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SEPM ~~Assignment~~ Experiment 2

Aim: To understand DevOps: Principles, practices, and DevOps Engineer Role and Responsibility.

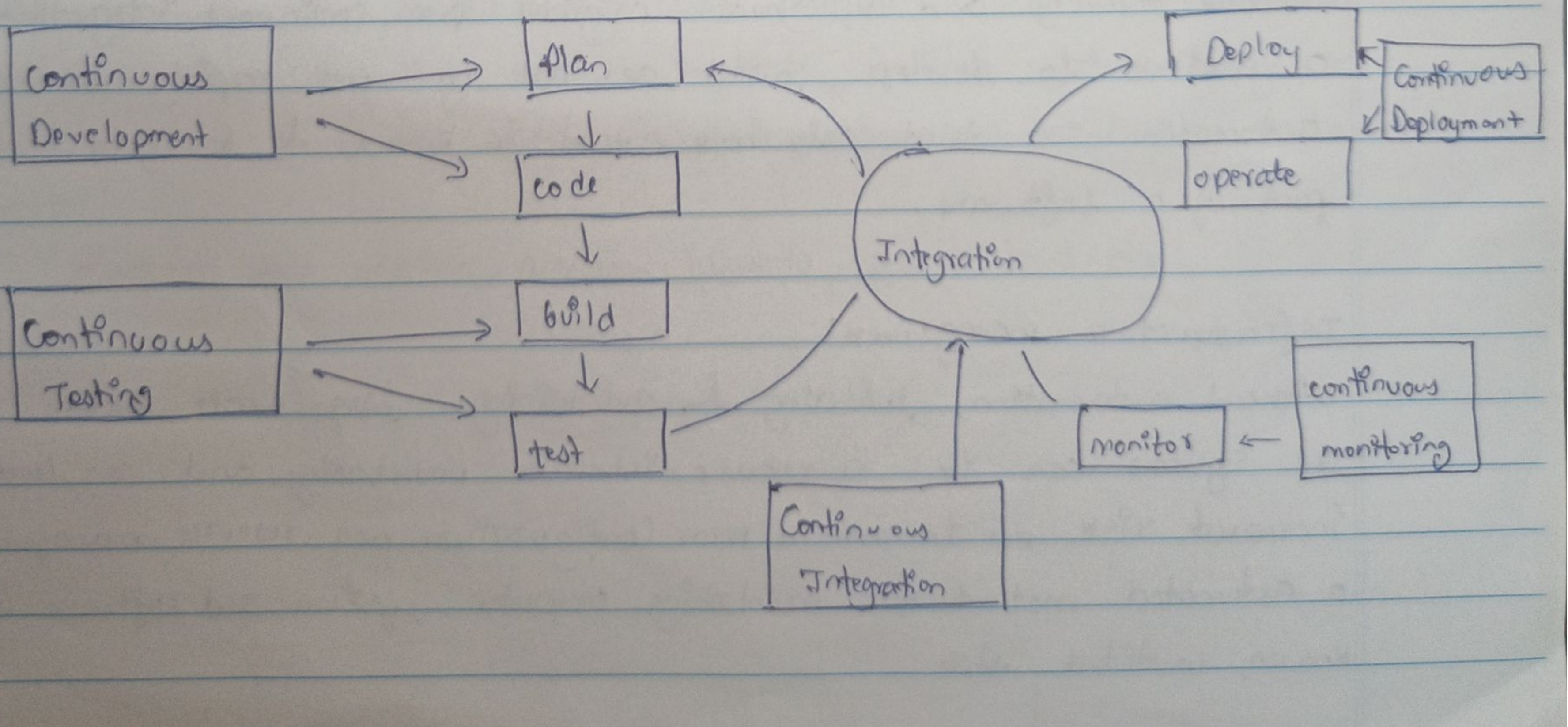
What is DevOps?

DevOps is a collaborative approach where teams work together to build and deliver secure software efficiently. It combines software development (dev) and operations (ops) to decide now to accelerate delivery through automation, collaboration, fast feedback and iterative improvements. 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 application's functionality.

Ex: Git, Github, maven, etc

Continuous Testing:

Continuous testing is executing automated tests, continously and repeatedly against the code base and the various deployments environments. It is a software testing methodology which focuses on achieving continuous quality & improvements.

Ex: 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.

Ex: Jenkins, Travis CI, circle ci.

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 code that is known to be good become part of a software.

Infrastructure management:

without automation, building & maintaining large scale modern IT systems can be a resource-intensive undertaking and can lead to increased risk due to manual error. Configuration and resource management is a automated method for maintaining computer systems and software in a known, consistent state.

Configuration management:

Infrastructure as code is the practise of describing and software runtime environment and networking settings ~~srt~~ and parameters in simple textual format, that can be stored in your version control system (VCS) and versoned on request. These text files are called manifest and are used by DevOps tools to automatically provisions & configure, build server, testing & production environment.

Microservice Architecture:

Docker is a tool designed to make it easier to create, deploy, and run application by using containers. Containers allows a developer to package up an application with all of the packs it needs, such as libraries and other dependencies and deploy it as one package. By doing so, thanks to the containers 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: Nagios, splunis, 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 and continuous development tools.

Ex: Amazon web services, amazon lambda, google cloud, etc.

Devops Engineer Roles:

A DevOps engineer manages a company's IT infrastructure, bringing development and operation. key Responsibilities include:

Technical Responsibilities:

- Implement development, testing and automation tools.
- set up infrastructure and tools
- Code review and responsibilities.
- Bug fixing and trouble shooting.
- Build and maintain CI/CD pipelines.
- Security implementation and monitoring.

Management Responsibilities:

- understand customer requirements ~~et~~ and KPI's
- Plan team structure and activities.
- Manage stakeholder
- Define development and operational processes.
- co-ordinate team communication.
- Monitor customer experience.
- Provide periodic progress reports.
- Mentor team members.