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T12/31

SEPM   Ass Experiment I

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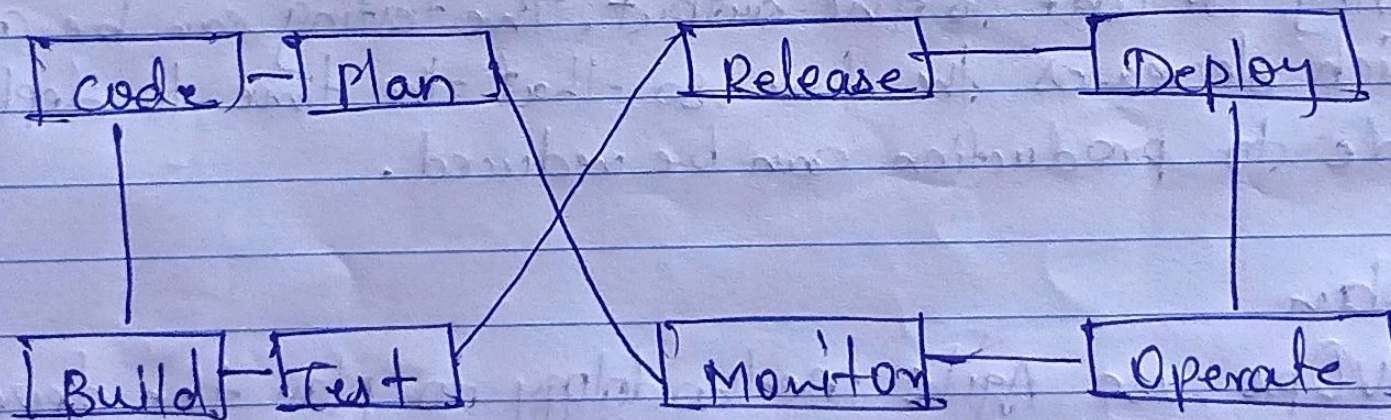
Theory :

Definition : DevOps is 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

```
[Code]──[Plan]        [Release]──────[Deploy]
   │              ╲  ╱                    │
   │               ╳                      │
   │              ╱  ╲                    │
[Build]─[Test]        [Monitor]───[Operate]
```

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1) Build.
- With 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 m 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 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 the System aaul accurately so that the health of the 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 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 interacts with developers, and they come up with a monitoring plan which serves the IT and business development requirements.

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

Principles
1) Collaberation
2) Data-Based Decision Making
3) Customer - Centric Decision Making
4) Constant ~~important~~ 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 application.
2) It reponds 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 and satisfaction.

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.