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.

LOST REVENUE = (GR/TH) x I x H

GR = Gross Yearly Revenue

TH = Total Yearly Business Hours

I = Percent Impact

H = Number of Hours of Outage

img source: https://victorops.com/incident-response/real-time-management/