CI/CD Benefits

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Meaning of CI & CD

➤ **CI (Continuous Integration):**

The practice of merging all developers' working copies to a shared mainline several times a day. It's the process of "Making". It is including (Compile &Unit Test &Static Analysis &Dependency vulnerability testing and Store artifact)

➤**CD (Continuous Deployment):**

A software engineering approach in which the value is delivered frequently through automated deployments. It's the process of "Moving" the artifact from the shelf to the spotlight. It is including (Creating infrastructure & Provisioning servers& Copying files & Promoting to production & Smoke Testing and Rollbacks)

➤**Continuous Delivery**

It is used to make sure that the changes of a software product can be released quickly to customers in an automated way and at any point in time.

Why we need CI/CD

1. Release using annual process is error-prone and always leads to delay in production deployment

2. Less time in correcting mistakes and more time in improving quality of the code

3. Manual deployment is complex and there is no smoke tests and rollback mechanism

4. Late feedback

For all these reasons we need automatic process without human interface and ver fast feedback which leads to CI/CD

Benefits of using CI/CD

Reduce cost through:

1) Less developer time on issue from developer code

2) Less infrastructure costs from unused resources

Avoid cost through:

1) Less bugs in production and less time in testing

2) Prevent embarrassing or costly security holes

3) Less human error, Faster deployments

Benefits of using CI/CD

Increase Revenue through:

1) New value-generating features released more quickly

2) Less time to market

Protect Revenue through:

1) Reduced downtime from a deploy-related crash or major bug

2) Quick undo to return production to working state

Challenges Of CI/CD

1) High cost in first installation of CI/CD

2) Continuous support ,maintenance , support and improvement to CI/CD pipeline

Even though these challenges, CI/CD will improve overall business processes and will reduce costs on the long term