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SEPM Assignment-2

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

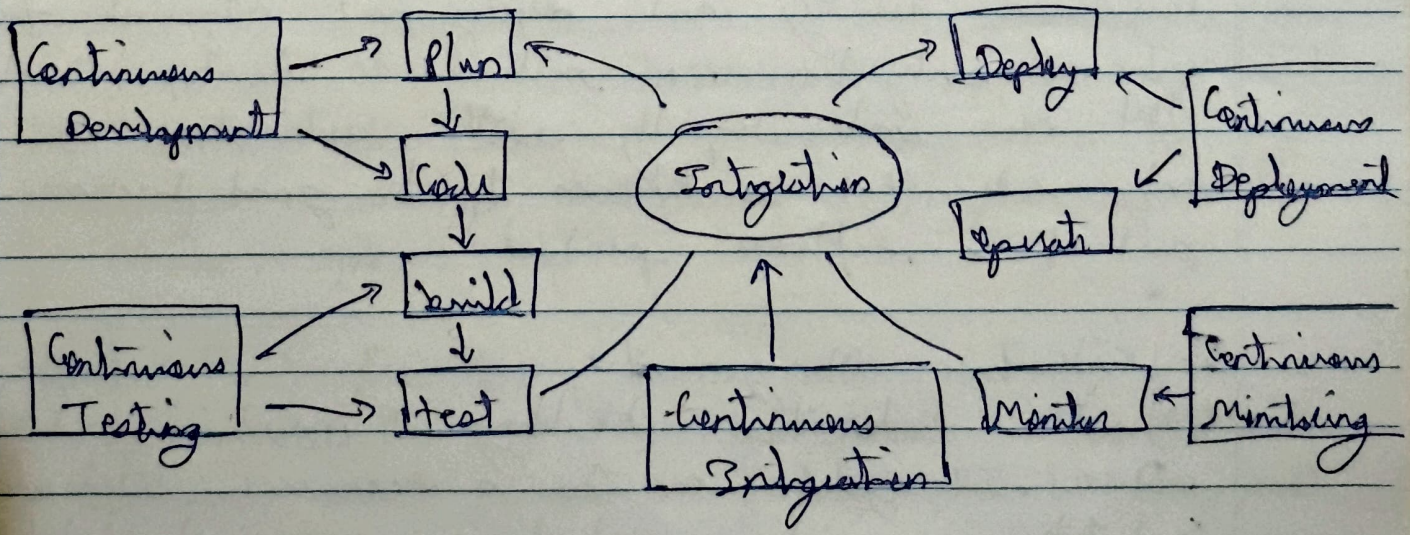
What is DevOps?

DevOps is collaborative approach where teams work together to build and deliver secure software efficiently. It combines software development (dev) and operations (ops) to which aim to accelerate delivery through automation, collaboration, fast feedback, and iterative improvement.

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 creating and managing build of software applications functionality
Eg: git, github, maven, etc

Continuous Testing
It 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.
Eg: Bamboo, appium.

Continuous Integration
Refers to the build and unit testing stages of the software release process. Every revision that is committed triggers an automated build and test.
Eg: Jenkins, Buildci.

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 becomes a part of a software product.

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

normal user, configuration and resource management is a automated method for monitoring computer systems and software in a known, consistent state.

Configuration Management
Infrastructure as code is the process of describing all software runtime environment and networking settings and parameters in simple textual format, that can be stored in version control system (VCS) and versioned on request. Thus that files are called manifest and were used by DevOps tools to automatically provision configure build servers, testing & production environment.

Microservice Architecture
Docker is a tool designed to make it easy to create, deploy, and application by using containers. Containers allows 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, thanks to the containers the developer can rest assured that the application will run on any other linux machine regardless of any customized settings that machine might have.
Eg: Nagios, splunk, etc.

Cloud Based DevOps
DevOps automation is becoming cloud centric. Most public and private cloud computing provide support

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'DevOps systematically on their platform, including continuous integration and continuous development tools.

Eg: Amazon Web services, Azure, google cloud, etc.

DevOps Engineer Role

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

Technical Responsibilities:
- Implement development, testing and automation tools.
- Set up infrastructure and tools.
- Code versions and repositories
- Bug fixing and testing
- Build and maintain CI/CD pipelines
- Security implementation and monitoring

Management Responsibilities
- Understand customer requirements and APIs.
- Plan team activities
- Manage architecture
- Define & development and operational processes
- Co-ordinate team communications
- Monitor customer experience
- Provide periodic progress reports.
- Mentor team members.