

Experiment 01

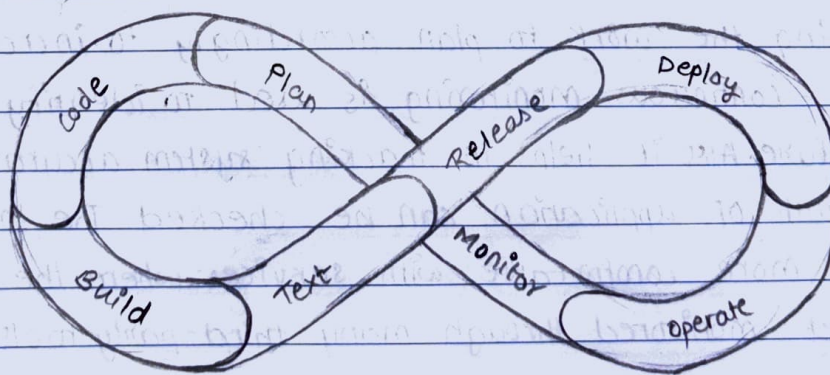
Aim: To understand DevOps, principles, practices and DevOps roles and responsibilities

Theory:

Definition:

- DevOps is the combination of two words, one is Development and other is Operations. It is a culture to promote the development & operation process collectively.
- DevOps helps to increase organisation speed to deliver applications & services. It also allows organisations to serve their customers better & complete more strongly in market.
- DevOps can also be defined as a sequence of development & IT operations with better communication & collaboration.
- DevOps has become one of most valuable business disciplines for enterprises or organizations. With the help of DevOps, quality and speed of application delivery has improved to a great extent.

Architecture:



DevOps Architecture

1. Build - without DevOps, the cost of consumption of resources was evaluated based on pre-defined individual usage with fixed hardware allocation. And with DevOps, the usage with fixed of cloud, sharing of resources comes into the picture, & the build is dependent upon the user's need, which is a mechanism to control usage of resources or capacity.
2. Code - many good practices such as 'git' enables code to be used, which ensures writing code for business, helps to track changes, getting notified about reason behind differences in the actual & the expected output, & if necessary reverting to original code developed. The code can be appropriately arranged in files, folders, etc. And they can be reused.
3. Test - The application will be ready for production after testing. In the case of manual testing, it consumes more time in testing & moving the code to the output. The testing can be automated, which decreases the time for testing so that time to deploy the code to production can be reduced as automating the running of scripts will remove many manual steps.
4. Plan - DevOps use Agile methodology to plan the development. With the operations & development team in sync, it helps in organizing the work to plan accordingly to increase productivity.
5. Monitor - continuous monitoring is used to identify any risk of failure. Also it helps in tracking system accurately so that the health of application can be checked. The monitoring becomes more comfortable with services where the log data may get monitored through many third-party tools such as Splunk.

6. Deploy - Many systems can support the scheduler for automated deployment. The cloud management platform enable users to capture accurate insights & view the optimization scenario, analytics on trends by deployment of dashboards.
7. Operate - DevOps changes the traditional approach of developing & testing separately. The teams operate in a collaborative way where both teams actively participate throughout service lifecycle. The operation team interacts with developers, & they come up with a monitoring plan which serves the IT & business requirements.
8. Release - Deployment to an environment can be done by automation. But when deployment is made to production environment, it is done by manual triggering. Many processes involved in release management commonly used to the deployment in production environment manually to lesson the impact on the customers.

Principles:

- Collaboration
- Data-based decision making
- Customer centric decision making
- Constant Improvement
- Responsibility Throughout the lifecycle
- Automation
- Failure as a learning opportunity.

Advantages:

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

Disadvantages:

- DevOps professional experts developers are less available.
- Developing with DevOps is so expensive.
- Adopting new DevOps technology into the industries is hard to manage in a short time.
- Lack of DevOps knowledge can be a problem in continuous integration of automation projects.

Conclusion:

Hence, we have known what DevOps is & its advantages & disadvantages.