

SEPM-2

**Aim:** To understand DevOps: Principles, practice and DevOps engineer Role and Responsibility

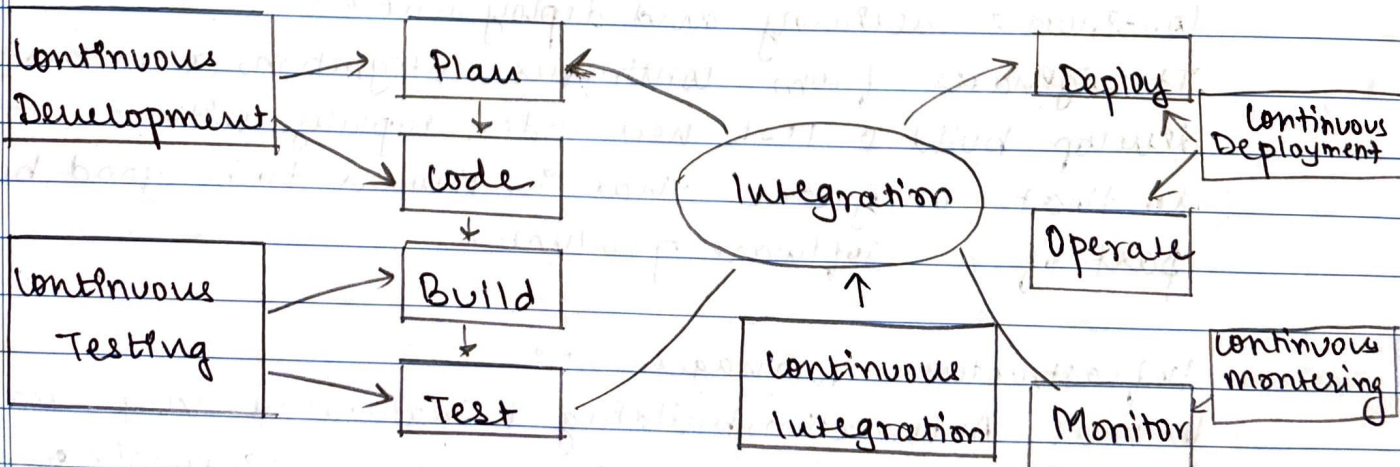
**What is DevOps?**

DevOps is a collaborative approach where team 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 ~~bad~~ 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 functionally  
ex:- git, github, maven, etc

### Continuous Testing:

It executes automated test continuously and repeatedly against the code base and the various deployment environments. It is a software testing methodology which focuses on achieving continuous quality & improvement.

ex: Bamboo, appium

### Continuous Integration:

It refers to the build & unit testing stages of the software releases process. Every version that is committed triggers an automated build & test.

ex: Jenkins, Travis CI, Circle CI

### Continuous delivery and deployment:

It originates from continuous integration, a method to develop build & test new code rapidly with automation so that only code that is known to be good becomes part of a software product.

### Infrastructure Management:

Without Automation, building & maintaining large scale modern IT systems can be resource-intensive undertaking



and can lead to increased risk due to manual error. Configuration and resource management is an automated method for maintaining computer systems.

### Configuration Management:

Infrastructure as code is the practise of describing all software runtime environment and networking settings by and parameters in a simple textual format, that can be stored in your VCS and versioned on request. These text files are called manifest and are used by DevOps tools to automatically provision & configure build server, testing and production environment.

### Microservice Architecture

Docker is a tool designed to make it easier to create, deploy and run applications by using containers. They allow a developer to package up an application with all of the parts it needs, such as libraries and other dependencies and deploy it as one package. By doing so, the developers can rest assured that the application will run on any other Linux machine regardless of any customized settings that machine might have. ex: Spunk, Nagios, etc

### Cloud Based DevOps:

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

ex: Amazon web services, Amazon lambda, google cloud, etc.

### Dev ops engineer Roles:

A devops engineer manages a company's infrastructure, bridging development and operation. Key Responsibilities:

#### Technical Responsibilities:

- Implement development, testing & automation tools
- set up infrastructure & tools
- code review & responsibility
- Build & maintain V/C pipelines
- security implementation & monitoring

#### Management Responsibilities

- Understand customer requirements & KPIs.
- Manage stakeholders
- Mentor team members
- Monitor customer experience
- Provide periodic progress reports
- Define development & operational processes.