



UDAPEOPLE

CI/CD FUNDAMENTALS & BENEFITS PROPOSAL

OVERVIEW

- ▶ CI/CD Fundamentals
- ▶ The Current Pain Points
- ▶ Benefits of CI/CD to our Business
- ▶ The Challenges that will be faced

CI/CD Fundamentals

CI/CD consist of two basic concepts:

- 1) **Continuous Integration:** is a coding philosophy and set of practices that drive development teams to implement small changes and check in code to version control repositories frequently. Because most modern applications require developing code in different platforms and tools, the team needs a mechanism to integrate and validate its changes.
- 2) **Continuous Delivery:** it picks up where continuous integration ends, automates the delivery of applications to selected infrastructure environments. Most teams work with multiple environments other than the production, such as development and testing environments, and CD ensures there is an automated way to push code changes to them.

The Current Pain Points

- ▶ Our manual release process is error-prone and always leads to delays of production deployments.
- ▶ This in turn often leads to poor software quality since we don't have time for quality analysis anymore.
- ▶ Deployments are pretty complex. Only a chosen few experts are able to understand the whole process and tons of hand crafted helper scripts. No smoke tests and rollback mechanisms.
- ▶ We get late feedback from the business department which prevents us from creating flexible solutions.

Benefits of CI/CD to our Business

► Problem Statement:

- (1) Manual and error-prone release process.
- (2) poor software quality.

► Solutions:

- Implement Continuous Integration: automate compiling, testing, code analysis and artifact storage.
- Automate Infrastructure Creation.

► Benefits:

- Cost reduction due to less human errors and faster deployments.
- Reduce complexity and save manual troubleshooting time.

Benefits of CI/CD to our Business

► Problem Statement:

- (3) Complex deployments and handcrafted automation which often fail. Missing smoke tests and rollback mechanisms.

► Solutions:

- Automate today's manual deployment steps for smoke tests and rollbacks.
- Add automated infrastructure provisioning.

► Benefits:

- The truth lies in the source code and not in the heads of one or two experts. This means that regressions and breaking changes in code as well as in infrastructure deployments can be found much quicker and can be resolved for the whole automation process. And as a plus changes are always documented in source code.
- Automated Smoke Tests and Rollbacks will protect project revenue due to reduced downtimes from deploy-related crashes and fast and automated rebuilding of production ready state.

Benefits of CI/CD to our Business

► Problem Statement:

- (4) Late customer feedback.

► Solution:

- Implement Continuous Deployment: automated deployment of changes at any given point in time.
- Involve customers and business stakeholders already in deployment process.

► Benefits:

- Faster feedback cycles of customers lead to higher customer satisfaction rates since they are involved right from the beginning of feature development/deployment and not just at a fixed release date.

The Challenges that will be faced

- ▶ Establishing CI/CD comes with a high amount of initial cost and learning. At first sight this might seem overwhelming compared to current best practices.
- ▶ Delivering CI/CD pipelines is not a one time effort, but requires constant support and maintenance as well as continuous development and improvement.
- ▶ Even though there are some challenges, CI/CD will improve overall business processes and dramatically reduce costs on the long run.