# DevOps: Fundamentals and Benefits of CI/CD

ACHIEVE, BUILD AND DEPLOY AUTOMATION FOR CLOUD-BASED SOFTWARE PRODUCTS

## Fundamentals of CI/CD

- CI/CD is a combination of practices referring to continuous integration, continuous deployment and continuous delivery.
- Continuous Integration (CI) is a practice where developers integrate their code several times in a day using a shared repository.
- Continuous deployment enables automated deployments from repository to production environment.
- Continuous delivery (CD) as a whole indicates getting the new features or changes automatically released to production. This is achieved by having the code & artifacts in a deployable state.
- CI/CD enables application delivery through introducing automation in various stages of application lifecycle.

## General Benefits of CI/CD

- CI/CD in DevOps facilitates agile software development
- Automation practices such as automated builds triggered by code commits, automated tests, infrastructure-as-code (IaC) and configuration management help in improving the overall process and increase its sustainability.
- Shorter release cycles improve product rapidly due to quick turnaround and frequent feedback from end-users.
- Time to troubleshoot & resolve defects is shorter with faster release cycle. This helps in shortening MTTR (Mean Time to Resolution).

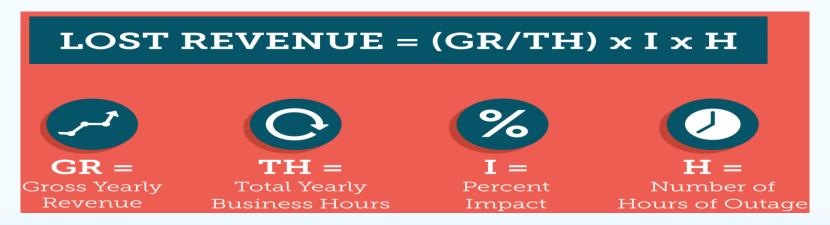
#### Revenue and Cost Benefits of CI/CD

CI/CD implementation helps in reducing the costs and revenue losses in various ways, such as:

- Saving time in development and testing as a result of build automation and test automation helping to free the bandwidth of developers and testers for newer tasks.
- Less number of incidents in production due to improvement in efficiency of build, test & deploy activities which helps to save time and thereby cost of downtime and troubleshooting of incidents.
- Saving effort in infrastructure provisioning through application of infrastructure as code, automated configuration management.

## Revenue and Cost Benefits of CI/CD

- Fail fast: Bugs are found faster & fixes are implemented quickly.
- Automation: Reliability and productivity are improved.
- Transparency: Transparency in culture helps to achieve seamless collaboration across teams thereby leading to increased productivity and reduced downtime.



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