Continuous Integration

I4SWT

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Continuous Integration

A software development practice where members of a team integrate their work frequently, usually each person integrates at least daily – leading to multiple integrations per day. Each integration is verified by an automated build (including test) to detect integration errors as quickly as possible (…)

Martin Fowler, 2006

The principle

Workstation 1

Build application
+ ”Green Zone” tests

Build server

Code repository

Fast integration:
Build application
+ ”Green Zone” tests

Nightly:
Build application
+ ”Green Zone” tests
+ Coverage
+ Integration tests
+ Code inspection
+ Reporting
+ …

Workstation 2

Build application
+ ”Green Zone” tests

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Benefits of CI

- No ”integration hell” at the ”end” of a project
- Never more than hours from working (deployable) build
- Rapid feedback
- Several graded builds (continuous, nightly, …)
- Metrics for code and test quality never out of date
- Certified and controlled runtime environment

Embedded benefits

- Sharing of expensive or unique target hardware
- http://www.slideshare.net/InfinITnetvaerk/swt14-mlapi-test-service

- First steps toward continuous deployment/delivery

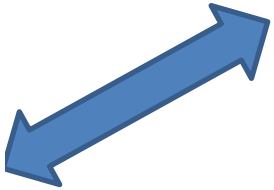
- Even for embedded!

The setup at ASE

Student workstation
(on VPN)

Git server
https://github.com/user/repository

Jenkins server
http:// ci3.ase.au.dk:8080

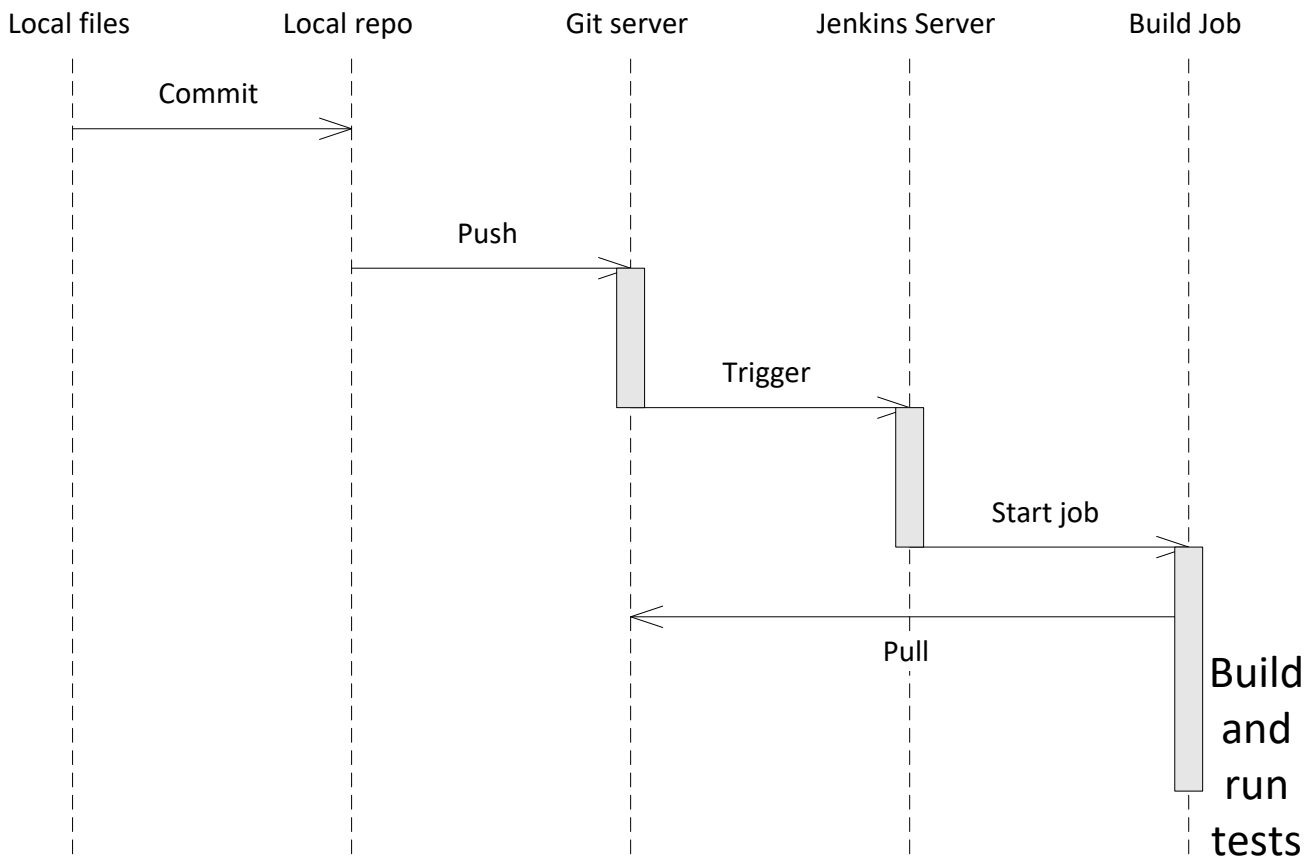


Build application
+ "Green Zone" tests

Student workstation
(on VPN)

Build application
+ "Green Zone" tests

Trigger sequence



Steps on the way to Nirvana

- End result: Build, tests, results
- Git: Cloning, commiting, pushing and pulling – as last lecture with exercises
- Jenkins: Configuring a new build project: demonstrated now

Important facts

- Serveren hedder: ci3.ase.au.dk:8080
- Opret jer med team181xx som brugernavn på Jenkins
- Brug det aftalte password
- Alle kan se/bygge/slette alle – lav evt. jeres eget view
- Demoprojektet på Jenkins hedder
  - TemplateBuildTest
- Brug genkendelige job navne – som I kan se i jeres view