Fundamentals and Benefits of CI/CD

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What is CI/CD

- Continuous Integration is the practice of automating the integration of frequent code changes from multiple developers into a central repository like Git, where builds and tests are ran in order to assert the new code's correctness before integration.

- Continuous Deployment is an engineering approach used in delivering value through automation.

Benefits of CI/CD

1. Reduced risk

With a CI/CD pipeline, you can test and deploy code more frequently, giving testers the ability to detect issues as soon as they occur and to fix them immediately. This is essentially mitigating risks in real time.

2. Faster Delivery

Teams can build, test and deploy features automatically with almost no manual intervention. This is accomplished using various tools, frameworks, and systems like Travis CI, Docker, Kubernetes, and LaunchDarkly.

3. Generate extensive logs

With a CI/CD pipeline, extensive logging information is generated in each stage of the development process. There are various tools available to analyze these logs effectively and get immediate feedback about the system.

4. Expend less manual effort

This is also a vital component of having a successful CI/CD implementation. Once you build features and check in code, tests should be automatically triggered to make sure that the new code does not break existing features and that the new features are working correctly.

5. Make easier rollbacks

One of the biggest advantages of a CI/CD pipeline is you can roll back changes quickly. If any new code changes break the production application, you can immediately return the application to its previous state.