



Benefits of CI/CD & the future of UdaPeople

Business Benefits

1. Shorter time to market

Time to market on new features and other updates can be much shorter thanks to CI/CD pipelines. It can provide a huge advantage when racing competitors to implement a certain feature which directly results in increased revenue. That can be due to several factors including but not limited to:

- The ability to release smaller updates more frequently because testing and deployment is much faster.
- Lower MTTF/MTTR (Mean Time to Failure/Recovery).
- Less of the developers' time spent on solving problems and more spent on creating new features which leads to higher quality and more frequent updates.

2. MTTF/MTTR (Mean Time to Failure/Recovery)

Automated testing is performed several times throughout the pipeline to ensure solid code coverage, which ensures any major problems or common errors will surface very early in the pipeline so that they can be fixed immediately and without causing downtime after production saving cost and protecting revenue.

If problem do occur after production, several monitoring alerts and rollback mechanisms ensure graceful recovery without affecting end users, which improves customer satisfaction and avoids cost from users encountering bugs and a potential hit to relations with those users.

3. Automation

Automation eliminates human error which increases reliability, it saves time wasted doing repetitive tasks manually which directly results in less time spent on manual testing or deployment and more time spent doing work that benefits the business like development.

It also saves cost by reducing hours and/or labor needed and potentially increases revenue from the increased update frequency.

4. Customer satisfaction

As the developers have more time to focus on development and code quality increases, the quality of the product increases and reflects on the experience of the end user. The change in end user experience comes in the form of more frequent features, updates and bug fixes as well as a more robust and stable experience using the product due to the reduction of bugs and problems as a direct result of more testing coverage.

The improved user experience translates into more revenue directly or indirectly.

5. Efficient utilization of infrastructure

Saving time on failure directly translates to saved cost on infrastructure and computation especially in the cloud. CI/CD also allows easier scaling up and down of deployed resources by using automation. For example, reducing resources in non-peak times and shutting down unused or unneeded resources can greatly reduce cost.

6. Better product quality

As previously mentioned saving developers' time has a great effect on the final product but also saving testers' time can help them direct time saved from running manual tests to creating more tests for better coverage. Tests can ensure all basic functionality is working correctly even before deployment which saves cost, they can verify that new features or changes did not affect anything that worked prior and finally that deployment went smoothly as expected so that promoting that build to production will not cause (at least) major issues.

7. Better Uptime

"Failing fast" and "Graceful rollback" are essential to reduce downtime but we cannot ignore the most critical step for reaching the maximum possible uptime, Monitoring. Monitoring checks any needed status for the application, network or infrastructure itself to maintain optimal working conditions at all times. It can help to provision more resources to meet demand to take down unneeded resources to save cost. It can also be used to create alerts in case some remedy needs to be administered if problems occur. These alerts can be specified to run certain automated scripts like rollback or contact the right person that can deal with that issue right away by pointing them to the source of the problem immediately saving valuable troubleshooting time. Monitoring considerably improves product reliability and saves the company revenue.

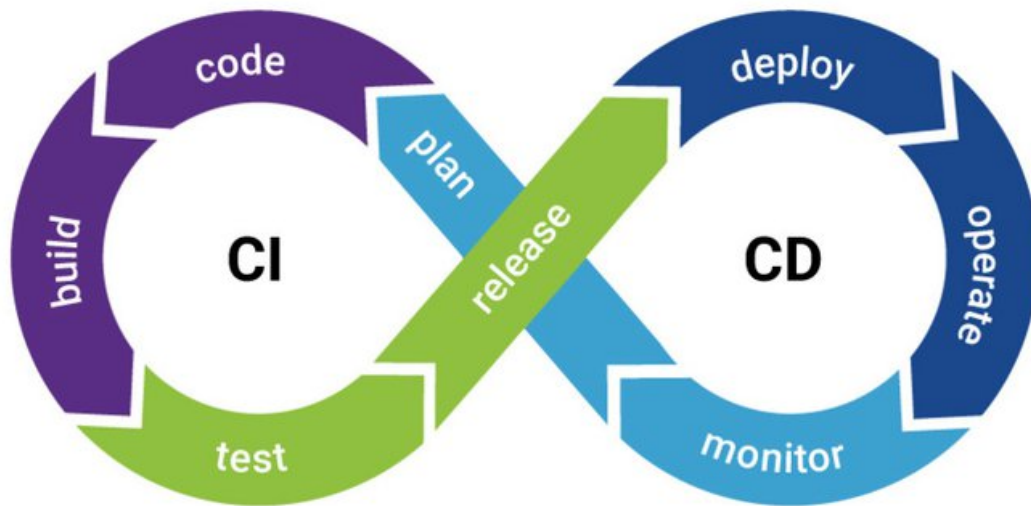


Figure 1: Example Stages of CI/CD Pipelines

In a Nutshell

The implementation of CI/CD principles can improve yield, efficiency and revenue for the company while saving time, labor and cost on tasks that are mundane, time-consuming and repetitive. CI/CD and DevOPS in general cements the position of the company in the face of rising competition and reinforces its staying power in the market.