

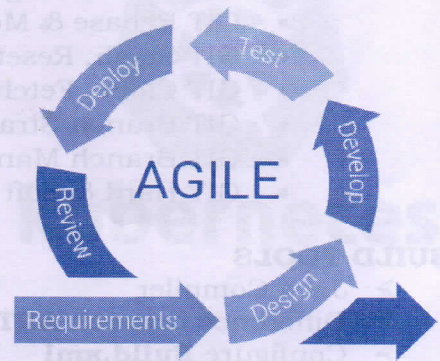


DevOps with AWS & LINUX

DevOps is the union of people, process and products to enable the continuous delivery of value to end users. It aims to create a culture and environment where building, testing, and releasing software can happen rapidly, frequently, and more reliably, so you can innovate like a startup and scale for the enterprise.

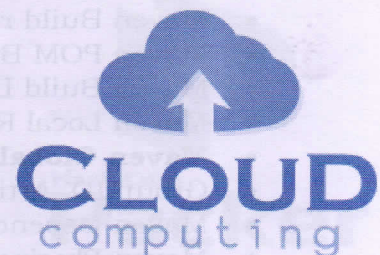
1. Introduction to DevOps

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



2. CLOUD COMPUTING

- What is Cloud ?
- 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**
 - **Microsoft Azure**
 - **Google Cloud Services**



3. WEB SERVER & APPLICATION SERVER

- Apache Web Server
- Nginx Server Configuration
- Web Server Installation & Configuration
- Apache Tomcat Server
- Tomcat Server Installation & Configuration
- Manual and Automated Application deployment
- Ports configuration
- MySQL & Maria DB Server Installation
- Application Deployments

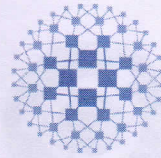


Apache Tomcat

NGINX+

4. HA Proxy (High Availability Proxy)

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



HAProxy

5. VERSION CONTROL - GIT

- Version Control System
- Centralized and Distributed Systems
- Differences between **SVN** & **GIT**
- **GIT**
 - GIT Features
 - 3-Tree Architecture
 - 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



6. BUILD TOOLS

- Java Compiler
- Difference between **ANT** & **MAVEN**
- Configure **Build.xml**
- **MAVEN**
 - 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
 - Maven Plugins

maven

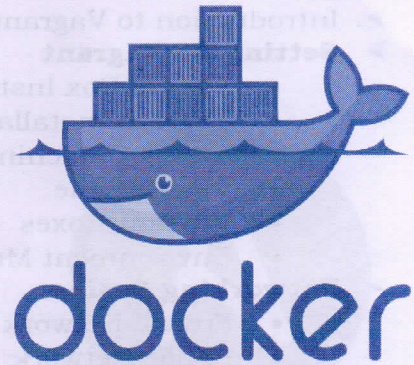
7. GIT Lab

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



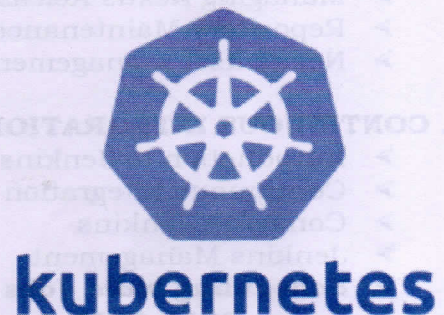
8. DOCKER

- How to get Docker Image ?
- What is Docker Image
- Docker Installation
- **Working with Docker Containers**
 - What is Container
 - Docker Engine
 - Crating Containers with an Image
 - Working with Images
- Docker Command Line Interphase
- **Docker Compose**
- Docker Hub
- Docker Trusted Registry
- **Docker swarm**
- Docker attach
- Docker File & Commands



9. KUBERNETES

- Kubernetes intro and Architecture
- **Kubernetes Setup**
- Running Docker containers on Kubernetes
- **Kubectl**
- What is Pod, Service, Controller and Deployment in Kubernetes
- **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



10. PACKER

- What is Packer?
- **Packer Installation**
- Baking a website image for EC2
- **Provisioning with a configuration management tool**
- Debugging
- **Building hardened images**



11. TERRAFORM

- Terraform Basic
- **Introduction to Terraform**
- Syntax and Interpolation.
- **Terraform CLI - Console.**
- Building AWS Infrastructure - Getting Started
- **Building AWS Infrastructure —EC2 Instance**



12. VAGRANT

- Introduction to Vagrant
- **Setting Up Vagrant**
 - Virtual Box Installation
 - Vagrant Installation
 - Vagrant Machines
 - Vagrant File
 - Vagrant Boxes
 - Environment Management
- **Networking Basics**
 - Private Network
 - Public Network
 - Network Adopters

13. NEXUS

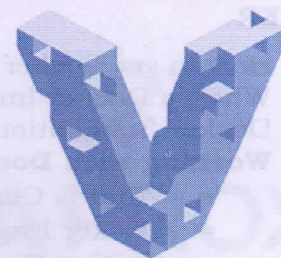
- Sonatype nexus download
- Nexus Configuration
- Configure settings.xml & pom.xml files
- Managing Nexus Releases and Snapshots
- Repository Maintenance
- Nexus user management

14. CONTINUOUS INTEGRATION- JENKINS

- Introduction to Jenkins
- Continuous Integration with Jenkins
- Configure Jenkins
- Jenkins Management
- **Scheduling build Jobs**
 - **POLL SCM**
 - **Build Periodically**
- Maven Build Scripts
- Support for the GIT version control System
- Different types of Jenkins Jobs
- **Jenkins Build Pipe Line**
 - Parent and Child Builds
 - Sequential Builds
- **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

15. NAGIOS

- Introduction to **Nagios Core**
- Installation of Nagios Server
- Configuration of Nagios Server & Agent
- **NRPE** (Nagios Remote Plugin Executer)
- Configuration of **Nagios.cfg** and **Contacts.cfg**
- Monitoring Hosts
- Monitoring Services
- Monitoring Server Infrastructure



VAGRANT

 Sonatype
Nexus



Jenkins

Nagios®

16. ANSIBLE

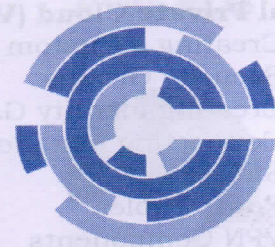
- Introduction to Ansible
- Ansible Server Configuration
- ansible.cfg configuration
- Infrastructure Management
- SSH Connection in Ansible Master
- YAML Scripts
- YAML Data types
- **Host Inventory**
 - Hosts and Groups
 - Host Variables
 - Group Variables
 - Host and Group Specific Data
- **Ad-hoc Commands**
- **Playbooks**
 - Variables
 - vars & vars_prompt
 - Conditionals
 - Loops
 - Blocks
 - Handlers
 - **Templates**
- **Modules**
 - Core Modules
 - Extra Modules
- **Ansible Roles**
- Ansible Role Directory Structure



ANSIBLE

17. CHEF

- Introduction to Chef
- Installation of Chef Master
- Installation of Chef DK and Nodes
- Configuration of Chef Master
- Configuration of Chef DK and Master
- Knife utility
- Chef Repository
- **Workstation setup**
 - How to configure knife
 - Workstation Installation
 - Connection between knife and Master
- **Organization Setup**
 - Create an Organization
 - Add User & Node to an Organization
- **Node Setup**
 - Create a Server & add to Organization
 - Cookbooks creation
 - Check node details using knife
- **Node Objects**
 - How to add Run list to Nodes
 - Check node details
 - Managing Multiple Nodes
- **Roles and Environments**
- **Chef Data Bags**
- **Chef Market Place**



CHEF™

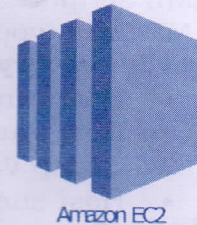
18. AWS (Amazon Web Services)

- Subscription to AWS
- Introduction to the AWS Management Console
- Why AWS Cloud
- **EC2** Essentials & Build EC2 Instances
- Security Groups
- Key Pairs (Public Key, Private Keys)



19. Elastic Compute Cloud(EC2) Instances

- Regions and Availability Zones
- Amazon Machine Images(AMI)
- Working with AMIs
- EC2 Reserved Instance Market Place
- **EC2 Instance Creation**
 - Building an Instance
 - Different types of Instances
 - Security with Key pair
 - Different IPs assign to EC2 Instance
 - Elastic IP Address
 - Login access to the Instance



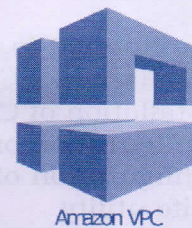
20. Identity and Access Management (IAM)

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



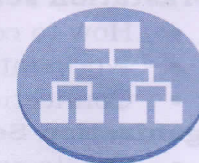
21. Virtual Private Cloud (VPC)

- Creating a Custom VPC
- Security Groups
- Creating Identity Gate Way (IGW)
- Connecting Instances in the Gateway
- Subnets
- Route Tables
- VPN Components



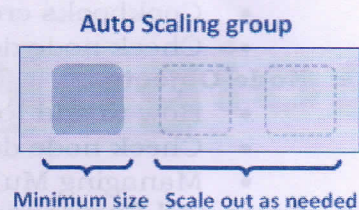
22. Elastic Load Balancer (ELB)

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



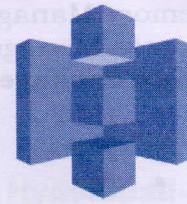
23. Auto Scaling

- 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



24. Simple Storage Services (S3)

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



S3

25. 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



Amazon
Route 53

26. Elastic Block Store(EBS)

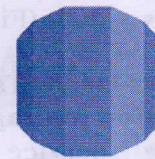
- EBS Volume Types
- EBS Performances
- Instance Store Volumes
- Creating and Deleting Volumes
- Attach and Detach Volumes
- Mount and Un-mounting Volumes



Amazon EBS

27. Relational Database Services (RDS)

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



AWS RDS

28. Linux Admin Commands

- **Redhat/Ubuntu Linux Installation**
- Hierarchical File System
- Basic Commands
- Create Files and Directories
- File Management
- **File Links**
 - Hard Link
 - Soft Link
- **User Administration**
- Group Administration
- File Permissions (chmod)
- **File Search**
 - find
 - which
 - what is
- Basic and Advanced File Permissions
- File Ownership (chown, chgrp)
- **Access Control List(ACLs)**
 - setfacl
 - getfacl
- Sudo Permissions (suders)
- **Job Scheduling (Crontab)**



redhat®

- Memory Management (df,free,du)
- Process Management (ps ,top ,kill ,pkill)
- **Linux Package Installation**
 - rpm
 - yum
 - apt
 - apt-get

- Install and Configure Web Server(Apache)
- Install and Configure App Server(Tomcat)
- Install and Configure DB (MySQL / MariaDB)
- **File Compression and Extraction**

- tar
- GunZip
- BunZip
- unzip

- **Server Connections**
 - password method
 - SSH Keys (Secure Shell)
 - SSL (Secure Socket Layer)

- Secure Copy (scp)

- **Linux Filters**
 - grep
 - sed (Stream Editor)
 - awk (Field Processor)

- Linux Head, Tail, More commands

- **Service Management**
 - service
 - systemctl

- Linux Editors (Vi/Vim)

- **Linux User Communications**
 - write
 - wall
 - mail (send/receive mails)

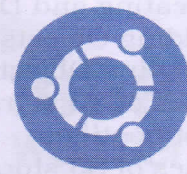
29. SCRIPTING

- **Shell Scripting**
- **DSL (Declarative Domain Specific Language)**
- **Python Scripting Overview**
- **Ruby Scripting**
 - Introduction
 - Variables
 - Flow Controls
 - Loops
 - Functions
 - Lists
 - Manipulating Strings
 - Reading and Writing Files
 - Positional Parameters

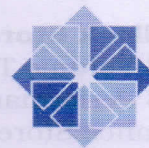
30. REAL TIME PROJECT

For Online Classes visit :

www.sathyatech.com



ubuntu



CentOS



BASH
THE BOURNE-AGAIN SHELL