



Chris Aniszczyk
(Twitter)



Stefan Lay
(SAP)



Kevin Sawicki
(GitHub)



Matthias Sohn
(SAP)

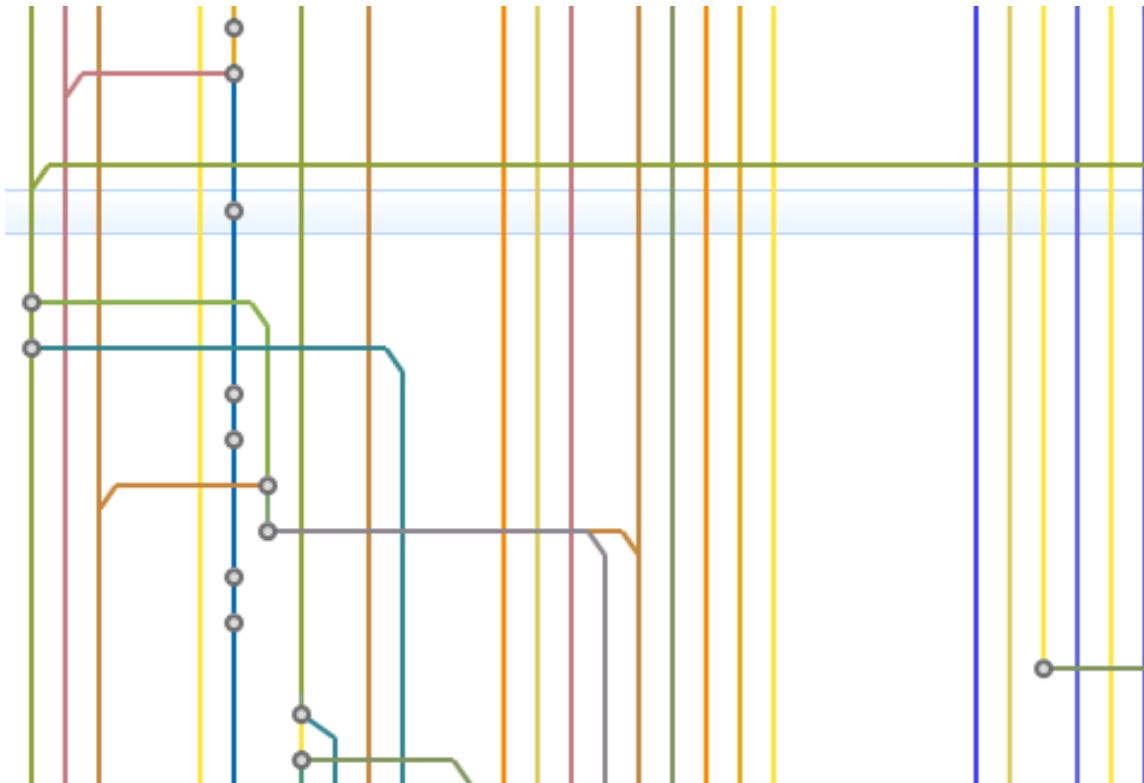


Benjamin Muskalla
(Tasktop)

The Git Tutorial

EclipseCon 2012

<http://eclipse.org/jgit>
<http://eclipse.org/egit>
<http://code.google.com/p/gergit>



Agenda

Introduction

Exercises

Setup & Cloning the Sample Repository

Local Development with EGit

Gerrit Code Review

Mylyn Integration

GitHub Eclipse Support

Q & A

Git



... a distributed revision control system built by the Linux project to facilitate code review

Distributed means no central repository

- No central authority!
- Easy offline usage
- Easy to branch a project
- Protected against manipulation by cryptographic hashes

Really good at merging

- Coordination only needed "after the fact"
- Easier to rejoin (or refresh) branches

Structured around commits (i.e. patches)

- Tools for identifying problem commits (git bisect)
- Tools for restructuring branches w/ specific commits

Git at Eclipse



JGit is a lightweight Java library implementing Git

<http://www.eclipse.org/jgit/>

EGit is an Eclipse Team provider for Git based on JGit

<http://www.eclipse.org/egit/>

Gerrit Code Review is a Git server based on JGit
adding permission control and review workflow

<http://code.google.com/p/gerrit>

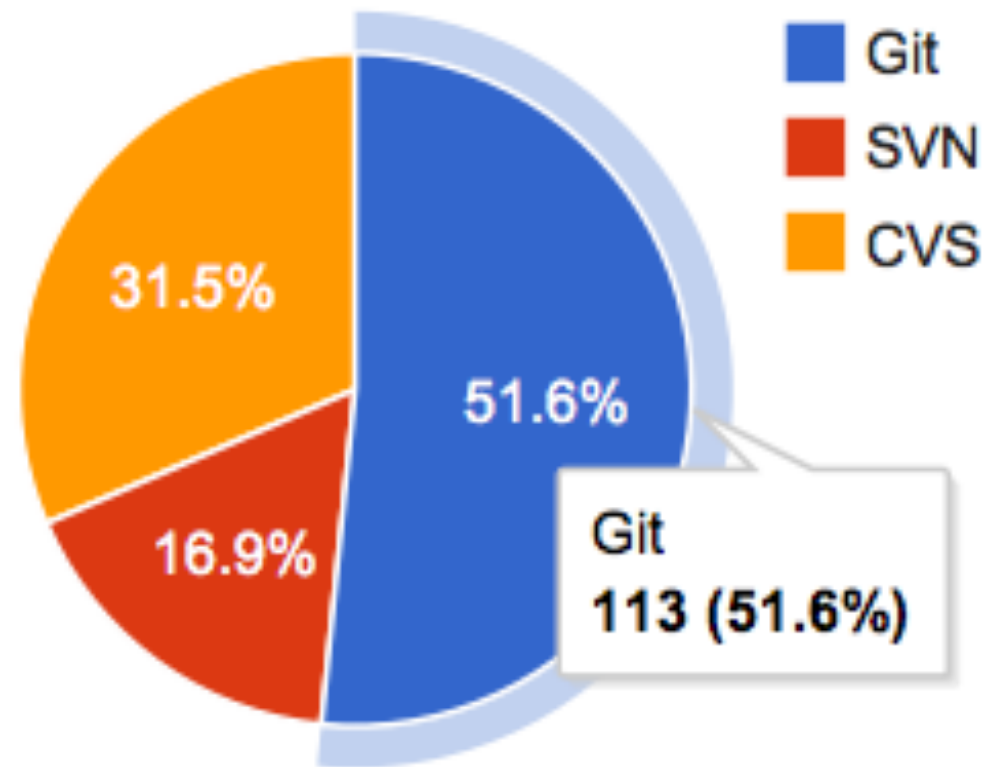
Gerrit @ Eclipse went live ☺

<https://git.eclipse.org/r/>

Eclipse is Moving to Git



CVS has been deprecated and will be retired end of 2012



Project & code repository breakdown as of 2012-03-25

<http://eclipse.org/projects/scmcountdown.php>

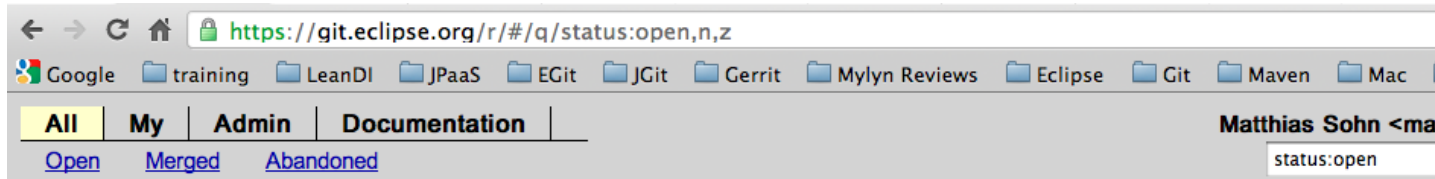
Gerrit Code Review @ Eclipse



<https://git.eclipse.org/r/> is now available for all projects

now used by:

EGit, Jetty, JGit,
Jubula, Libra, Lyo,
Mylyn, Platform, R4E,
Recommenders,
Skalli, Tycho



Search for status:open

ID	Subject	Owner	Project	Branch	Created	Reviewed	Changes
I1919c4f9	Add CRLF testing to StashCreateCommandTest	Robin Rosenberg	jgit/jgit	master	13:51	✓	
I4dfecf5c	A new index may require smudged entries	Robin Rosenberg	jgit/jgit	master	12:48	✓	
I1b6bbb64	Handle content length in WorkingTreeliterator	Robin Rosenberg	jgit/jgit	master	Mar 23	✓	
I3976c90d	Allow to show/edit branch configuration	Mathias Kinzler	egit/egit	master	Mar 23	✓	
I4b140e25	Add a "Previous Version" option to the Replace With menu	Mathias Kinzler	egit/egit	master	Mar 23		-1
I36f2add2	Update Jetty to 8.1.1.v20120215	Matthias Sohn	jgit/jgit	master	Mar 23	✗	
I9c559a68	369067: remove instanceOf LifeCycle calls in SecurityHandler	Thomas Becker	jetty/org.eclipse.jetty.project	master	Mar 23		
I1ea34b8b	372659: test case for decoding/not decoding request parameters on forwarded requ	Thomas Becker	jetty/org.eclipse.jetty.project	master	Mar 23		
I2d5164cd	Allow to write tests with CLI syntax	Matthias Sohn	jgit/jgit	master	Mar 23	✓	✓ ✗
Id9d721ae	Add support for Eclipse-SourceReferences header	Tomasz Zama	egit/egit	master	Mar 22	✓	-1
Ibed04590	Adapt Status and CleanCommand to support cleaning directories	Markus Duft	jgit/jgit	master	Mar 22	✓	
I14ea5cb7	Garbage collector for FileRepositories	Christian Halstrick	jgit/jgit	master	Mar 22	✓	
Id5b578f7	Additional unit tests for the GC	Sasa Zivkov	jgit/jgit	master	Mar 22	✓	
I5965463b	Extra information displayed when create patch failed	Malgorzata Janczarska	platform/eclipse.platform.team	master	Mar 22		-1

Modern Code Review – What is it ?

Guido van Rossum [1]

When one developer writes code, another developer is asked to review that code

A careful line-by-line critique

Happens in a non-threatening context

Goal is cooperation, not fault-finding

Integral part of coding process

Otherwise this will happen:

Debugging someone else's broken code

– Involuntary code review: Not so good; emotions may flare

[1] <http://code.google.com/p/rietveld/downloads/detail?name=Mondrian2006.pdf>

Code Review – Benefits Guido van Rossum [1]

Four eyes catch more bugs

Catch bugs early to save hours of debugging

Mentoring of new developers / contributors

Learn from mistakes without breaking stuff

Establish trust relationships

Prepare for more delegation

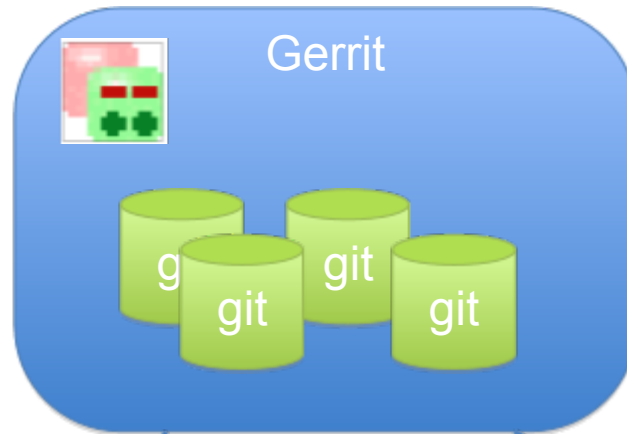
Good alternative to pair programming

asynchronous and across locations

Coding standards

Keep overall readability & code quality high

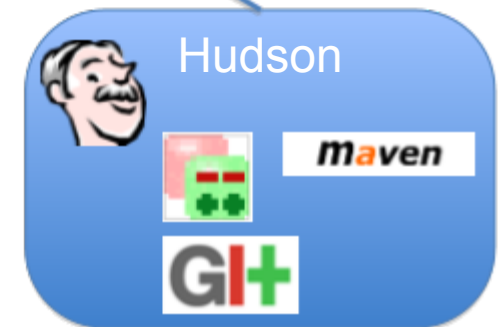
[1] <http://code.google.com/p/rietveld/downloads/detail?name=Mondrian2006.pdf>

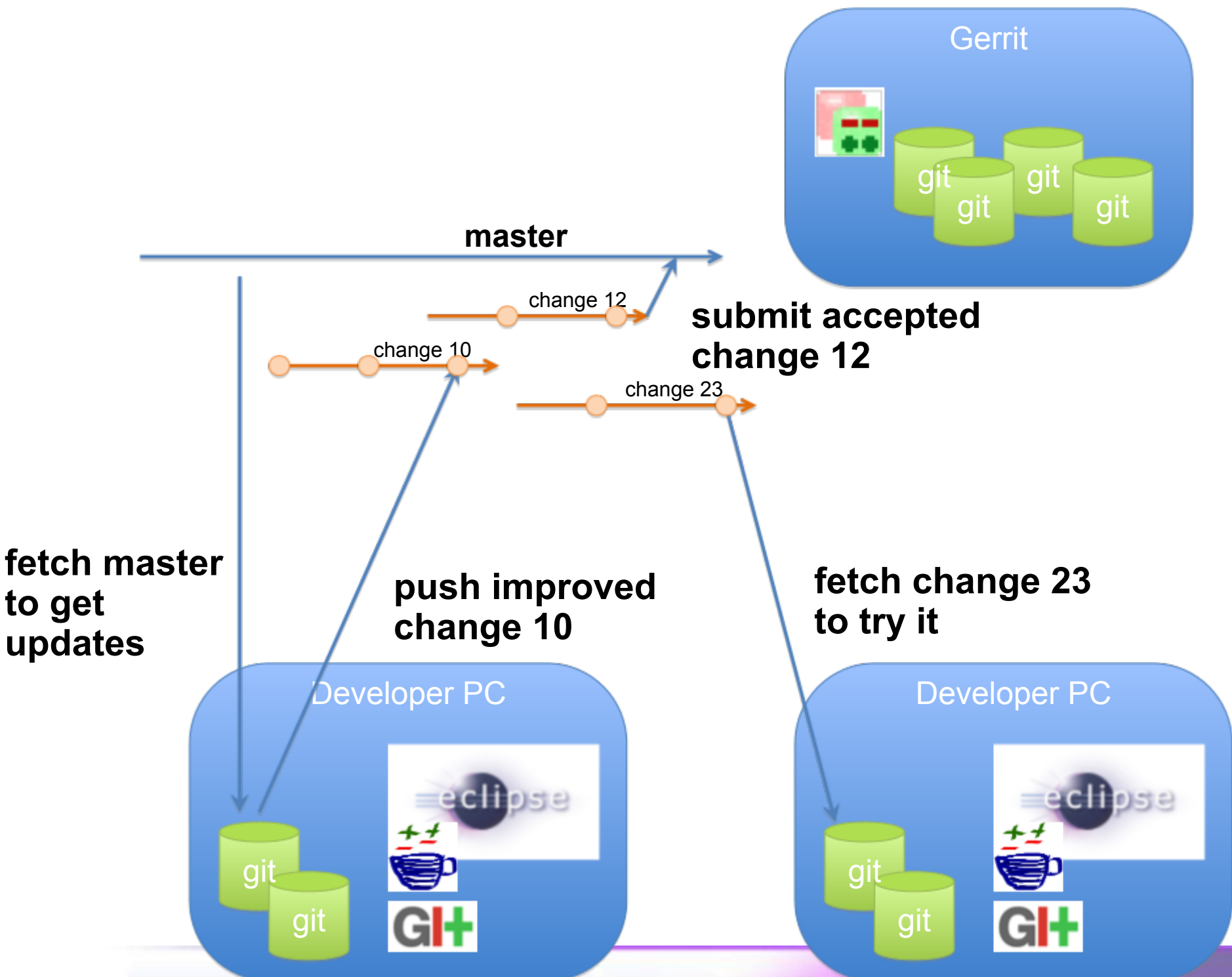


- clone repository
- fetch / push changes

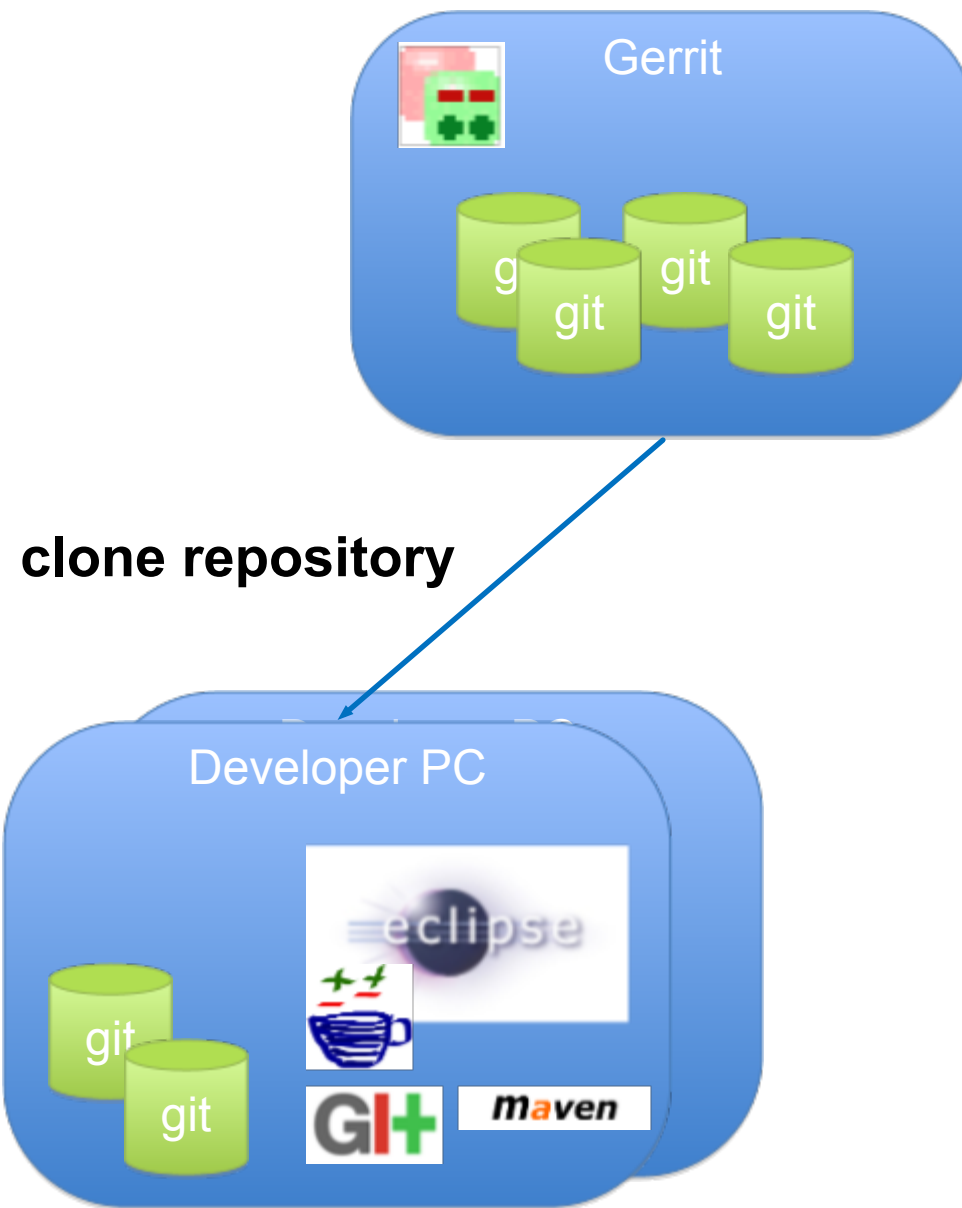


- verify proposed changes
- continuous integration builds

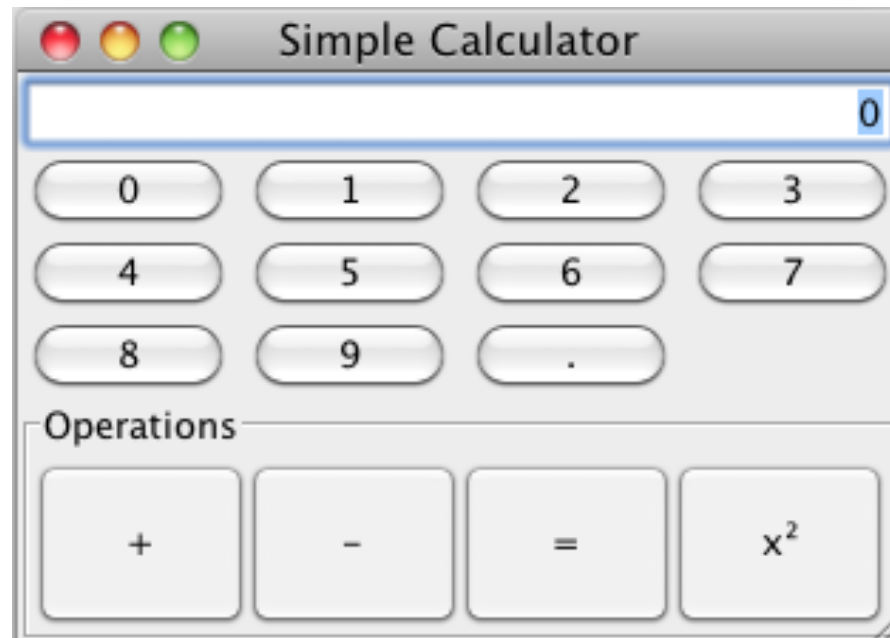




Local Development with EGit



Sample Application



Git Exercises

- 1 Setup & Clone the example repository**
- 2 Develop a feature**
- 3 Develop 2nd feature and use staging view**
- 4 Work on branches in parallel**
- 5 Fetch the latest state**
- 6 Merging, Rebasing, Resolving Conflicts**

Git Exercises

7 History view

8 Reset branch to previous state

9 Change a series of commits

10 Git blame

11 Stash

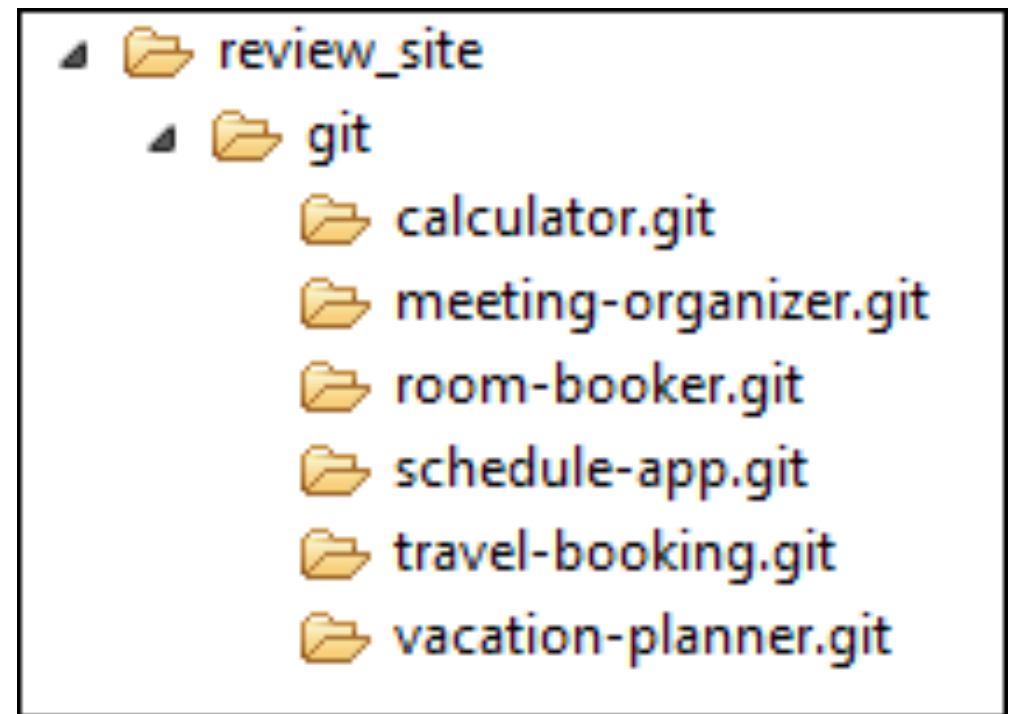
12 Submodules

Gerrit Code Review



Server managing central Git repositories

Gerrit





Access Control

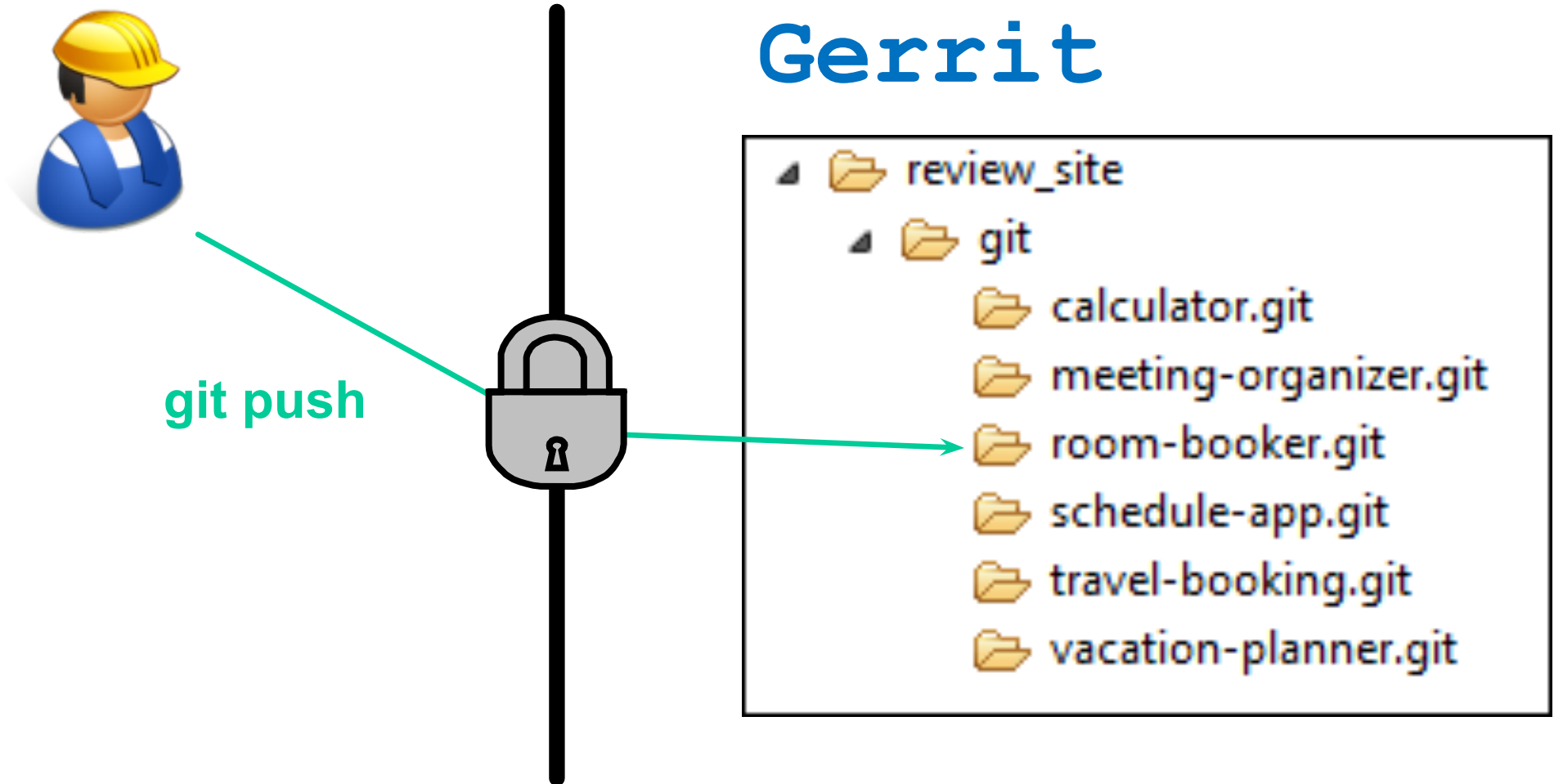


Gerrit

```
└─ review_site
   └─ git
      ├── calculator.git
      ├── meeting-organizer.git
      ├── room-booker.git
      ├── schedule-app.git
      ├── travel-booking.git
      └── vacation-planner.git
```



Access Control





Access Control

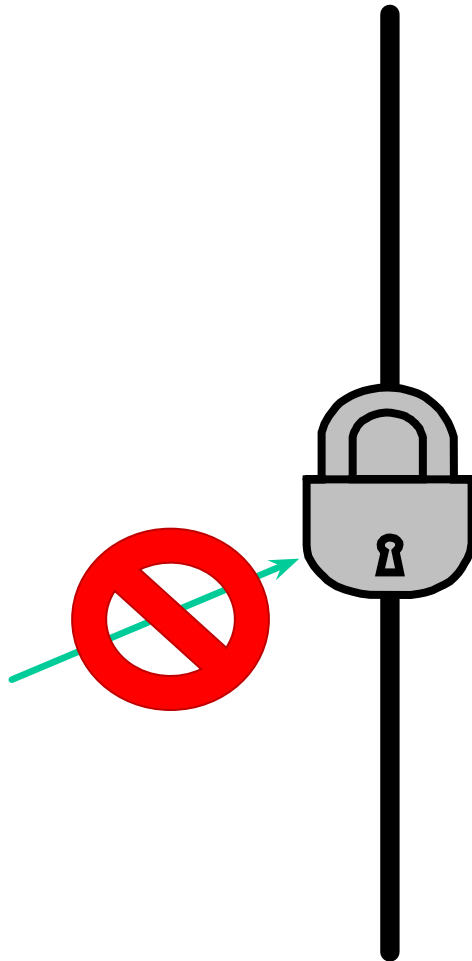


Gerrit

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└─ review_site
   └─ git
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Access Control



Gerrit

```
└─ review_site
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```



Code Review

Gerrit

```
└─ review_site
   └─ git
      ├── calculator.git
      ├── meeting-organizer.git
      ├── room-booker.git
      ├── schedule-app.git
      ├── travel-booking.git
      └── vacation-planner.git
```



Code Review

Gerrit



git push



```
└─ review_site
   └─ git
      ├── calculator.git
      ├── meeting-organizer.git
      ├── room-booker.git
      ├── schedule-app.git
      ├── travel-booking.git
      └── vacation-planner.git
```

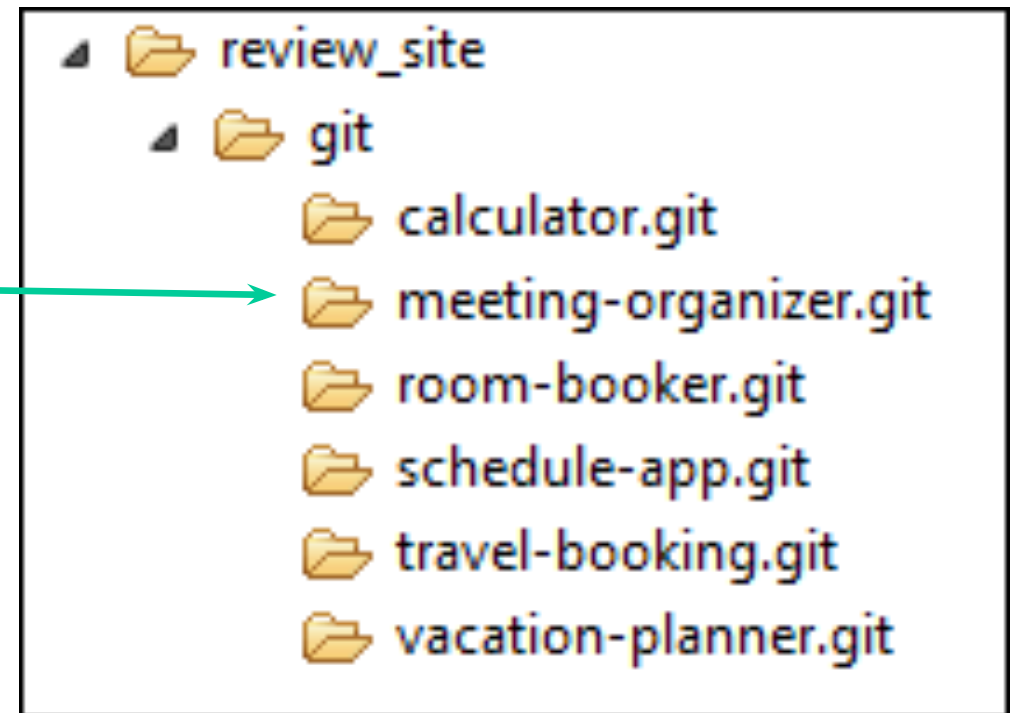


Code Review

Gerrit



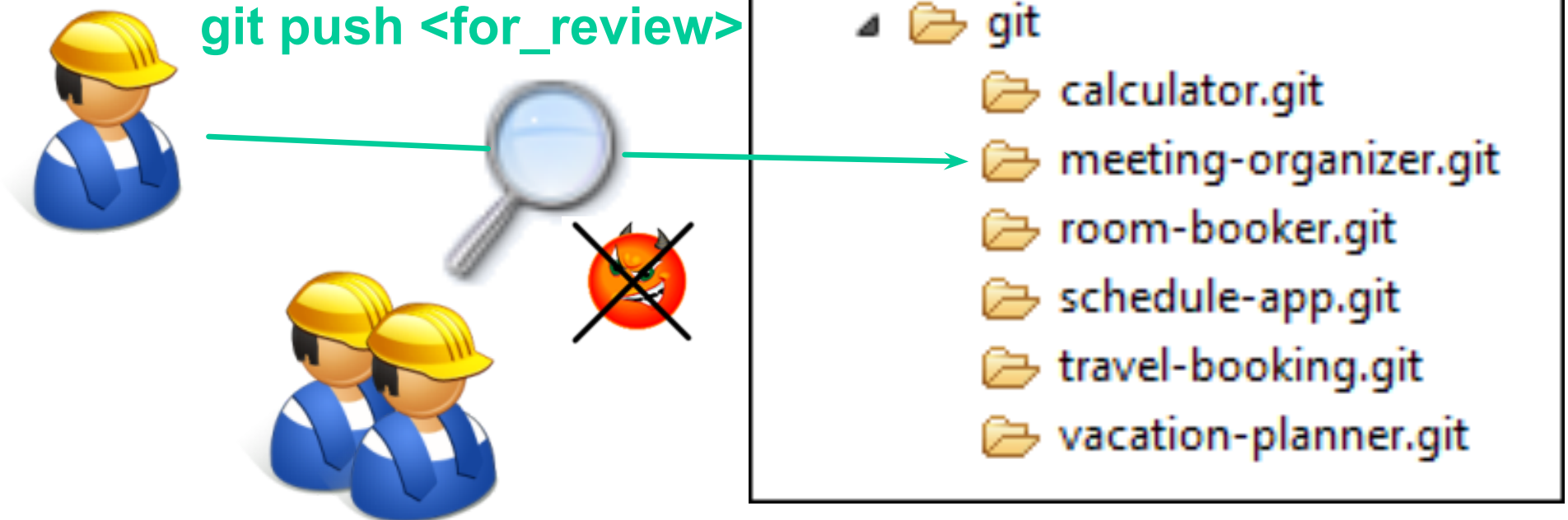
git push





Code Review

Gerrit





Commenting

```

11 +         prefix="scm:git:">
12 +     </supports>
13 + </importer>
14 + </extension>
15 + <extension
16 +     point="org.eclipse.team.ui.scmUrlImportPages">
17 +     <scmUrlImportPage

```

Matthias Sohn Juno workbench complains: Attribute 'repository' of element ...

Matthias Sohn don't know how to fix this

Tomasz Zarna You will need to update Eclipse to 3.8 M6, which is coming out this week, ...

Matthias Sohn could you point me to a working I-build ? I tried I20120312 but didn't ...

Tomasz Zarna Hmm, I've just upgraded I

Matthias Sohn I tried eclipse-SDK-I2012

Matthias Sohn

where can I find the p2 repo for I2012

Reply ... Reply 'Done'

Matthias Sohn

found <http://download.eclipse.org/e>

Reply ... Reply 'Done'

Tomasz Zarna

I've downloaded Eclipse 4.2.0 I2012
The only errors I see are related to
else to look at this?

Reply ... Reply 'Done'

```

18 +         importer="org.eclipse.team.ui.scmUrlImportPages"
19 +         page="org.eclipse.team.ui.scmUrlImportPages"
20 +     </scmUrlImportPage>
21 + </extension>
22 + </plugin>

```

[plugin.properties](#)

Matthias Sohn Patch Set 8: I still see these compile problems when using todays ...

Mar 14

Dani Megert Patch Set 7: Matthias, something must be broken on your side (workspace). ...

Mar 21

Matthias Sohn

Mar 22

Patch Set 8:

I tried again with 3.8 I20120320-1400 and 4.2 I20120321-0610 (Mac OS X 64bit) and still hit the same problems. Don't know what is wrong here. If you are visiting EclipseCon we could meet and have a look at my workspace.

Dani Megert

Mar 22

Patch Set 7:

I looked a bit closer at the errors you get, and I suspect that you get hit by the infamous bug [73957](#). Please try whether importing 'org.eclipse.swt' and the SWT fragment for your platform (use File > Import... > Plug-ins and Fragments) solves the problem. Do a Project > Clean... all + rebuild after the import in case there are still errors.

Matthias Sohn Patch Set 8: I tried importing org.eclipse.swt and mac platform fragment ...

Mar 22

Dani Megert Patch Set 7: Very strange. I assume you already tried to re-add the ...

Mar 22

Matthias Sohn

Mar 22

Patch Set 8:

Validating plugins in a new run configuration for an Eclipse application reveals the following problem messages:



Discussing & Improving

► Dependencies

Old Version History: Base ⬆

- Patch Set 1 c95afce82535bee688b54574126a7c9a6dc24f8 ([gitweb](#))
- Patch Set 2 b2fa7dba21254ec58fc2f06bc347e493a038cf34 ([gitweb](#))
- Patch Set 3 4d1462caa5eda20103a72315533fa33a8b843fa8 ([gitweb](#))
- Patch Set 4 7949fe001239fbd4c7db4a2d34071a4ee218c4 ([gitweb](#))
- Patch Set 5 ccdf5a191a4324d51b8b201: **229**
- Patch Set 6 91839ee9352e9e71a950ba0c
- Patch Set 7 e9c2a852bce4159cdd0a601
- Patch Set 8 05baab28a38099a7b467d52
- Patch Set 9 d81ab43a6f19b70e61d2356 **230**
- Patch Set 10 ab0fdcfabdb7ce0d8157dd
- Patch Set 11 b056027bc9b8aac7c0cffc
- Patch Set 12 215e96e799019fcd3752e
- Patch Set 13 df01f3ee42c3cf9b9a257d5
- Patch Set 14 80a40aa188629a879b54a
- Patch Set 15 c8a6a7c67816d4412736i
- Patch Set 16 f8fdf4aa75ca2302829da51
- ▼ Patch Set 17 33427c84410ca18d2fc98e **231**

```

229 ++ > > if (fanout != null && fanout.length > 0) {
230 ++ > > > pm.beginTask(JGitText.get().pruneLooseUnreferencedObjects,
231 ++ > > > > fanout.length);
232 ++ > > > Objectwalk w = null;
233 ++ > > > try {
234 ++ > > > > // Expensive: create a Objectwalk which walks over all

```

Shawn Pearce Because of `git gc -auto` the number of loose objects should be ...

Christian Halstrick Took me a while to consume this comment. I agree: because we can assume ...

230 ++ > > > pm.beginTask(JGitText.get().pruneLooseUnreferencedObjects,
231 ++ > > > > fanout.length);
232 ++ > > > Objectwalk w = null;
233 ++ > > > try {
234 ++ > > > > // Expensive: create a Objectwalk which walks over all

Shawn Pearce

You also have to consider the reflogs here, and you aren't.

Christian Halstrick

Done

```

235 ++ > > > > // referenced objects.
236 ++ > > > > w = new Objectwalk(repo);
237 ++ > > > > for (Ref f : repo.getAllRefs().values())
238 ++ > > > > w.markStart(w.parseAny(f.getObjectId()));
239 ++ > > > > for (Ref f : repo.getRefDatabase().getAdditionalRefs())

```

Author [Christian Halstrick](#) <christian.halstrick@sap.com>
 Committer [Christian Halstrick](#) <christian.halstrick@sap.com>
 Parent(s) 3083146d136c5561d4c87c03efcb184ef4816abe Merge "Reu"



Voting

Verified:

- ☐ +1 Verified
- ☒ 0 No score
- ☐ -1 Fails

Code Review:

- ☐ +2 Looks good to me, approved
- ☐ +1 Looks good to me, but someone else must approve
- ☒ 0 No score
- ☐ -1 I would prefer that you didn't submit this
- ☐ -2 Do not submit

IP Clean:

- ☐ +1 IP review completed
- ☒ 0 No score
- ☐ -1 Unclean IP, do not check in

Cover Message:

Publish Comments

Publish and Submit

Cancel



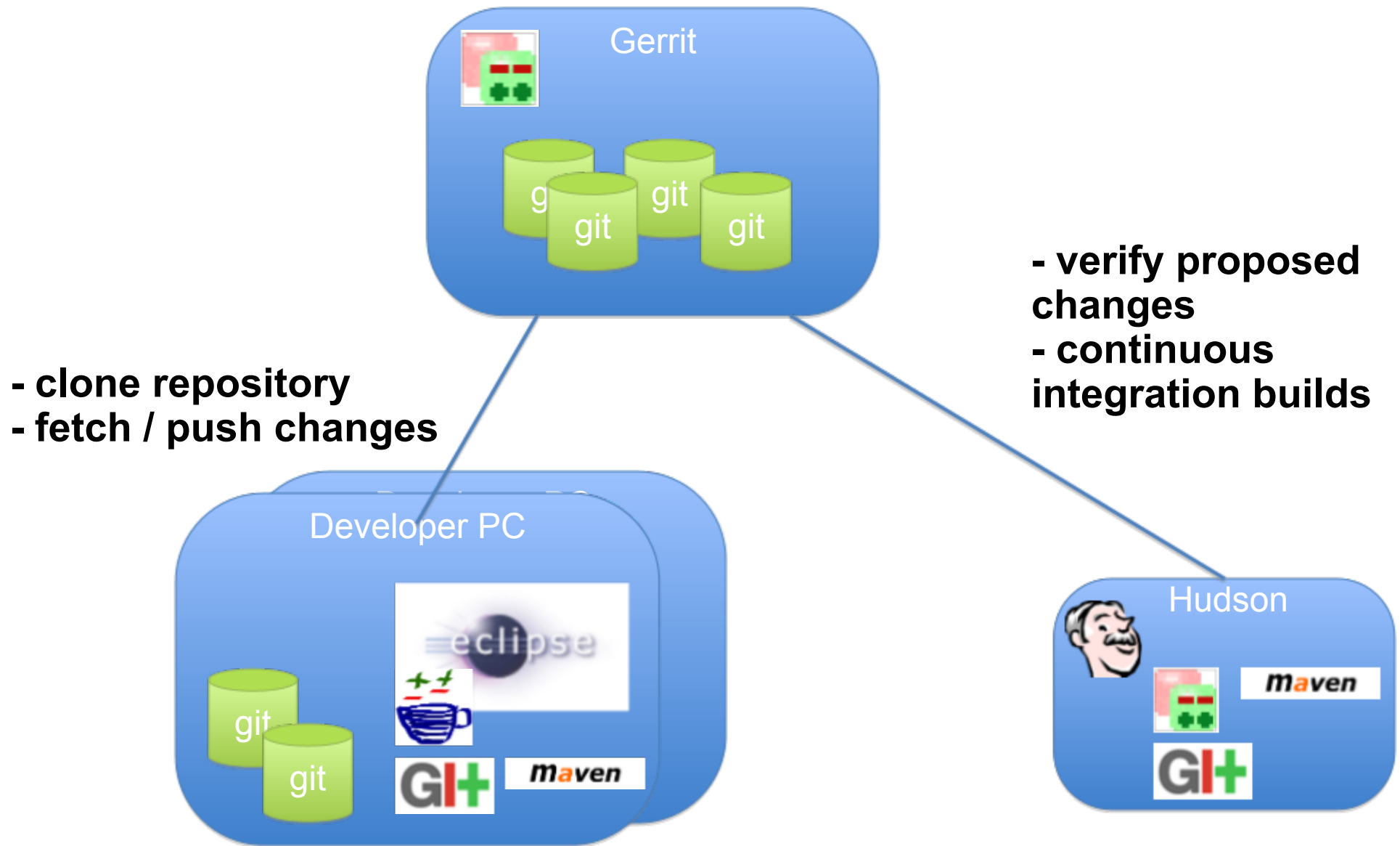
Do not miss:

Talk by Shawn Pearce (Gerrit founder and Project Lead)

Harnessing Peer Code Reviews

Wednesday, 14:15, Ballroom A

<http://git.eclipse.org/r/>

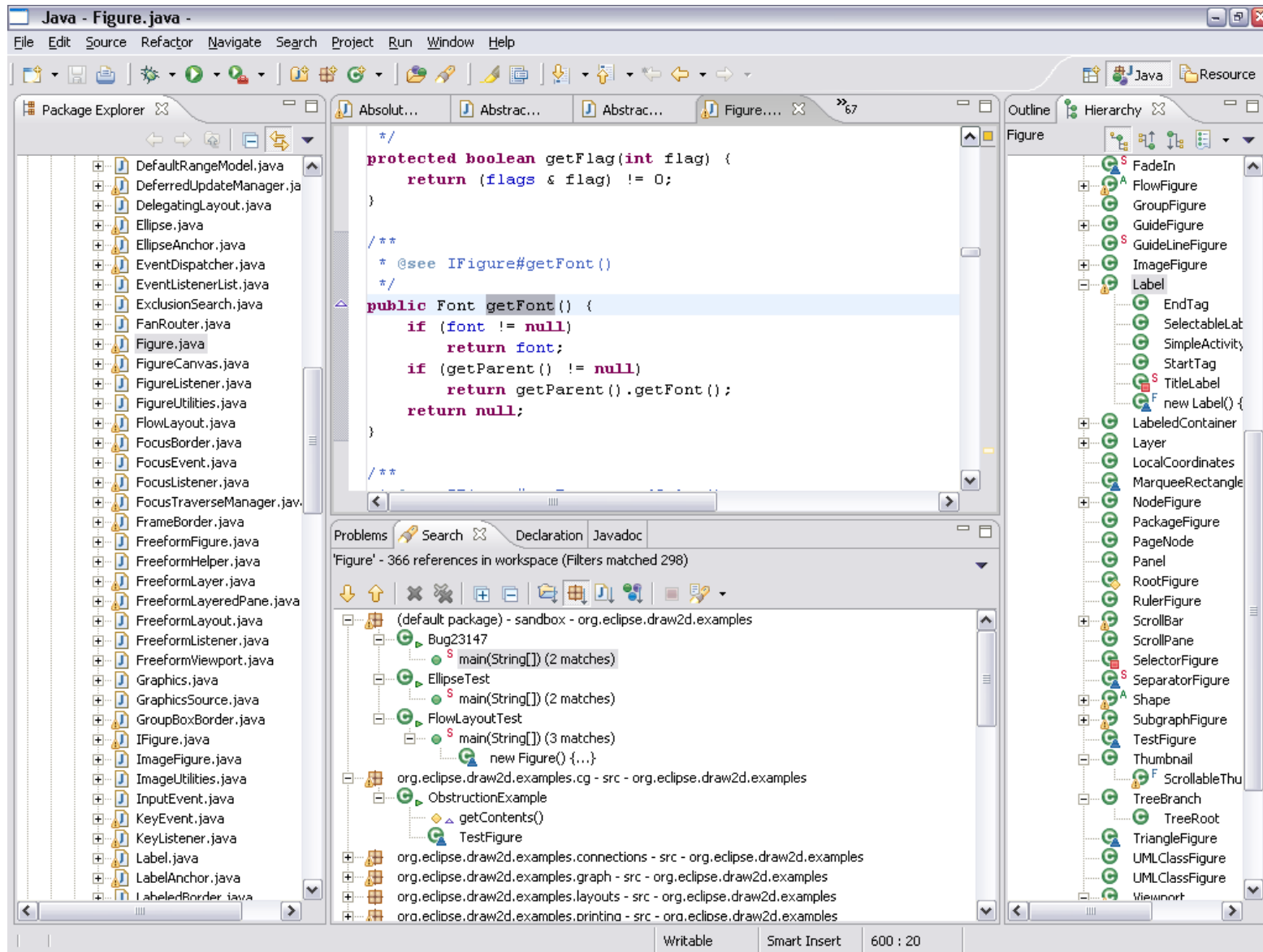


Gerrit Exercises

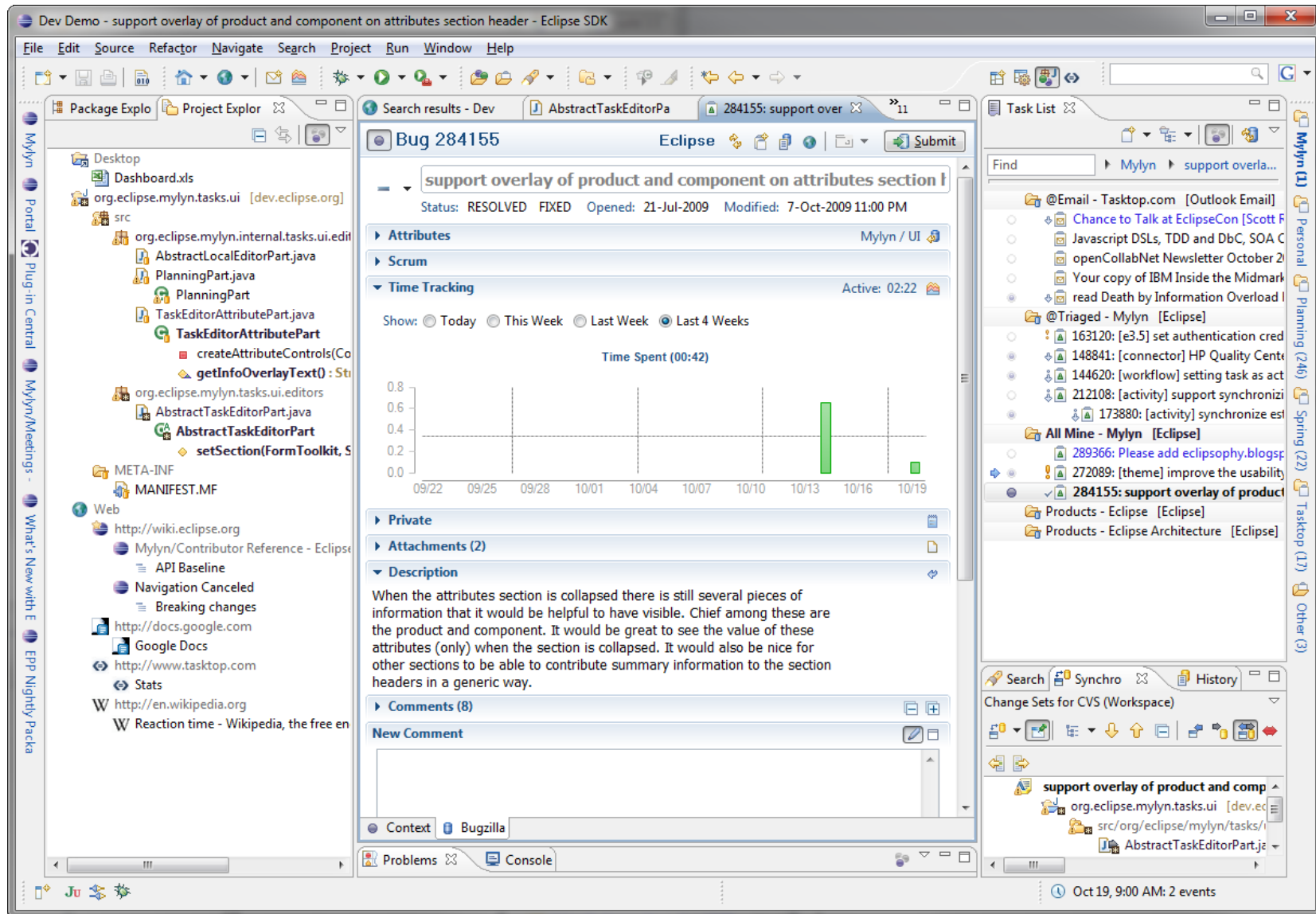
- 1 Configure push to Gerrit**
- 2 Push change to Gerrit**
- 3 Review change**
- 4 Improve a change**
- 5 Submit a change to the codebase**
- 6 View Gerrit review notes**
- 7 Starting Demo Gerrit Server (backup)**

Mylyn Integration

90% Irrelevant



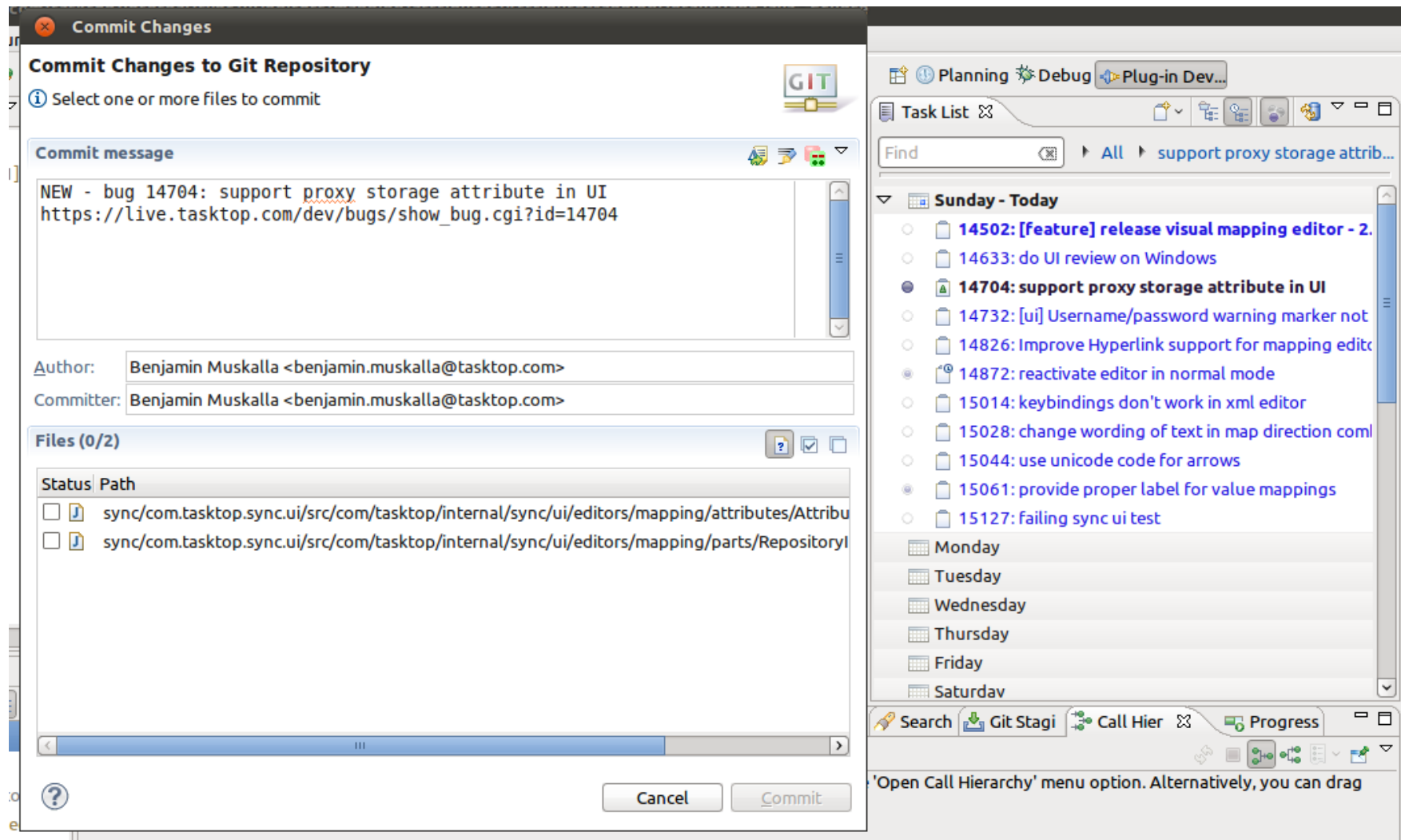
Task-focused IDE



< Demo >

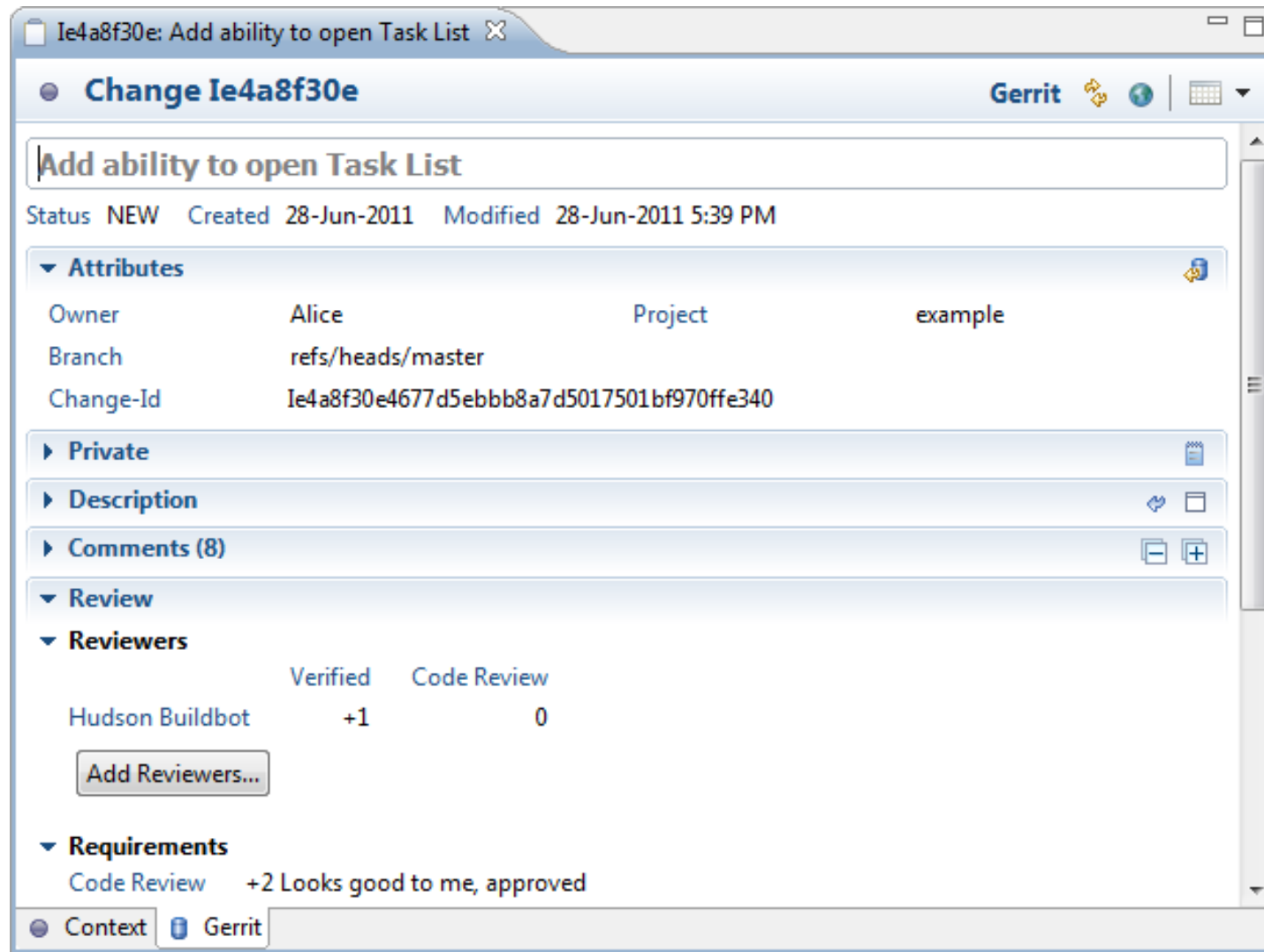
Exercises: Mylyn Integration

1 Mylyn / EGit Integration



Exercises: Mylyn Integration

2 Use Gerrit from within the IDE



Exercises: Mylyn Integration

1 Mylyn / EGit Integration

2 Use Gerrit from within the IDE

Related talk

Wednesday, 1:30PM - 2:15PM

Build, Stage, Review, Merge: Task-focused Development the Eclipse Mylyn Way

GitHub Eclipse Support




GitHub Eclipse Support



- <https://github.com/eclipse>
 - 248 mirrored repositories
- Browsing source code
- Comparing branches and tags
- Activity feeds
- Charts & graphs
- Downloading snapshots

GitHub Eclipse Support




 **eclipse / eclipse.platform.swt**
mirrored from [git://git.eclipse.org/gitroot/platform/eclipse.platform.swt.git](https://git.eclipse.org/gitroot/platform/eclipse.platform.swt.git)


[Watch](#) [Fork](#) [1](#) [1](#)

[Code](#) [Network](#) [Pull Requests](#) **0** [Stats & Graphs](#)


[Files](#) [Commits](#) [Branches](#) **81** [Tags](#) **1,410** [Downloads](#)


Current branch: [master](#) ▼


eclipse.platform.swt / Commit History 

Keyboard shortcuts available 


Oct 28, 2011

 **v3810** [491cca8b8c](#) [Browse code](#)
Silenio Quarti authored 2 days ago


 **Bug 362375 - GPF on AIX when showing links in the editor** [0f9f6e9538](#) [Browse code](#)
Silenio Quarti authored 2 days ago


 **Add Snippet 359** [2127a4c369](#) [Browse code](#)
Bogdan Gheorghe authored 2 days ago


Oct 26, 2011

 **Bug 356571 - Exception in org.eclipse.swt.graphics.Image.getImageData()** [270369a277](#) [Browse code](#)
Silenio Quarti authored 4 days ago

Oct 24, 2011

 **v3809** [770424cb90](#) [Browse code](#)
Silenio Quarti authored October 24, 2011

 **no maps directory in new maps repo** [b4436264cd](#) [Browse code](#)
Silenio Quarti authored October 24, 2011

 **underline and strikeout color have priority over selection** [68d7cfe683](#) [Browse code](#)
fheidrich authored October 24, 2011

GitHub EGit Integration



GitHub Mylyn Connector

Issues

Gists

Pull Requests

Import Wizard

GitHub Java API

Maven plugins

Reporting

Automating tasks

GitHub Exercises: EGit Integration

1 Setup Share on GitHub

Q&A

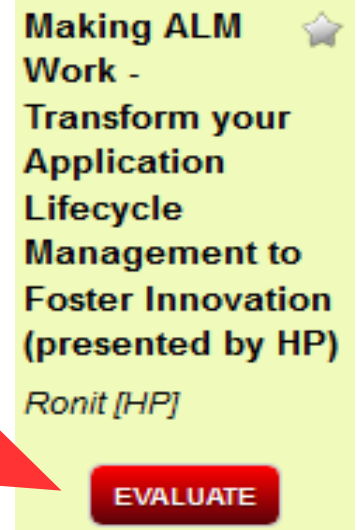
Give Feedback on the Sessions


1

Sign In: www.eclipsecon.org

2

Select Session Evaluate



Making ALM Work - 
Transform your Application Lifecycle Management to Foster Innovation (presented by HP)
Ronit [HP]

EVALUATE

A red arrow points from the text 'Select Session Evaluate' to the 'EVALUATE' button.

3

Vote