

# CI/CD

WAY TO BECOME A DEVOPS ENGINEER

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# What do CI and CD mean?

- CI, short for Continuous Integration, is a software development practice in which all developers merge code changes in a central repository multiple times a day. CD stands for Continuous Delivery, which on top of Continuous Integration adds the practice of automating the entire software release process.
- With CI, each change in code triggers an automated build-and-test sequence for the given project, providing feedback to the developer(s) who made the change. The entire CI feedback loop should run in less than 10 minutes.
- Continuous Delivery includes infrastructure provisioning and deployment, which may be manual and consist of multiple stages. What's important is that all these processes are fully automated, with each run fully logged and visible to the entire team.

# Benefits of CI/CD

- **More responsive development.** Many organizations that strive to deliver and operate at real-time speed are often hampered by slower traditional app development.
- **Better code quality.** Smaller changes involve less code, and code quality can be checked to a greater degree before it reaches a full testing environment.
- **Shorter testing cycles.** Less complex and smaller volumes of code to check means there's less need to repeatedly test functionality throughout the CI/CD process.
- **Easier monitoring of change in the operational environment.** If something goes wrong during a rollout, it is usually far easier to identify the root cause when it involves only one or two changes

# Benefits of CI/CD

- **Catch compile errors after merge:** Help reduce cost by less developer time on issues from new developer code.
- **Catch unit test failures:** Help avoid cost by less bugs in production and less time in testing.
- **Detect security Vulnerabilities:** Help avoid cost by prevent embarrassing or costly security holes.
- **Faster and more Frequent Production Deployment:** Help increase Revenue by less time to market.
- **Automated Smoke Test:** Help protect revenue by reduced downtime from a deploy-related crash or major bug.