

CI/CD Proposal

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CI/CD Concepts

- Continuous Integration (CI): enables continuous merging code changes to a shared branch/Trunk and validates those changes by automatic application building and testing.
- Continuous Delivery (CD): automates the release of the validated code to a repository, ensures that it can be released quickly, always ready to be deployed in a production environment; to customers.
- Continuous Deployment: The concluding stage of a CI/CD pipeline, it is an extension of continuous delivery, responsible for automating the release of a build ready for production (Infrastructure Provisioning, Smoke Testing, Production Deployments, and automated Rollbacks).

CI/CD Benefits

- **Reduced time-to-market, reduces cost**
 - CI/CD pipeline used to build and deliver software to users rapidly
 - Automate Infrastructure creation/rollback reduces the cost (CI/CD automates the handoffs, the source code management, the version control system, the deployment mechanisms, and testing).
- **Fault Isolation, Simplified Rollback**
 - Developers can easily identify and then isolate code faults
 - Ensures to push code into production and, if there are issues, simply roll it back
- **Process Monitoring**
 - CI/CD tools can provide a set of metrics that include building, test coverage, failure rates, test fix times, and more. This data can help you recognize areas causing your pipeline to perform slowly and make improvements if required.

CI/CD Benefits (Cont.)

- **Customer demand satisfaction**

- CI/CD can facilitate end-user involvement and feedback in the continuous development stage that helps usability modifications.
- Moreover, it lets you keep your product up-to-date with constant checks for new updates or minor changes. These factors contribute to a high level of user satisfaction because CI/CD is the best way to promote the agile mindset within the development and operations team.

- **Business Transparency and accountability**

- CI/CD pipeline makes the entire software development process completely transparent to the business side. Product managers can check project status in a glance and track accountability as needed.

CI/CD Challenges

- Some security vulnerabilities in the CI/CD pipeline make it prone to cyberattacks, this can be overcome by:
 - lock in parts of the pipeline
 - Limit the amount of sensitive information in the pipeline
- CI/CD pipelines are not a one-time effort, but require constant support, maintenance, and improvements
- Establishing a successful and effective CI/CD comes with a high amount of initial cost for learning and resources investing

Thank You