Fundamentals and Benefits of CI/CD to Achieve, Build, and Deploy Automation for Cloud-Based Software Products

Presented By: Kelvin Obukome

Table of Content

1. What is CI/CD
2. Benefits of CI/CD
3. Tools To Achieve CI/CD
4. Conclusion

What is CI/CD

CI and CD are two acronyms frequently used in modern development practices and DevOps. CI stands for Continuous Integration, a fundamental DevOps best practice where developers frequently merge code changes into a central repository where automated builds and tests run.

While CD stands for Continuous Deployment, a practice where every change that passes all stages of your production pipeline is released to your customers. There's no human intervention, and only a failed test will prevent a new change to be deployed to production.

Continuous Deployment is an excellent way to accelerate the feedback loop with your customers and take pressure off the team as there isn't a Release Day anymore. Developers can focus on building software, and they see their work go live minutes after they've finished working on it.

Benefit of CI/CD

➢ Less bugs get shipped to production as regressions are captured early by the automated tests.
➢ Testing costs are reduced drastically – CI server can run hundreds of tests in the matter of seconds.
➢ Releases can more often, thus accelerating the feedback loop with customers.
➢ The complexity of deploying software has been taken away. Software team doesn't have to spend days preparing for a release anymore.
➢ Customers see a continuous stream of improvements, and quality increases every day, instead of every month, quarter or year.

Tools to achieve CI/CD

Below are some of the tools that can be used for achieving CI/CD:

- ➢ Argo CD
- ➢ CircleCI
- ➢ GitHub Actions
- ➢ GoCD
- ➢ Gradle
- ➢ Helm
- ➢ Jenkins X
- ➢ GitLab CI/CD
- ➢ TeamCity Cloud

Conclusion

Once you can start releasing software on a daily basis, you can look into continuous deployment, but make sure that the rest of your organization is ready as well. Documentation, support, marketing. These functions will need to adapt to the new cadence of releases, and it is important that they do not miss on significant changes that can impact customers.