Fundamentals and Benefits of CI/CD to Achieve, Build, and Deploy Automation for Cloud-Based Software Products

UDAPEOPLE - CI/CD BENEFITS PROPOSAL

OVERVIEW

- What does CI/CD stand for? The concepts explained
- What are our current pain points?
- CI/CD to the rescue. How we could benefit from DevOps principles
- What are the challenges we will be confronted with?

WHAT DOES CI/CD STAND FOR? THE CONCEPTS EXPLAINED

- CI/CD consist of three major concepts
  - Continuous Integration
    - Continuous Integration describes the process of merging developer branches to the main branch several times a day. CI puts an emphasis on test automation and finally generates a high quality, deployable artifact.
  - Continuous Delivery
    - In addition to Continuous Integration, Continuous Delivery makes sure that changes of a software product can be released quickly to customers in an automated way and at any point in time.

WHAT DOES CI/CD STAND FOR? THE CONCEPTS EXPLAINED

- Continuous Deployment
  - Continuous Deployment extends Continuous Delivery in such a way that it allows frequent automated deployments without any human interaction. Typical phases in Continuous Deployment are Infrastructure Provisioning, Smoke Testing, Production Deployments and automated Rollbacks

WHAT ARE OUR CURRENT PAIN POINTS?

1. Our manual release process is error-prone and always leads to delays of production deployments
2. This in turn often leads to poor software quality since we don’t have time for quality analysis anymore
3. 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.
4. We get late feedback from the business department which prevents us from creating flexible solutions

CI/CD TO THE RESCUE. HOW WE COULD BENEFIT FROM DEVOPS PRINCIPLES

- Implement Continuous Integration: automate compiling, testing, code analysis and artifact storage
- Automate Infrastructure Creation
- Automate today's manual deployment steps for smoke tests and rollbacks
- Add automated infrastructure provisioning
- Implement Continuous Deployment: automated deployment of changes at any given point in time
- Involve customers and business stakeholders already in deployment process