

Continuous Integration

Infopoint, 09.12.2015, Jörg Wüthrich



Inhalt

- ▶ Definition
- ▶ Motivation
- ▶ Continuous Integration
- ▶ Continuous Deployment
- ▶ Continuous Delivery

Definition

- ▶ *Continuous Integration is 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](#)

- ▶ *Test and Deploy with Confidence*

<https://travis-ci.org/>

Motivation

- ▶ Builds sollten einfach auszuführen sein



Voraussetzungen

- ▶ Zentraler VCS Server
- ▶ Automatisierbarkeit
 - Build-Skript
 - Möglichst portabel
 - Dependency Management!
- ▶ Zentraler Build-Server
- ▶ Regelmässige Commits



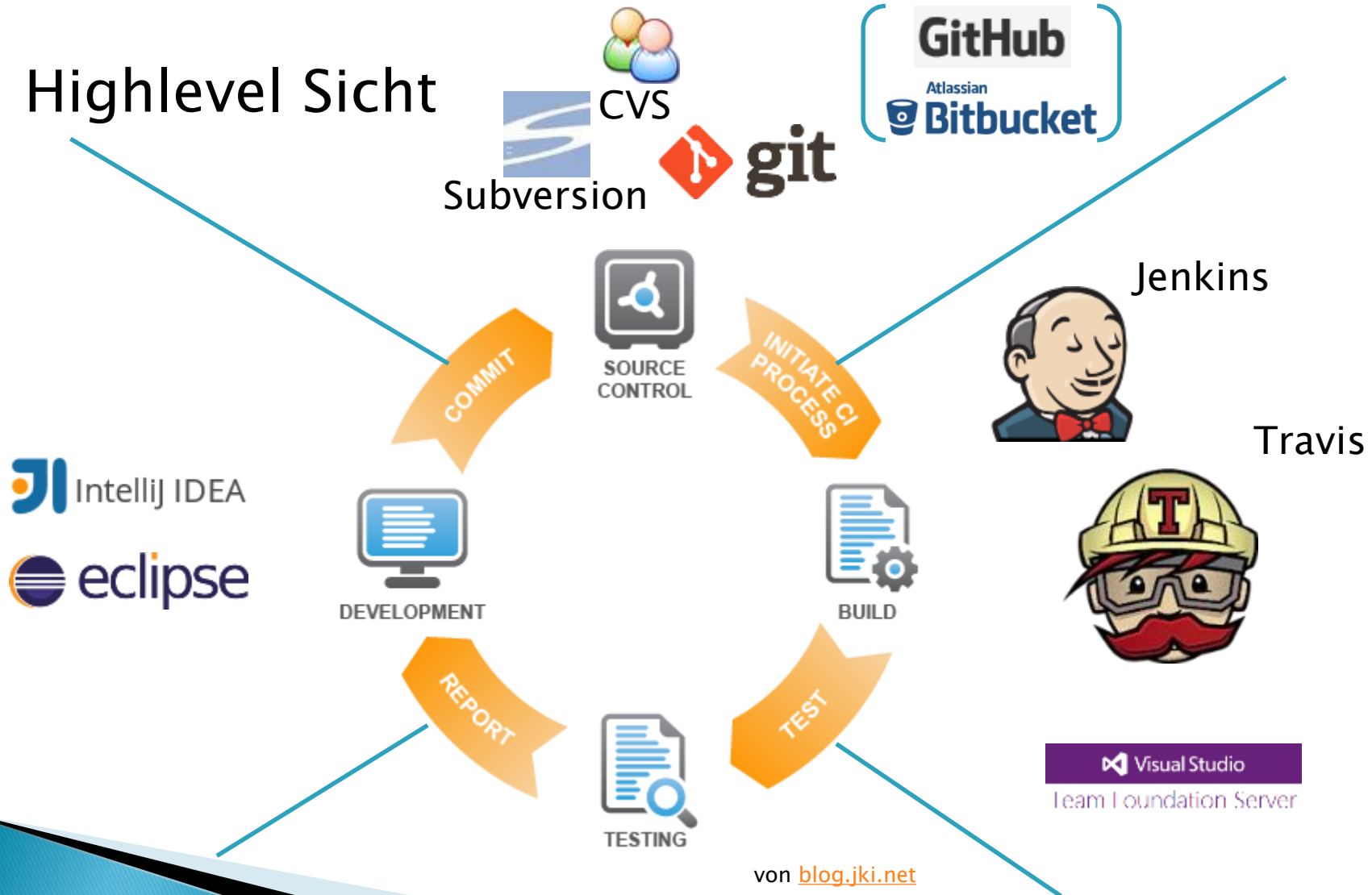
Maven™



Gradle

Continuous Integration

▶ Highlevel Sicht



Continuous Integration

chewiebug / GViewer Watch

Code Issues 26 Pull requests 3 Wiki Pulse Graphs

Overview Active Stale All branches

Default branch

develop Updated 2 months ago by chewiebug Default

Active branches

feature/#87/swingworker Updated 2 months ago by chewiebug	✓	0 54
feature/#139/percentile Updated 2 months ago by chewiebug	✓	0 2
feature/#73/ibmj9 Updated 2 months ago by chewiebug	✓	0 10
travis Updated 2 months ago by chewiebug	✗	4 2

Stale branches

master Updated 10 months ago by chewiebug 44 | 0

Continuous Integration

▶ Best practises

- Läuft nach jedem Commit
- Regelmässige commits auf die «Mainline»
- Build testet sich selbst
- Automatische Benachrichtigung bei Fehlern
- Behebung von Build-Fehlern hat höchste Priorität
- Einfache Verfügbarkeit der Buildresultate

Continuous Integration

- ▶ Mögliche Probleme
 - Instabile Builds (transitive Abhängigkeiten)
 - Build-Durchlaufzeit
 - Build-Resultate nicht für jeden verfügbar
 - Schmalbrüstiger Build-Server

Continuous Deployment

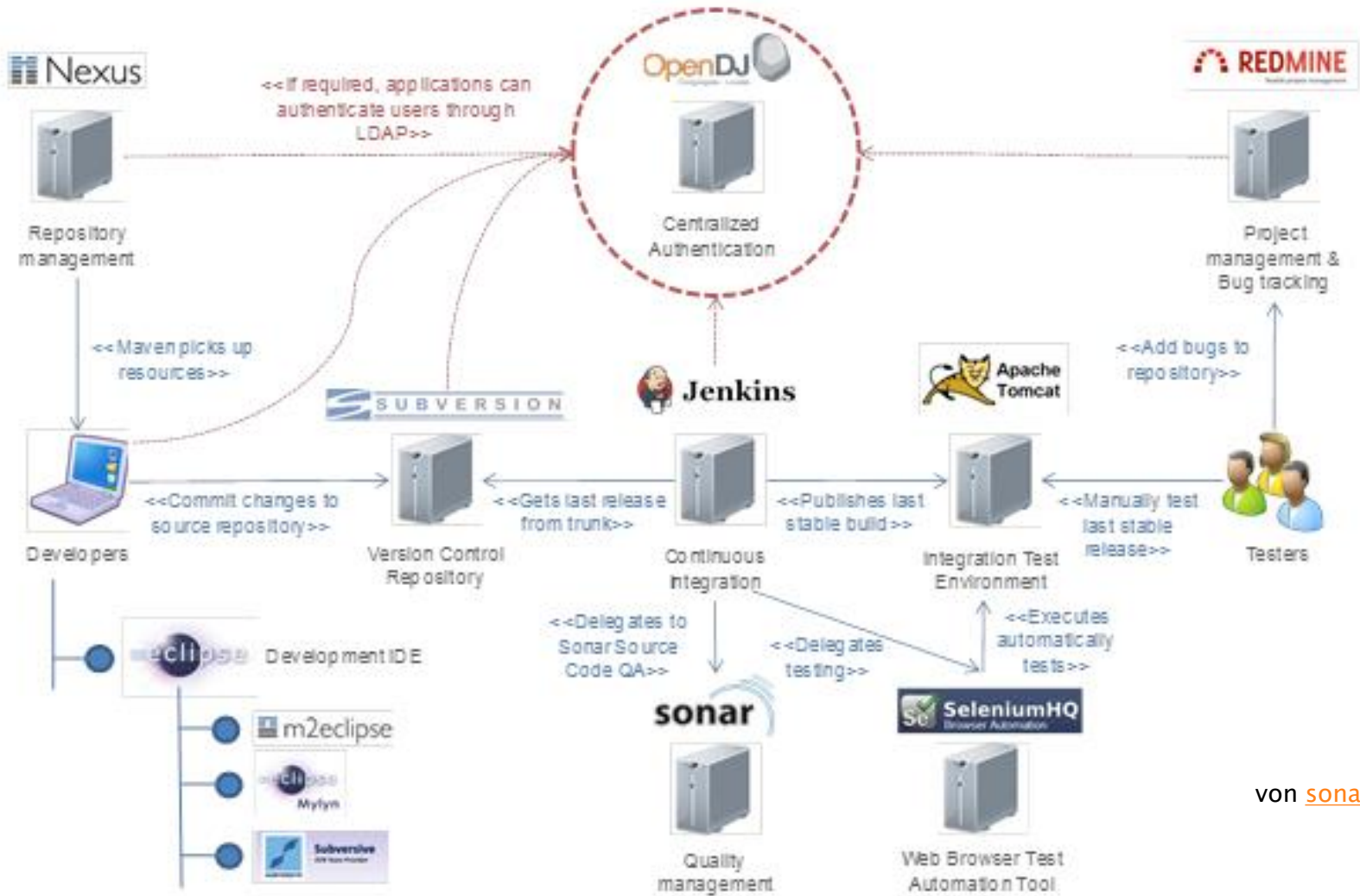
- ▶ Zusätzlich zu CI
 - Tagging des Source-Code im VCS
 - Deployment auf Zielplattform bei erfolgreichem Build
- ⇒ Vorbereitung für manuelle Tests
- ⇒ Ermöglicht automatisierte GUI-Tests

Continuous Deployment

Free continuous integration platform @Glance

Runtime architecture

Who Am I?
Jordi Cuena Aubets (LinkedIn)
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von sonatype.org

Continuous Delivery

- ▶ Zusätzlich zu Continuous Deployment
 - *Vollautomatisierte* produktive Auslieferung des Produkts

⇒ Agile Entwicklung

⇒ [Spotify Engineering Culture Part 1](#)

⇒ [Spotify Engineering Culture Part 2](#)

Links

- ▶ Heise-Artikel: <http://heise.de/-888901>
- ▶ Martin Fowler: <http://www.martinfowler.com/articles/continuousIntegration.html>
- ▶ CI-Server: <http://www.infoq.com/research/ci-server>