CI/CD
Lecture 4-Continuous Delivery

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Highlights

Author of *Lean Software Development: An Agile Toolkit*

> Almost everything we know about good software architecture has to do with making software easy to change.
>
> -Mary Poppendieck

Source:http://www.poppendieck.com/people.htm

Outline

Continuous Delivery

- What, Why, When, and How

CD vs CD

- Continuous Delivery vs Continuous Deployment

CD: Placing the change in production or to the users

Continuous Delivery

Current version can be deployed in the production on moments notice

Kinds of changes

Rapid deployment of a software with changes of kind:

- New features
- Configuration changes
- Bug fixes
- Experiments

Continuous Delivery

When

- Frequent deployments/updates
- Shorter service time for users
- Zero-downtime

Why

CD Practices help us achieve following benefits:

- Low-risk releases
- Faster time to market
- Higher quality
- Better product
- Happier teams

Why CD

Low-risk releases

- Goal is to make deployment painless
- Uses the *patterns* such blue-green deployment
- Enable zero-downtime deployment; undetectable for users

Low-risk Release: Zero-downtime Deployment

Blue-Green Deployment

1. Maintain two identical Environment/(virtual)machine
2. One of them will be live (say, Green)
3. Other is used as staging for deployment (say, Blue)
4. Update the staging machine for new deployment (Blue)
5. Switch the router from live to staging (Green to Blue)
6. Now, live is running with updated software (Blue)
7. This process can be repeated for next deployment

Faster Time to Market

Feature development to Deployment

- CI practices reduced time for bug fixing
- Hence, stable versions were ready frequently
- This enables continuous delivery/deployment
- It all is supported by automation

CD: Other Benefits

Higher Quality

- Tools have enabled discovery of regressions quick
- This enables developers to focus on other quality aspects

Lower cost

- Automation has reduced the time for various activities
- Thus, saving cost otherwise spent on development/maintenance

User Feedbacks

- Getting the new version/feature into production quickly
- Receiving feedbacks early; act upon it; improved usability

CD: Make It Happen

How

- A collaborative environment; DevOps culture
- Extensive automation; reducing risk and time wherever possible

CD vs CD

Continuous Deployment

- Every change is automatically gets updated in production
- Multiple updates every day in production
- Functions on top of Continuous Delivery

Continuous Delivery

- Enables you to do frequent deployments
- It is necessary for continuous deployment

Further Reading

Highly Recommended

- https://martinfowler.com/bliki/ContinuousDelivery.html
- https://martinfowler.com/bliki/BlueGreenDeployment.html
- https://continuousdelivery.com/