Prasad Satpute
T21
2201089
THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

SEPM Assignment 2

Aim: To understand DevOps: Principles, Practices and DevOps Engineer Role and Responsibility

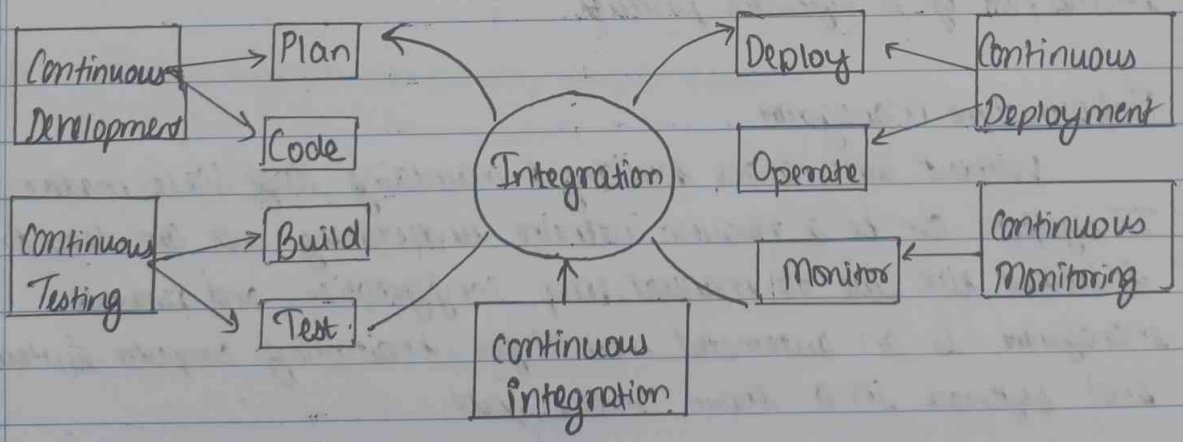
Q. What is DevOps?

DevOps is a collaborative approach when teams work together to build and deliver secure software efficiently. It combines software development (dev) and operations (ops) to decide how to accelerate delivery through automations, collaborations, fast feedback and iterative improvement. Built on Agile Methodology, DevOps creates a culture of accountability, collaboration, and shared responsibilities for business outcomes.

Core Principles:

1. Develop and test in production-like environments.
2. Deploy builds frequently
3. Continuously validate operational quality

DevOps Practices:



Continuous Development.

This is the phase that involves planning and coding, versioning and managing build of the software applications functionality
Eg: git, github, maven, etc.

Continuous Testing

Continuous Testing is executing automated tests, continuously and repeatedly against the code base and the various deployment environments. It is a software testing methodology which focuses on achieving continuous quality and improvement.
Eg: Bamboo, appium.

Continuous Integration

Continuous integration refers to the build and unit testing stages of the software releases process. Every revision that is committed triggers an automated build and test.
Eg: Jenkins, TravisCI, circleci

Continuous Delivery & Deployment.

Continuous delivery and deployment originate from continuous integration, a method to develop, build and test new code rapidly with automation so that only the code that is known to be good becomes part of a software product.

Infrastructure Management.

Without automation, building & maintaing large scale modern IT systems can be a resource-intensive undertaking and can lead to increased risk due to manual error configuration and resources management is an automated method for maitaining computer systems and software in a known constant state.

Configuration Management

Infrastructure as code is the practice of describing all software runtime environment and networking settings and parameters in simple textual format, that can be stored in your Version Control System (VCS) and versioned on request.

Microservice Architecture

Docker is a tool designed to make it easier to create, deploy and run applications by using containers. Containers allows developers to package up an application with all of the parts it needs, such as libraries and other dependencies and deploy it as a package. By doing so, thanks to the containers, the developers can be rest assured that the application will run on any Linux machine regardless of any customized settings that machine can have.

Eg: Nagios, Splunk, etc.

Cloud Based Devops.

Devops automation is becoming cloud-centric. Most public and private cloud computing provides support to DevOps systematically on their platform including continuous integration and continuous development tools.

Eg: Amazon Web Services (AWS), Google Cloud, etc.

DevOps Engineer Roles:

A DevOps engineer manages a company's IT infrastructure, bridging development and operation. Key responsibilities include:

Technical Responsibilities:
- Setup infrastructure and tools
- Implement development, testing and automation tools.
- Code review and responsibilities.
- Bug fixing and troubleshooting.

Management Responsibilities.
- Manage stakeholders.
- Understand customer requirements & APIs.
- Co-ordinate team communication.
- Monitor customer experience.