Gerrit code review

Thomas Koch

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me

Thomas Koch
http://www.koch.ro
finished music, physics
5 years software developer: PHP (RIP!), Java, Hadoop, Search,
Crawling, ERP, Groupware
Debian Maintainer
currently: finishing computer science bachelor, ETA: Q1/2012
tags: quality, ATTAC, FSFE, FIfF, social responsability, Romania,
Switzerland

motivation

workflow

integration

appendix

Outline

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appendix

We are GIT - Resistance is futile

- Linux-Kernel
- Apache Software Foundation (mirrors)
- freedesktop.org
- ▶ Debian (³/₄ of packages with a VCS)
- ▶ DragonFly BSD
- ► Fedora
- Android
- Wine
- Erlang
- GStreamer

- ► GNU core utils
- Samba
- ► Perl5
- Maemo, QT
- KDE
- Gnome
- ► VLC, XMMS2
- ► Prototype, YUI, jQuery
- Ruby on Rails
- Drupal, Mantis
- ...and many more^a...

ahttp://git.or.cz/gitwiki/GitProjects

Why GIT?

- ▶ fast
- merging is easy
- amazing toolset and features
- low entry barrier for new contributors

Subversion is irrelevant

but you still need:

- repository server
- easy repository management
- access control

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- repository server
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- access control
- ▶ and since we're agile: code review
- and if you like it: CLA management

we are proud and seek review 1



¹CC BY-NC-ND 2.0

http://lacrimarum-valle.blogspot.com/2009/11/wendys-cakes.html

Why code review?

- common code ownership
- training
- many eyes

enter Gerrit

- ▶ initially for Android by Google
- public since ca. oct 2008
- java rewrite of googles internal code review system
- by Shawn Pearce himself!
- tightly coupled to GIT

Gerrit users

- Eclipse
- ▶ Ebay², Intel, Red Hat, SAP
- Couchbase, WebM, Typo3
- Assembla (dev tools as a service)³
- openAFS, QT (Nokia)
- Kitware (e.g. CMake)⁴
- Sandia National Laboratories
- Mobiles: Android, Qualcomm Innovation Center, MeeGo, Sony Ericsson

²http://dj.riceweevil.com/2010/07/25-week/

 $^{^3 \}verb|http://blog.assembla.com/assemblablog/tabid/12618/bid/40871/$

 $^{{\}tt Introducing-Gerrit-a-scalable-code-review-system.aspx}$

⁴http://www.kitware.com/blog/home/post/70 □ → ← ② → ← ○ → ←

current ASF workflow



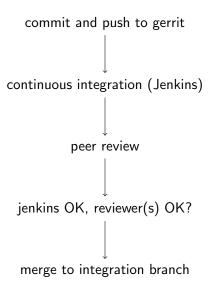
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3 main views in Gerrit UI:

- ► changes list
- change overview
- diff (side by side / unified)

Gerrit Changes list



Gerrit Change overview Change If7920700: wrote add method and tests

	lf79207005e33249c54bb9734c164605943a5f84c			wrote add m	ethod and	tests			
Owner	Thomas Koch								
Project	picture-gallery								
	<u>master</u> May 4, 2011 7:28 PM								
Topic									
-	May 5, 201								
Status	Review in	Progress							
			<u>P</u>	<u>ermalink</u>					
Reviewer		Maritian	Code Review						
enkins		venilea ✓	Code Review	Verified					
like Peer	×	•	+1	Looks good to me, but son	aana alaa mustann				
	_				leone eise must appi	ove			
		W +Z (L00	ks good to me.						
	or Ema	iil					Add Reviewer		
	or Ema	il					Add Reviewer		
Name		il					Add Reviewer		
Name Depende	ncies		3249c54hh973	,	eh)		Add Reviewer		
Name Depende	ncies t1 f792	07005e3		4c164605943a5f84c <u>(gitw</u>	eb)		Add Reviewer		
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Comments	Expand Recent Expand All Collapse	≥ AII	
Jenkins Patch S	t 1: Build Started http://localhost:8079/job/picture-gallery/7/	May 4	
Jenkins Patch S	t 1: Verified Build Successful	May 4	

Gerrit Change side by side diff

Change If7920700: src/main/java/ro/koch/picturegallery/App.java

```
Patch History
                                                                                                                                       wrote add method and tests
                                  ▼ Tab Width: 8 ☑ Syntax Coloring ☑ Whitespace Errors ☐ Skip Uncommented Files
Ignore Whitespace: None
                                                                                                                             Reviewed
                                      Columns: 100 ☑ Intraline Difference ☑ Show Tabs
        Context
                                                                                        Skip Deleted Files
                        10 lines
                                                                                                                 Update
⇔Commit Message
                                                                            8 Up to change
                                                                                                                                                         AppTestiava⇒
                                      Old Version
                                                                                                                       New Version
                                      (Download)
                                                                                                                        (Download)
                                                                      (... skipping 2 common lines ...

    3/**

   4 * Hello world!
                                                                                    4 * Hello world!
   5 *
   6 */
                                                                                    6 */
   7 public class App
                                                                                    7 public class App
   9
         public static void main( String[] args )
                                                                                          public static void main( String[] args )
  10
                                                                                   10
  11
             System.out.println( "Hello Gerrit!" );
                                                                                              System.out.println( "Hello Gerrit!" );
  12
                                                                                   12
                                                                                      Mike Peer Could you please avoid unnecessary whitespace?
                                                                                                                                                            10:05 AM
                                                                                          public static int add( int a, int b)
                                                                                       return a + b;
                                                                                      Mike Peer Did you think about checking for overflows?
                                                                                                                                                            10:05 AM
  13)
                                                                                   18)
⇔Commit Message
                                                                            #Up to change
                                                                                                                                                         AppTestiava⇔
```

mail notifications

```
From: "Mike Peer (Code Review)" <mike@peer.de>
To: Thomas Koch <thomas@koch.ro>
Subject: Change in picture-gallery[master]: wrote
add method and tests
Mike Peer has posted comments on this change.
Change subject: wrote add method and tests
Patch Set 1: Looks good to me, but someone else must
approve
(2 inline comments)
good enough.
File src/main/java/ro/koch/picturegallery/App.java
Line 13:
Could you please avoid unnecessary whitespace?
Line 16: return a + b;
Did you think about checking for overflows?
                                    4□ > 4□ > 4 = > 4 = > = 900
```

Outline

motivation

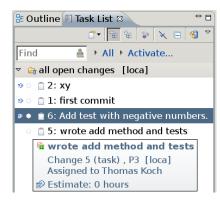
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Mylyn (eclipse) integration

Mylyn changes list





Mylyn change details



Mylyn change details - attributes

Attributes			ø
Owner	Thomas Koch	Project	picture-gallery
Branch	refs/heads/mast	e	
Change-Id	18596454156c4	688abd1006cad	l8297d5aa7eb9331

Mylyn change details - comments

- Comments (4)
- □ ¹ 1: Jenkins, May 11, 2011 4:59 PM ♥▼ Patch Set 1:

Build Started http://localhost:8079/job/picture-gallery/8/

□ ¹ 2: Jenkins, May 6, 2011 3:02 PM ♥▼
Patch Set 1: I would prefer that you didn't submit this

Build Unstable

http://localhost:8079/job/picture-gallery/8/: UNSTABLE

- □ ¹/₂ 3: Thomas Koch, May 13, 2011 5:08 PM
 ♥▼
 Uploaded patch set 2.
- ☐ ¹ 4: Jenkins, May 10, 2011 6:05 AM

 ♥ ▼
 Patch Set 2:

Build Started http://localhost:8079/job/picture-gallery/9/

Mylyn change details - reviewers

- Review
- Reviewers

```
Verified Code Review

Jenkins +1 0

Mike Peer +1

Add Reviewers...
```

▼ Requirements

Code Review +2 Looks good to me, approved

- Depends On
 - 4: changed hello message to great gerrit by Thomas Koch
- Needed By
 - 6: Add test with negative numbers. by Thomas Koch

Mylyn change details - patch sets

- ▼ Patch Sets
- Patch Set 1
 - /COMMIT MSG
 - 🗎 src/main/java/ro/koch/picturegallery/App.java
 - src/test/java/ro/koch/picturegallery/AppTest.java

Fetch...

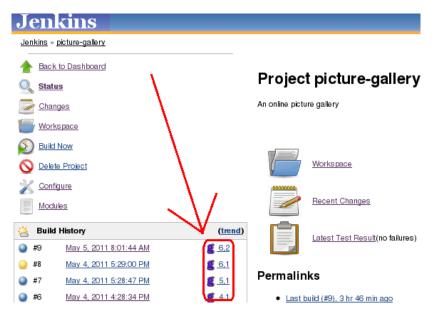
Patch Set 2

- 🗎 src/test/java/ro/koch/picturegallery/AppTest.java

Fetch...

Jenkins integration

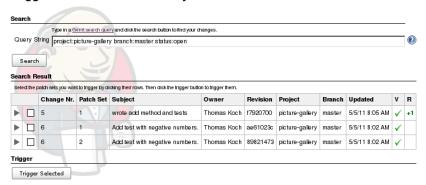
Jenkins trigger and post result



Jenkins trigger and post result

Jenkins

Trigger a Gerrit event manually



Jenkins plugin

- fast (gerrit ssh stream)
- global configuration

more integration

- Mylyn (eclipse)
- Jenkins
- GitWeb
- Email notifications
- ► Auth: OpenID, LDAP, HTTP (Browser)
- build your own: hooks, streaming API

e.g. parse Issuetracker IDs from commit messages and post to ${\sf Jira/Mantis/Bugzilla}$

clickable Issuetracker IDs

```
in gerrit.config:

[commentlink "bugzilla"]
  match = "(bug\\s+#?)(\\d+)"
  link = http://bugs.example.com/show_bug.cgi?id=$2

[commentlink "tracker"]
  match = ([Bb]ug:\\s+)(\\d+)
  html = $1<a href=\"http://trak.example.com/$2\">$2</a>
```

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permissions

- ▶ verified (-1..+1)
- ▶ code review (-2..+2)
- forge identity (Author, Committer)
- owner (administer all settings)
- push branch (Update, Create, Delete/Force)
- push tag (Signed/Annotated)
- read access (Read, Upload)
- submit

multiple versions of a change

Change-Id: I8596454156c4688abd1006cad8297d5aa7eb9331 (There's a hook for that.)

search (WebUI or cmdline)

```
ssh -p 29418 t61 gerrit query --format=JSON \
project:picture-gallery status:open owner:thomas@koch.ro
```

Search for:

- age, owner, reviewer, project, branch, message, file, status, votes
- ▶ issue-tracker IDs: tr:ID / bug:ID
- ► topic
- starred (like bookmarked)

CLA and contact store



The following offline contact information is stored encrypted.

Contact information will only be made available to administrators if it is necessary to reach you through non-email based communication. Received data is stored encrypted with a strong public/private key pair algorithm, and this site does not have the private key. Once saved, you will be unable to retrieve previously stored contact details.



more goodies

- ► topic
- star changes
- hooks (after the fact)
- replication

commit policies / Change Submit Action

- Fast Forward Only
- Merge If Necessary
- Always Merge
- Cherry Pick

Shawn Pearce: Under cherry-pick the dependency data in Gerrit means nothing. If a change is submitted and it cherry-picks clean onto the branch tip, it gets patched onto the branch and marked merged, even if one or more dependent changes is not ready for submission.

cmdline tools over SSH

user:

- Is-projects
- query
- review
- stream-events

admin:

- create-account
- create-group
- create-project
- gsql
- suexec
- **>** . . .

Questions?

http://www.koch.ro

http://identi.ca/thkoch