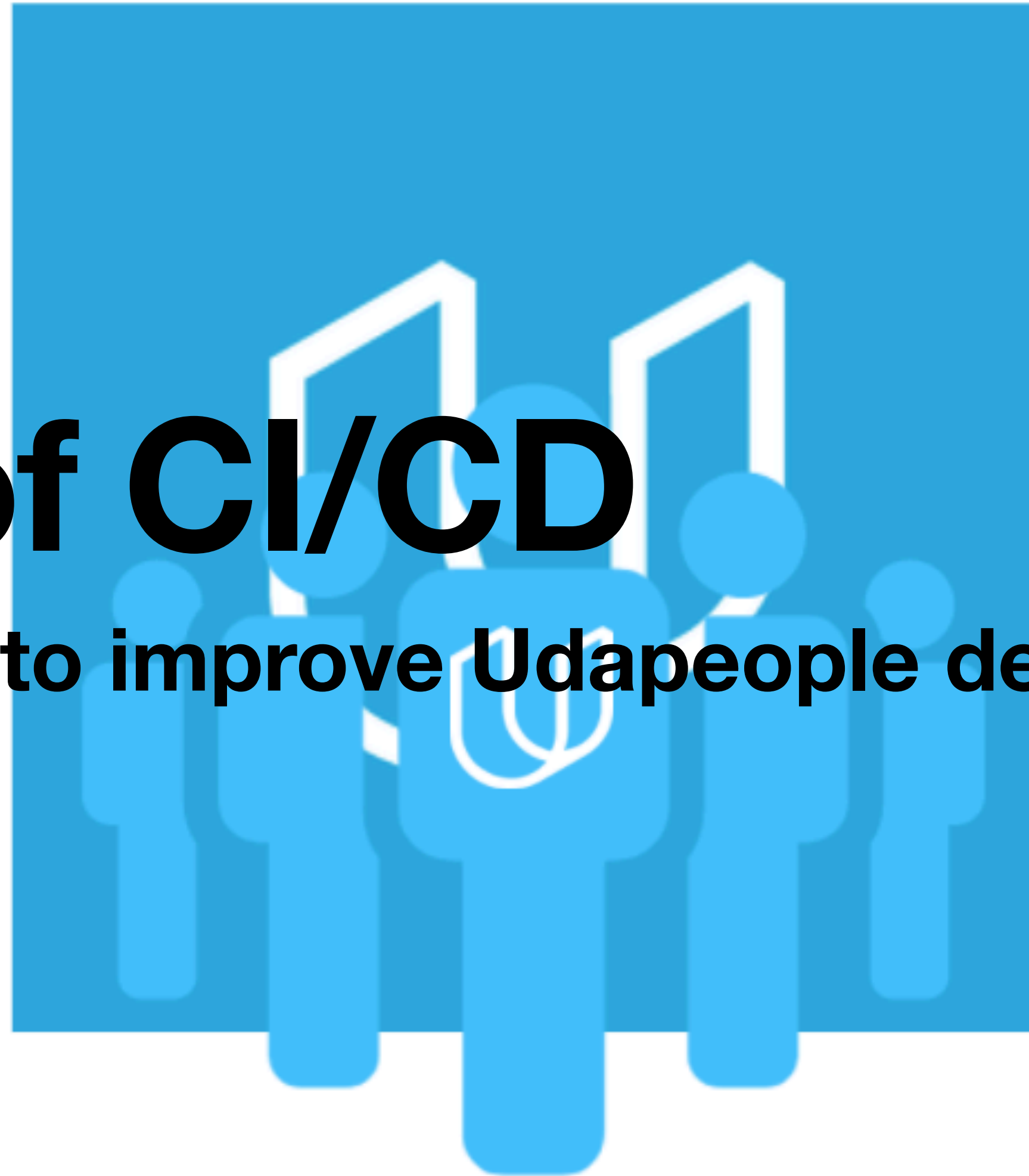# Benefits of CI/CD

Why CI/CD is going to improve Udapeople development process?

Tomas Marciulionis

Avoiding Costs

- **Automated Infrastructure Creation**. When humans create and deploy infrastructure where is always a risk of mistake, even best developers lose focus. Due to such errors the infrastructure creation is not error prone. Infrastructure errors are hard to find and debug thus it leads to delays.

- **Detect Security Vulnerabilities**. Developers can longer worry if there are any security vulnerabilities in their code. Automated tools can report such vulnerabilities in our code base on each created PR. Thus not allowing costly security issues appearing inside production environment.

- **Catch Unit Test Failures.** Unit tests are run on the same environment every time. It means that less bugs and issues appearing inside production environment. Thus we can reduce time used for testing.

Reducing costs

- **Catch Compile Errors After Merge**. Code compilation errors when multiple branches are merged into single branch usually causes compilation errors which might not be so visible or easily noticeable. Such errors could cause delays when releasing code to Production! Thus mature CI/CD process means that developers spends less time on issues caused by other developer code because each developer solves their own compilation issues. And that would leave more time for active development!

- **Automate Infrastructure Cleanup**. After successful deployments the old infrastructure is actively not used. Thus automated cleanup would reduce infrastructure costs because we are no longer going to use resources we actually don't need.

Revenue increases

- **Faster and More Frequent Production Deployments**. Because of the nature of automated deployments the deployments are faster and could be done more frequently by anybody in the team. So, it no longer requires specialised knowledge. Thus developers spends less time releasing features and more time to developing features. Also release process is faster. Which means more value is brought to end users.

- **Deploy to Production Without Manual Checks**. With mature CI/CD process it's the deployment is done automatically, so no longer we require to manually check each part of infrastructure or deployed application if it is successfully deployed. All of this is done automatically. Thus for the features it takes less time to be brought to the market.

Protect Revenue

- **Automated Smoke Tests.** Mature CI/CD process has the automated tests, which covers critical functionality of the product. Thus it is making sure that application is crash or critical bug free. This process will reduce downtime from of our application significantly.

- **Automated Rollback Triggered by Job Failure**. Deployments may fail sometimes due to spectre of problems, but CI/CD process would make sure that when such issues happens the rollbacks are triggered to the working state of application, so that end users would not experience issue or application blackout.

Thank you!