

Catching Up with State of the Art Continuous Integration Pipelines in Palladio

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Motivation


- Palladio is a complex software project
 - >40 connected projects form product
 - 15 active developers from 3 organisations
 - Based on many Eclipse libraries and tools

- High complexity scares developers
- Continuous Integration (CI) can help
- Has to be easy to use



Development Process




Name	▼	Size
	eclipse-projects	38 items




Test in Eclipse

Development Process



Name	Size
 eclipse-projects	38 items



Name	Size
 eclipse-projects	38 items
 pom.xml	959 bytes
 tp.target	2.3 kB


Test in Eclipse







Test locally

Development Process



Name	Size
 eclipse-projects	38 items

Name	Size
 eclipse-projects	38 items
 pom.xml	959 bytes
 tp.target	2.3 kB
 Jenkinsfile	114 bytes

Test in Eclipse





Test locally





Test remotely



Validation of Code Contributions







 **Review required** Show all reviewers
At least 1 approving review is required by reviewers with write access. [Learn more.](#)


 **1 pending reviewer** ▼

 **All checks have passed** Hide all checks
3 successful checks

  **continuous-integration/jenkins/branch** — This commit looks good Details

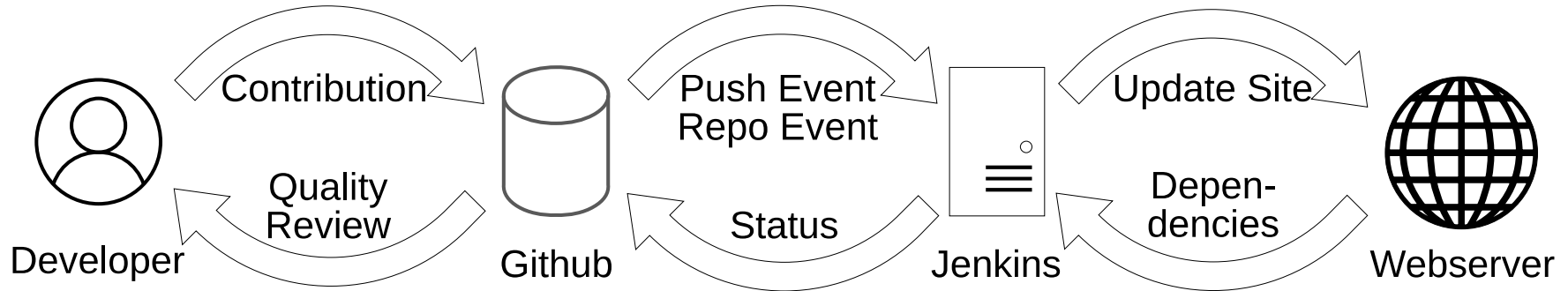
  **continuous-integration/jenkins/codecoverage** — The code coverage did not decrease with respect to the ma... Details

  **continuous-integration/jenkins/pr-merge** — This commit looks good Details

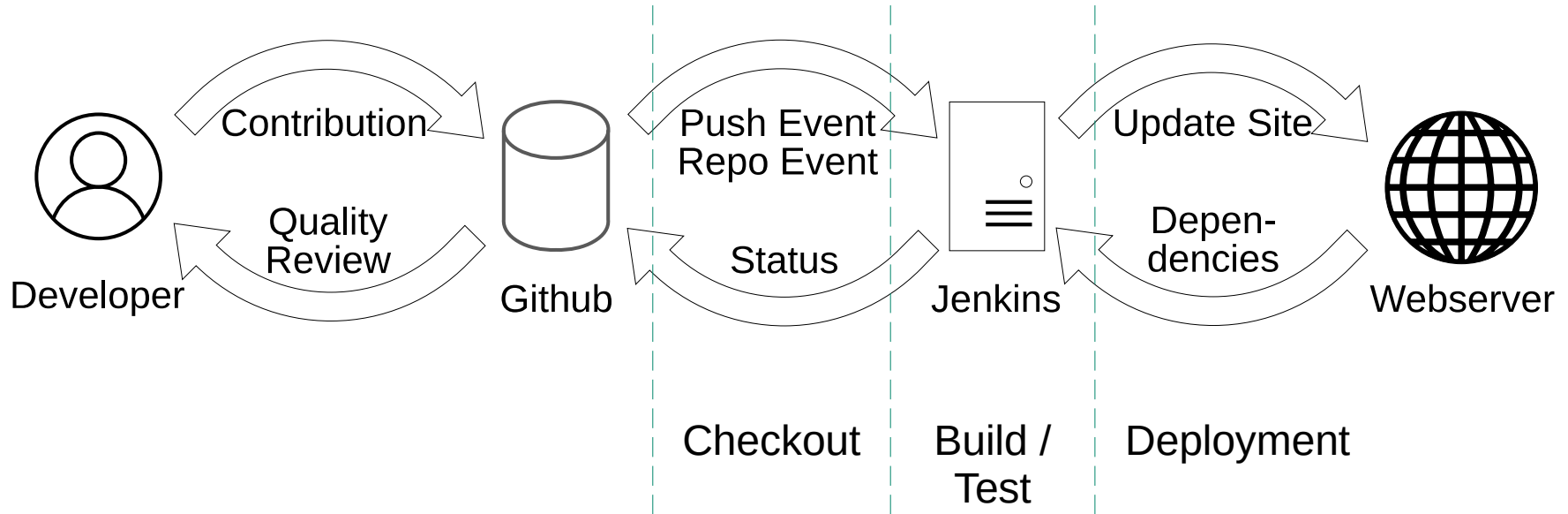
 **Merging is blocked**
Merging can be performed automatically with 1 approving review.

Rebase and merge ▼ or view [command line instructions.](#)

Continuous Integration Infrastructure



Continuous Integration Infrastructure



Selected Benefits of Infrastructure

■ Fast deployment of branches

▼ 1 ■■■■■ Jenkinsfile 📄

...

```
...    ...    @@ -1,3 +1,4 @@  
1      1      PalladioPipeline {  
2      2          deployUpdatesite 'releng/org.palladiosimulator.indirections.updatesite/target/repository'  
3      3      + skipDeploy false  
3      4      } ⊖
```

Selected Benefits of Infrastructure

Fast deployment of branches

▼ 1 ■ ■ ■ ■ ■ Jenkinsfile 📄 ⋮

```

...    ...    @@ -1,3 +1,4 @@
1      1      PalladioPipeline {
2      2          deployUpdatesite 'releg/org.palladiosimulator.indirections.update site/target/repository'
3      3      +    skipDeploy false
3      4      } ⊖
  
```

Simple integration of further projects

S	W	Name ↓	Last Success	Last Failure	Last Duration	# Issues
		Palladio Simulator	2 hr 20 min - log	N/A	3 min 6 sec	-
		Trust 4.0	5 hr 29 min - log	N/A	1 min 17 sec	-

Lessons Learned

- Dedicated persons required for migrations
 - Failed approach: everybody migrates on next change
 - Final approach: hire student to do batch migration (1/2 year)

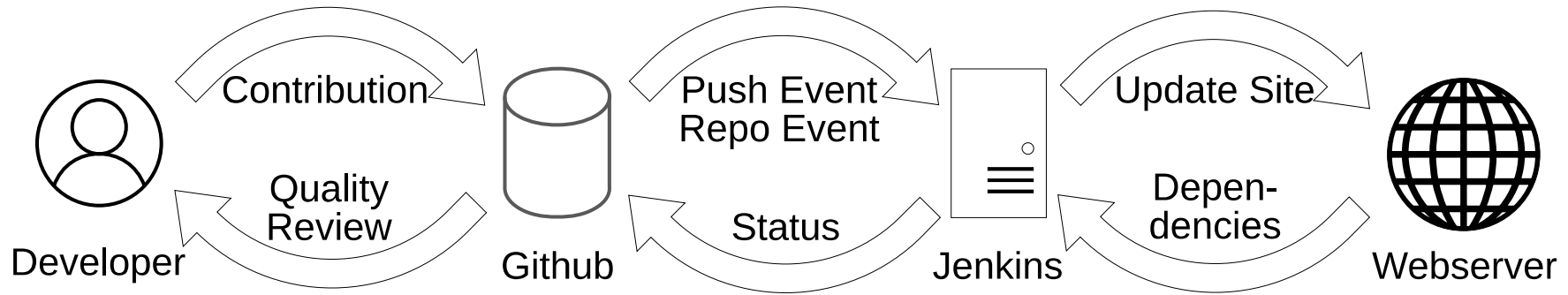
Lessons Learned

- Dedicated persons required for migrations
 - Failed approach: everybody migrates on next change
 - Final approach: hire student to do batch migration (½ year)
- Fast feedback and review process pushes confidence
 - Fear of submitting a change reduced (but still exists)
 - At least two people know about a change

Lessons Learned

- Dedicated persons required for migrations
 - Failed approach: everybody migrates on next change
 - Final approach: hire student to do batch migration (½ year)
- Fast feedback and review process pushes confidence
 - Fear of submitting a change reduced (but still exists)
 - At least two people know about a change
- Dedicated persons required for maintaining CI
 - Ensure aligned build process
 - Assistance to new developers

Conclusions



■ Benefits

- Easier contribution
- Reusable building blocks for CI systems

■ Future Work

- Raise awareness for code quality metrics
- CI for documentation



Image References

- Jenkins Logo “Stay Safe” by Martin Grosche
<https://www.jenkins.io/artwork/>
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