balancing Algorithm
- Multiple HA Proxy Configuration



VERSION CONTROL - GIT

- Version Control System
- Centralized and Distributed Systems
- GIT
 - GIT Features
 - GIT - Clone /Commit / Push
 - GIT Hub Projects
 - GIT Hub Management
 - GIT Rebase & Merge
 - GIT Stash, Reset , Checkout
 - GIT Clone, Fetch , Pull
 - GIT Branch Strategy
 - GIT Branch Management
 - GIT Hard & Soft reset



BUILD TOOLS

- Maven Installation
- Maven Build requirements
- Maven POM Builds (pom.xml)
- Maven Build Life Cycle
- Maven Local Repository (.m2)
- Maven Global Repository
- Group ID, Artifact ID, Snapshot
- Maven Dependencies

The logo for Apache Maven, featuring the word "maven" in a bold, lowercase sans-serif font. The letter 'a' is colored orange, while the remaining letters are black.

GIT Lab

- GIT Lab Installation
- GIT Lab Configuration
- Managing Projects in GIT Lab
- Creating Private Repository
- Repository Maintenance
- Set up key for Repository
- Deleting Repository



NEXUS

- Sonatype nexus download
- Nexus Configuration
- Configure settings.xml & pom.xml files
- Managing Nexus Releases and Snapshots
- Repository Maintenance
- Nexus user management

The Sonatype Nexus logo, featuring the Sonatype logo (three horizontal lines) above the word "Nexus" in a large, black, sans-serif font. The word "Sonatype" is in a smaller font above "Nexus".

PROMETHEUS

- Introduction to Prometheus
- Installation of Prometheus
- Monitoring container metrics with Prometheus
- Altering rules in Prometheus
- Monitoring Kubernetes Cluster with Prometheus
- Grafana dashboard for Prometheus metrics

The Prometheus logo, which features a red circular icon containing a white flame-like symbol, positioned above the word "Prometheus" in a large, orange, sans-serif font.

CONTINUOUS INTEGRATION- JENKINS

- Introduction to Jenkins
- Continuous Integration with Jenkins
- Configure Jenkins
- Scheduling build Jobs
 - POLL SCM
 - Build Periodically
- Maven Build Scripts
- Support for the GIT version control System
- Jenkins Build Pipe Line
- Jenkins Master & Slave Node Configuration
- Jenkins Workspace Management
- Securing Jenkins
 - Authentication
 - Authorization
 - Confidentiality
 - Creating Users
- Jenkins Plugins
 - Installing Jenkins Plugins
 - SCM plugin
 - Build and test



Jenkins

TERRAFORM

- Introduction to Terraform
- Terraform Installation
- Terraform Providers
- Resources and Data Sources
- Change and Destroy terraform resources
- Terraform state commands
- Variables in terraform
- Terraform CLI - Console.
- Building AWS Infrastructure - Getting Started
- Building AWS Infrastructure —EC2 Instance
- Automate Provisioning of EKS clusters on AWS



HashiCorp

Terraform

ANSIBLE

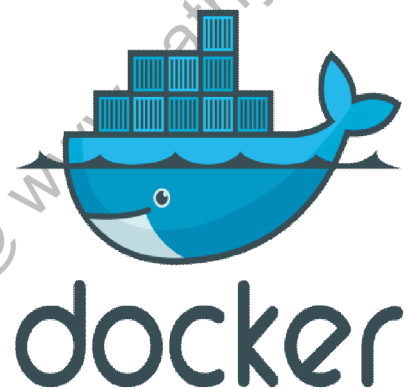
- Introduction to Ansible
- Ansible Server Configuration
- ansible.cfg configuration
- Infrastructure Management
- SSH Connection in Ansible Master
- YAML Scripts
- YAML Data types
- Host Inventory
- Ad-hoc Commands
- Playbooks
- Modules and Templates
- Ansible Roles
- Ansible Role Directory Structure



ANSIBLE

DOCKER

- How to get Docker Image ?
- What is Docker Image
- Docker Installation
- Working with Docker Containers
- Docker Command Line Interphase
- Docker Compose
- Docker Trusted Registry
- Docker swarm
- Docker attach
- Docker File & Commands
- Networking in Docker swarm
- Deploying multiple containers on swarm cluster via Docker compose
- Building Docker image from Jenkins job
- Pushing own images to Docker hub
- Deploying Micro service app with Docker compose
- Configuring volumes with compose file



KUBERNETES

- Kubernetes intro and Architecture
- Kubernetes Setup
- Running Docker containers on Kubernetes
- Kubectl ,kubeadm , kubelet
- Pod, Service, Controller and Deployment
- Difference between Docker Swarm and Kubernetes Orchestration
- Service running on manage node and minions
- Deploying the application through PODs
- Building multiple pods with high availability
- Create Kubernetes cluster on AWS with EKS
- Eksctl command line tool
- Configuring Auto Scaling EKS cluster on AWS
- Deploy application on EKS cluster from Jenkins
- Complete CI/CD pipeline on EKS cluster on AWS from Docker hub



kubernetes

Linux Admin Commands and Shell scripting

- Introduction
- Variables and Flow Controls
- Loops and Functions
- Manipulating Strings
- Reading and Writing Files
- Positional Parameters



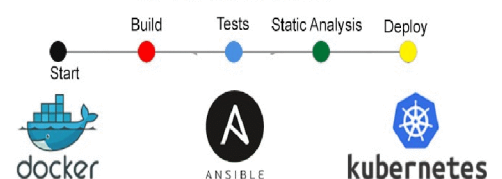
redhat.

PROJECTS and INTERVIEW

- # 1. GIT – MAVEN – NEXUS - JENKINS CI/CD
- # 2. JENKINS – ANSIBLE – DOCKERProject
- # 3. JENKINS – DOCKER – KUBERNETES Project
- # 4. DevOps Resume Demo
- # 5: Interview Preparation
- # 6. DevOps FAQ's Discussion



Jenkins



Multi Cloud Services

Cloud Computing

- Evolution of Cloud Computing
- IAAS (Infrastructure as a Service)
- SAAS (Software as a Service)
- PAAS (Platform as a Service)
- Private, Public and Hybrid Cloud
- Public Clouds
 - Amazon Web Services
 - Azure Cloud Services
 - Google Cloud Services



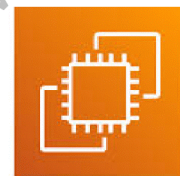
AWS (Amazon Web Services)

- Subscription to AWS
- Introduction to the AWS Management Console
- EC2 Essentials & Build EC2 Instances
- Security Groups



Elastic Compute Cloud(EC2) Instances

- Regions and Availability Zones
- Amazon Machine Images(AMI)
- EC2 Reserved Instance Market Place
- EC2 Instance Creation



Amazon EC2

Identity and Access Management (IAM)

- Creation of Users Accounts
- Roles in IAM and Groups in IAM
- Account Settings and Creating Permissions for Users



AWS IAM

Virtual Private Cloud (VPC)

- Creating a Custom VPC
- Security Groups
- Creating Identity Gate Way (IGW)
- Subnets and Route Tables
- VPN Components



Elastic Load Balancer (ELB)

- What is Elastic Load Balancing
- How Elastic Load Balancing Works
- Creating Load Balancer
- Attach & Detach Subnets
- Adding Instances to Load Balancer
- Monitoring and Logging



Elastic
Load Balancer

Auto Scaling

- What is Auto Scaling
- Auto Scaling Components
- Advantages of Auto Scaling
- Auto Scaling Groups (ASG)
- Attach and Detach EC2 Instances in ASG
- Monitoring Auto Scaling Instances
- Health Checks



AWS
Autoscaling

Simple Storage Services (S3)

- Creating and Deleting Buckets
- Adding Objects to Buckets
- Deleting Objects
- Uses of S3 storage



S3

Amazon Cloud Watch

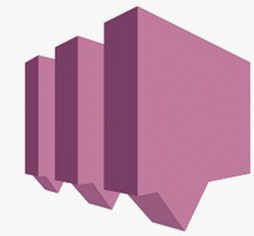
- List of services monitored by Cloud Watch
- Collect and track metrics
- Monitoring memory and disk Metrics
- Monitoring logs, Graphs
- Set Alarms



Amazon
CloudWatch

Amazon Simple Notification Service (SNS)

- Simple Notification Service overview
- Publishers and subscribers
- Creation of a topic
- Subscribing to topic via Email
- Setting notification for EC2 instance changes



Amazon SNS

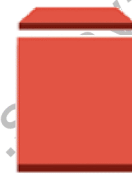
Route 53

- Configuring Amazon Route 53
- Public Hosted Zones
- Private Hosted Zones
- Resource Record Sets
- Managing Health Checks
- Working with Public and Private Hosted Zones



Elastic Block Store (EBS)

- Instance Store Volumes
- Optimizing Disk Performance
- Creating and Deleting Volumes
- Attach and Detach Volumes
- Mount and Un-mounting Volumes



Amazon EBS

Relational Database Services (RDS)

- Data Base Instances
- Data Base Engine
- Creating Data Base
- RDS Limits
- Working with Storage Types



AWS RDS

Cloud Formation

- Building AWS infrastructure as a code
- Design a template
- Create a Stack
- Create a Template from your Existing Resources



CloudFormation

AWS Cloud Build

- What is AWS Code Build?
- Creating First Code Build Project
- Creating Pipeline with Build Stage
- Creating Build Spec file for your build
- Triggering the pipeline with code commit changes



AWS Code Deploy

- What is AWS Code Deploy?
- Deployments on EC2 instances using Code Deploy
- Creating an AppSpec file for deployments on EC2
- Creating Deployment group with autoscaling and Load Balancer



Create and Manage AZURE Virtual Machines:

- Configuring Virtual Machines
- Managing and monitoring Azure Virtual Machines
- Addition of managed disks to an existing cloud server.
- Expansion of managed disk for cloud servers.



Create Storage Accounts and Store the Files:

- What is storage account
- Different types of replications in storage accounts
- Different types of Blob(Page , Append & Block blob)
- Cloud storage services
- Create blob container.



Implementing and Managing Azure Networking:

- Overview of Azure networking
- Implementing and managing Azure virtual networks
- Configuring Azure virtual networks
- Configuring Azure virtual network connectivity

Azure Network Security Groups (NSG)



Implementing Azure App Services (PAAS):

- Planning app deployment in App Service
- Implementing and maintaining web apps
- Create the .NET/Java/PHP web apps
- Implementation of Apps for serverless concepts



Planning and deploying Azure SQL Database

- Implementing and managing Azure SQL Database
- Managing Azure SQL Database security
- Planning and deployment of SQL DB's in Azure cloud computing with real time scenarios.



Azure SQL

Configuring Alert and Metrics for VMs using Azure Monitor

- Implementation, and Configuration of Azure Monitor.
- Setting up Alert rules, Metrics, Actions and Action groups in Azure monitor for
- different Azure resources deployed in cloud computing.
- Deploying an Alerts for Cloud App Service and workload



Azure Metrics

Implementing Azure Active Directory:

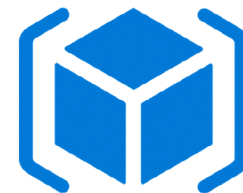
- Deep dive of Azure Active Directory
- Different license offering of Azure Active Directory.
- On boarding Groups and users in Azure AD groups.



Azure Active Directory

Manage Resource Groups:

- Migration of Resources Groups
- Configure resource locks and security standards for RG
- Identify auditing requirements.
- Removing/Deleting resource groups for cost savings



Azure Resource Groups

for DevOps online classes please do visit :

www.sathyatech.com

Thank you!