
Greens
Technologys
DevOps
2023

CONTENTS

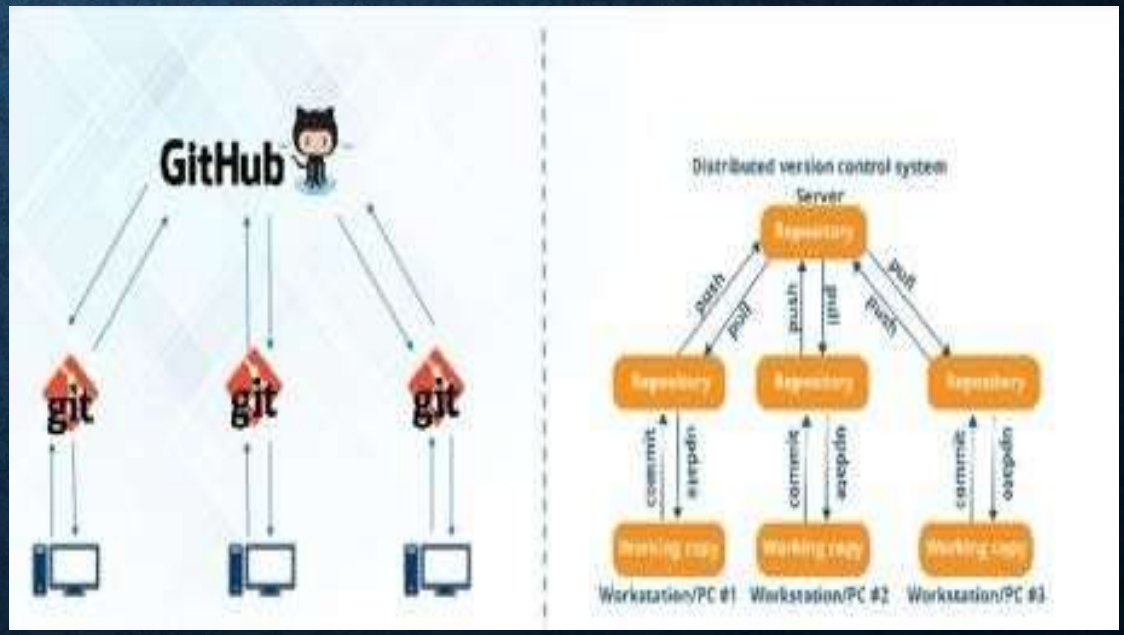
- Introduction to DevOps
- Version Control with GIT, JENKINS and MAVEN Integration
- Continuous Integration using Jenkins
- Continuous Development: Containerization with Docker
- Configuration Management with Ansible
- IAC Tool - Terraform
- Application Monitoring with Prometheus & Grafana
- Log monitoring with Splunk
- Python
- Orchestration Tool - Kubernetes
- CI-CD Project Pipeline

INTRODUCTION TO DEVOPS

- Why DevOps?
- What is DevOps?
- DevOps Market Trends
- DevOps Engineer Skills
- DevOps Tool chain
- Addressing Challenges through DevOps
- Workflow of DevOps
- DevOps Delivery Pipeline
- DevOps Ecosystem

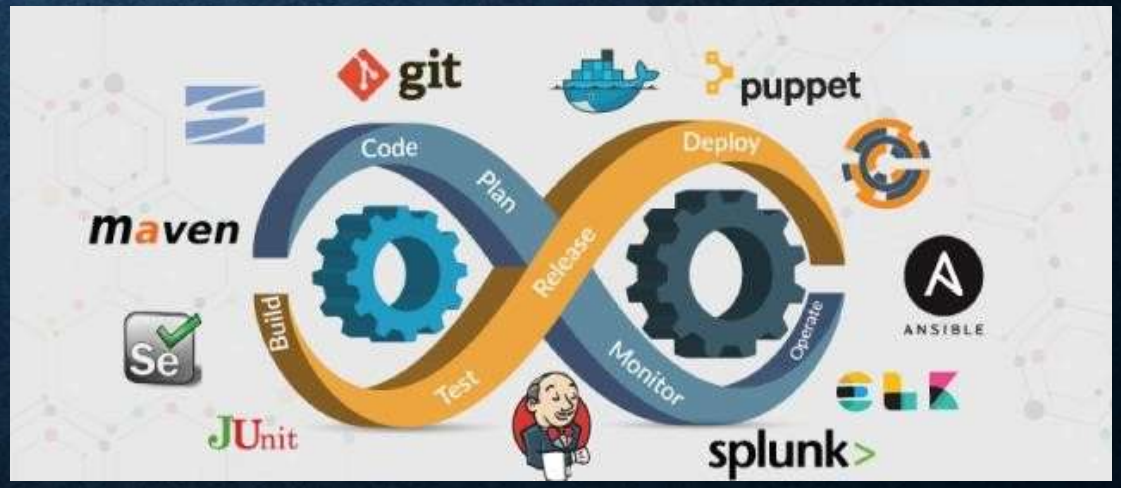
VERSION CONTROL WITH GIT

- What is version control
- What is Git
- Why Git for your organization
- Install Git
- Common commands in Git
- Working with Remote Repositories
- Advantages of Distributed VCS



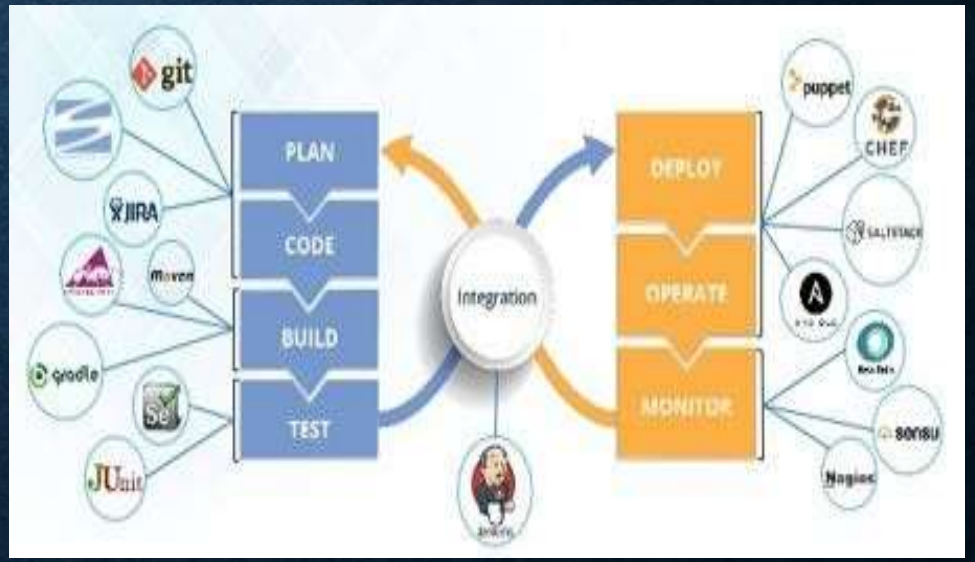
GIT, JENKINS & MAVEN INTEGRATION

- Branching and Merging in Git
- Git workflows
- Git cheat sheet
- What is CI
- Why CI is Required
- Introduction to Jenkins (With Architecture)
- Introduction to Maven



CONTINUOUS INTEGRATION USING JENKINS

- Jenkins Management Preview
- Adding a slave node to Jenkins
- Build & Delivery Pipeline
- AutoDeployment in Jenkins
- Pipeline as a Code
- Implementation of Jenkins in the Project

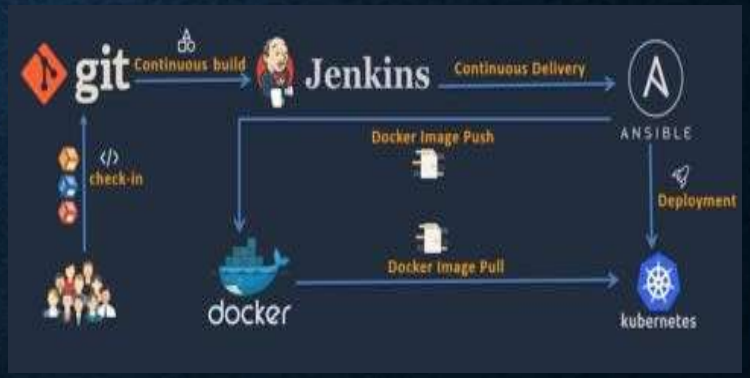


CONTAINERIZATION WITH DOCKER

- Docker overview
- Installing docker
- Pulling images (docker pull)
- Running images (docker run)
- Docker build and deployment-Connecting to running images (docker exec)
- Exposing volumes and ports
- Inspecting system (docker ps, docker status)
- Using docker-compose to connect containers
- Exposing volumes and ports

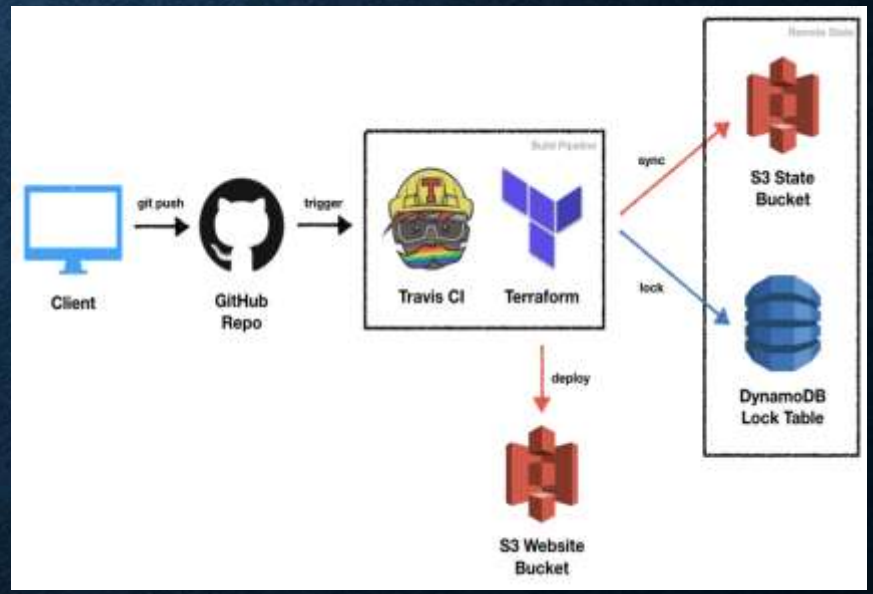
CONFIGURATION MANAGEMENT WITH ANSIBLE

- Introduction to Ansible.Ansible mechanism.
- Ansible installation in AWS instance.Ansible configuration.Playing with ansible adhoc commands.Creating simple play book.Playbook advanced - variables, loop, condition, debug.Ansible roles.



IAC TOOL - TERRAFORM

- Introduction to terraform.
- Installation of terraform
- Merging terraform with AWS.
- Creating TF file.
- Building full cloud architecture using terraform.
- Terraform backend.
- Terraform variables.
- Terraform state.
- Terraform locals.
- Terraform destroy.



APPLICATION MONITORING WITH PROMETHEUS & GRAFANA

PROMETHEUS:

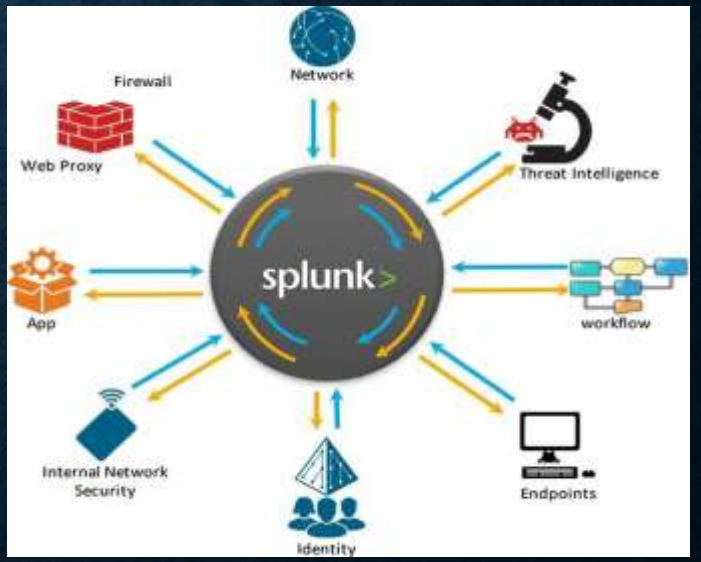
- Used for Event Monitoring & Alerting
- Records real-time metrics in a Time Series Database(TSDB)
- Built using a HTTP pull model, with flexible queries and real-time alerting
- Node Exporter - Software that you can install on *NIX kernel (Linux, OpenBSD, FreeBSD or Darwin)

GRAFANA:

- Grafana is a multi-platform open source analytics and interactive visualization web application.
- Provides charts, graphs, and alerts for the web when connected to supported data sources

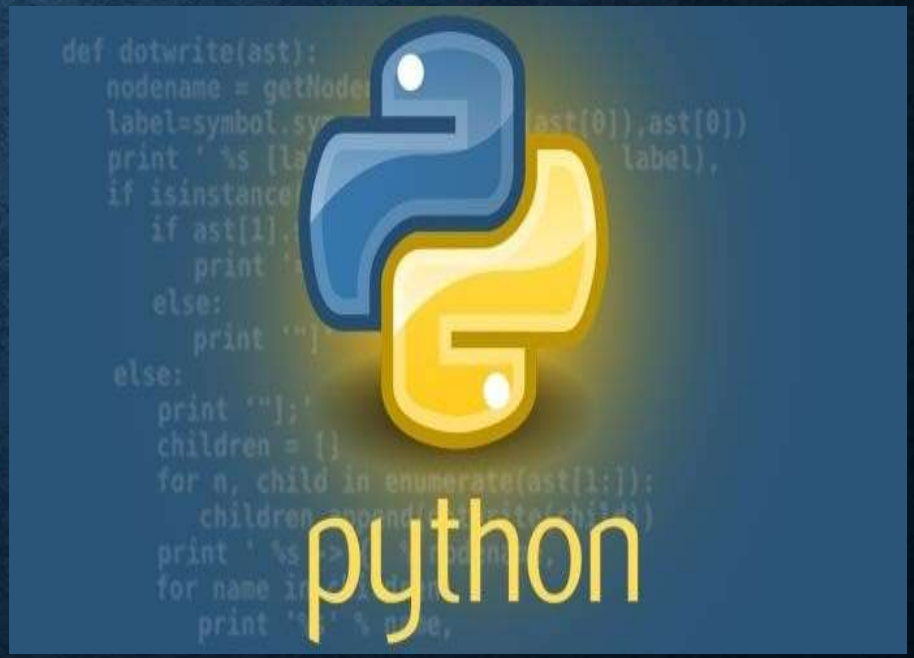
LOG MONITORING WITH SPLUNK

- Introduction to Splunk
- Necessity of Logs
- Why Splunk?
- Splunk Components
- Search Heads
- Indexes
- Forwarders
- Installation of Splunk
- Installation of Splunk Forwarder
- Splunk Search
- Splunk Alerts
- Splunk Dashboards



PYTHON

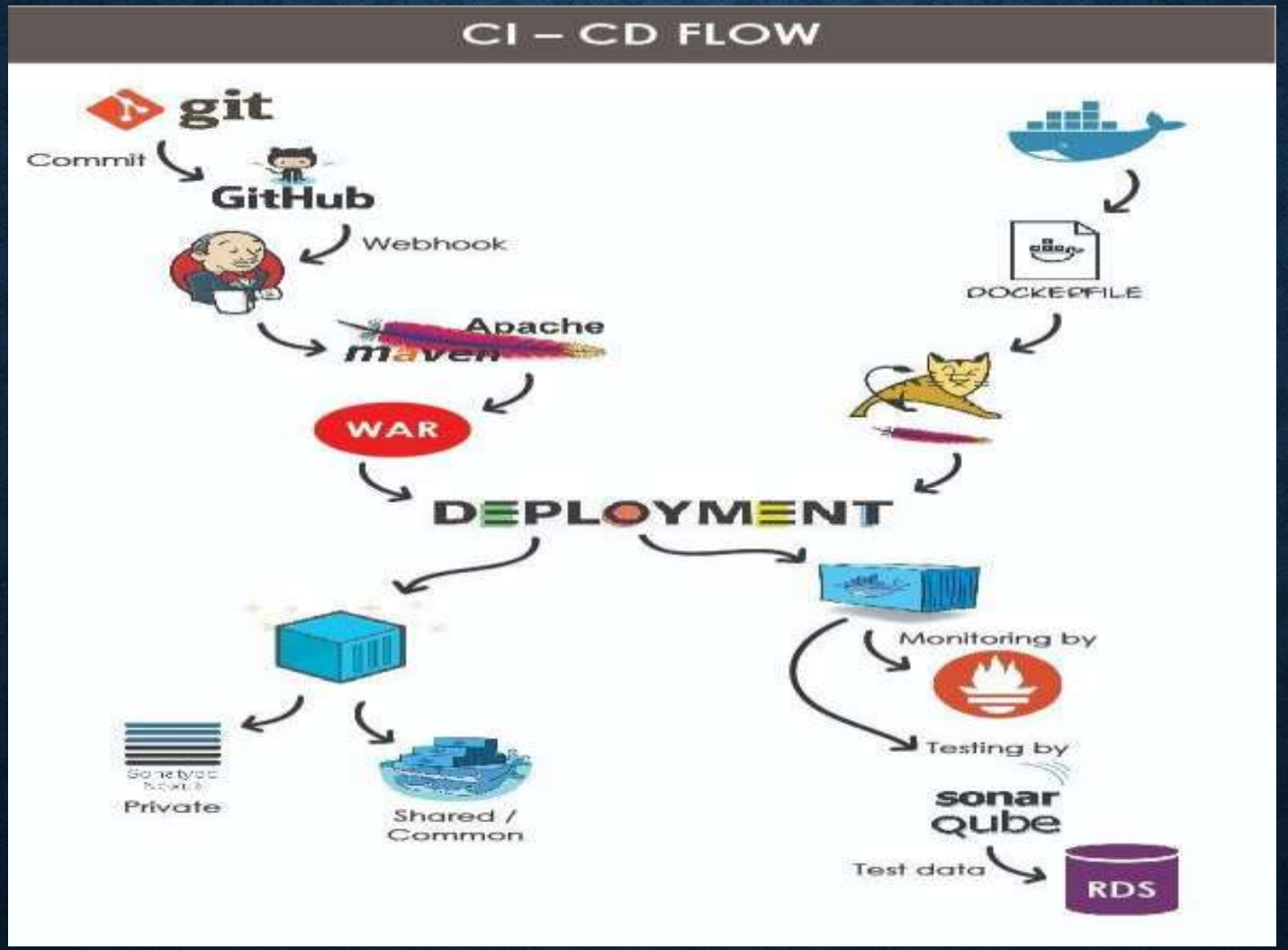
- Introduction
- Why Python?
- History of Python
- Installation
- Basics
- Data types
- Flow control
- List,Tuples & Dictionary
- Import modules
- Functions
- Read & Write files
- Programming



ORCHESTRATION TOOL -KUBERNETES

- Kubernetes Introduction & Architecture
- Kubernetes Installation - KOPS Method
- Kubernetes - Clusters, Pod, Namespace
- Deployment in Kubernetes
- Kubernetes - Replicaset, DemonSet, ConfigMap, Secrets
- Services in K8s - Nodeport, ClusterIP, Loadbalancer, Ingress service
- Persistent Volume, Persistent Volume Claim
- Dashboards in Kubernetes

CI – CD FLOW



!!! THANK YOU !!!