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THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

SEPM - Assignment no. 2

Aim: To understand Dev-Ops : 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 and operations to decide how to accelerate delivery through autonomous, collaboration, fast feedback and iterative environments. 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:

1) Continuous Development:
- This is the phase that involves planning and using versioning and managing build of the software applications functionality.
Eg: git, github, maven, etc.

2) Continuous testing:
- Its the executing 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 and improvement.
Eg: Bamboo, apium.

3) Continuous Integration:
Continuous integration refers to build and unit testing stages of software release process. Every revision that is comitted triggers an automated build and test.
Eg: Jenkins, Travis.

4) Continuous Delivery & Deployment:
- Originate from continuous integration, a method t develop, build and test new code rapidly with automation so that only code that is known to be good is becomes part of the software product.

5) Configuration Management:

- Infrastructure as code is the process of describing all software runtime environment and networking setting and parameter is simple present, that can be stored in your version control system and versioned as request. These files are called ~~request~~ manifest and are used by Devops tools to automatically provision and configure build serves, testing & production environment.

6) Microservice architecture:
- Dockers is a tool designed to make it easier to create deploy and use applications by using containers, Containers + 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 a single package.
Eg: Nagios, splunk, etc.

7) Cloud Based DevOps:
- Devops op 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 as well.
Eg: i) amazon web services
ii) amazon lambda.
iii) google Cloud, etc.

- DevOps Engineer roles:
— A devOps engineer manages a company's IT infras-tructure, bridging development and operation key responsibilities include:

1) Technical Responsibilities:
   i) implement, development, testing and automation tools.
   ii) setup infrastructure and tools.
   iii) code review and responsibilities
   iv) Bug fixing and troubleshooting
   v) Build and maintain CI/CD pipelines.
   vi) Security implementation & monitoring.

2) Management Responsibilities:
   i) Understand customer requirements & PPIs
   ii) Plan team structure and activities.
   iii) Manage staceholders
   iv) Define development and operational processes.
   v) Coorduinate team communications
   vi) Monitor Customer experience.
   vii) Provide periodic process reports.
   viii) Mentor team members.