Experiment 1

Aim :: To understand DevOps, principles, practices and DevOps roles and responsibilities.
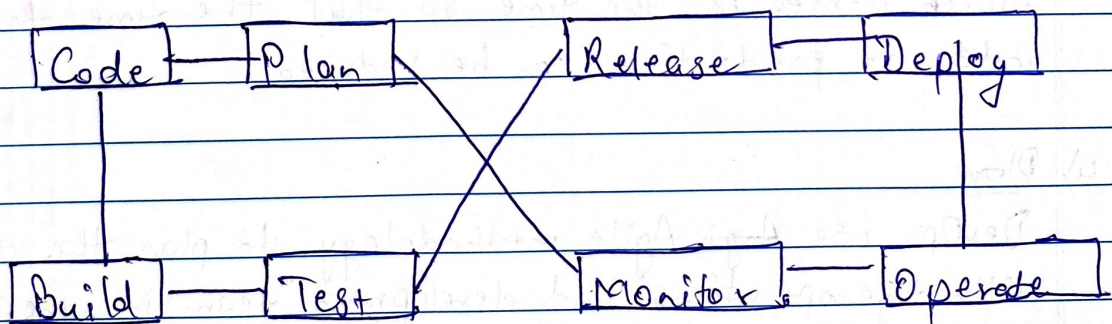
Theory :

Definition: DevOps is a the combination of two words, one is Development and other is Operations, It is a culture to promote the development and operation process collectively.

DevOps helps to increase organization speed to deliver applications and services. It also allows organisations to serve their customers better and compete more strongly in the market.

DevOps can also be defined as a sequence of development and IT operations with better communication and collaboration.

DevOps has become one of the most valuable business disciplines for enterprises or organisations. With the help of DevOps, quality and speed of the application delivery has improved to a greater extent

Architecture

1) Build

Without DevOps, the cost of the consumption of the resources was evaluated based on the predefined individual usage with fixed hardware allocation. And with DevOps, the usage of cloud, sharing the resources comes into the picture, and the build is independent upon users need, which is a mechanism to control the usage of resources or capacity

2) Code

Many good practices such as Git enables the code to be used, which ensures writing the code for business, helps to track changes, getting notified about the reason behind the difference in the actual and expected code output, and if necessary reverting to the original code developed.

3) Test

The application will be ready for production after testing. In the case of manual testing, it consumes more time in testing and moving the code to the output. The testing can be automated which decreases the time so that the time to deploy the code to production can be reduced

4) Plan

DevOps use Agile methodology to plan the development. With the operations and development team in syne. it helps in organizing the work to plan accordingly to increase productivity.

5) Monitor

Continous monitoring is used to Identify any risk of failure. Also it helps in tracking the system accurately so that the health of the application can be checked. The monitoring becomes more comfortable with services where the log data may get in monitored through many third-party tools ouch as Splunk.

6) Deploy

Many systems can support the schedules for automated of deployment. The cloud management platform enables users to capture accurate insights and view the optimization scenario, analytics on trends by the deployment of dashboards.

7) Operate

DevOps changes the traditional approach of developing and testing seperately. The teams operate in a collaborative way where both the teams actively participate throughout the service lifecycle. The operation team intercets with developers, and they come up with a monitoring plan which serves the IT and business development requirements.

8) Release

Deployment to an environment can be done by automation. But when the deployment is made to the production environment; it is done by manual trigering. Many processes involved in release management commonly used to do the deployment in the production environment manually to lessen the impact on the customers.

Principles

1) Collaboration
2) Data-Based Decision Making
3) Customer-Centric Decision Making
4) Constant Improvement
5) Responsibility Throughout the Lifecycle
6) Automation
7) Failure as a Learning Opportunity

Advantages

1) DevOps is an excellent approach for quick development and deployment of applications
2) It responds faster to the market changes to improve business growth
3) DevOps escalate business profit by decreasing software delivery time and transportation costs
4) Devops clears the descriptive process, which gives clarity on product development and delivery
5) It improves customer experience & satisfaction
6) DevOps simplifies collaboration and places all tools in the cloud for customer to access
7) DevOps means collective responsibility, which leads to better team engagement and productivity

Disadvantages

1) DevOps professional or expert developers are less available
2) Developing with Devops is so expensive.
3) Adopting new DevOps technology into the business industries is hard to manage in a short time