Fundamentals and benefits of CI/CD

How using a suitable CI / CD strategy for udapeople can bring us benefits such as increasing and protecting revenues, and also avoiding and reducing costs.

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What is CI/CD ?

CI / CD is a set of theoretical and practical techniques that we use to build software based on automated and replicable processes to reduce manual errors and deliver value to the customer in a faster way.

CI = Continuous Integration
CD = Continuous Deployment

The CI process is in charge of taking care of code-related parts, such as:
- Compile
- Run Unit Test
- Make Static Analysis of code
- Testing dependency vulnerability
- Store artifacts

The CD process is charged with delivering this artifact in production, and has these responsibilities:
- Creating infrastructure
- Provisioning servers
- Copying files
- Promoting to production
- Run Smoke Testing
- Rollbacks

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How can CI / CD bring us benefits?

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Reduce Cost	Avoid Cost	Increase Revenue	Protect Revenue
• Less time on problem development, more time on feature development	• Prevents vulnerability costs • Fewer manual processes = more efficient and faster process • Fewer bugs in production = less time debugging code to replicate errors	• We deliver more value to the user, with smaller and faster value deliveries • Improvement of TTM (time to market)	• Reduces system downtime for maintenance caused by a bug • Quickly undo changes to return production to working state
Ações do CI/CD	**Ações do CI/CD**	**Ações do CI/CD**	**Ações do CI/CD**
• Find compilation errors after merge the code • Automate infrastructure cleanup	• Detect security vulnerabilities • Automate infrastructure creation • Find errors in unit tests, e2e and accessibility, before going to QA	• Deploys in production without manual processes • Faster and more frequent production deployments	• Automated Rollback Triggered by Job Failure • Automated Smoke Tests

- In a world of constant change, delivering faster value software can make the difference for you to stand out in the market.

- Finding a bug in production can cost up to 100 times more expensive than finding the bug in development time.

- In 2020 the estimated cost to contain vulnerabilities in systems was 3.86 million according to an IBM report, and the time to contain these vulnerabilities was 280 days in the year.

- Manual processes suffer human interference and bring unexpected results, unlike automated processes.

Ready to change how we deliver software?

CI / CD and Continuous Deployment, is more than just a set of tools that will make us deliver software faster and with more reliable processes, it is more for the mindset that we will have to have to make this work model work, it is more about how we work than the work itself.

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