

Git Overview

Author: Nho Luong
Skill: DevOps Engineer Lead



The screenshot shows two browser windows. The left window displays the user's certification status on the CertMetrics platform, listing various AWS and Microsoft certifications with their active status, expiration dates, and 'View More' links. The right window shows the user's activity feed on the Microsoft Learn platform, specifically the 'Credentials' tab, where four Microsoft certifications are listed, each with a badge, expiration date, and a 'View certification details' link.

Certification status

Category	Certification	Status	Active Date	Expiration Date
AWS	AWS Certified Solutions Architect - Professional	Active	2024-06-21	2027-06-21
	AWS Certified Security - Specialty	Active	2024-06-19	2027-06-19
Microsoft	AWS Certified DevOps Engineer - Professional	Active	2024-06-17	2027-06-17
	AWS Certified Solutions Architect - Associate	Active	2024-06-15	2027-06-21

Activity

Category	Item	Status
Credentials	Microsoft Certified: DevOps Engineer Expert	Active
	Microsoft Certified: Azure Solutions Architect Expert	Active
	Microsoft Certified: Azure Administrator Associate	Active
	Microsoft Certified: Azure Fundamentals	Active



Gerrit Code Review @ Eclipse



<https://git.eclipse.org/r/> is activated for most projects

Screenshot of the Gerrit web interface showing a search for "status:open".

The search results table has the following columns:

- ID
- Subject
- Owner
- Project
- Branch
- Updated
- V
- R
- I

Sample data from the table:

ID	Subject	Owner	Project	Branch	Updated	V	R	I
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Case study: Contributing to Eclipse

- Create a user account https://dev.eclipse.org/site_login/createaccount.php
- Log into <https://projects.eclipse.org/> and agree to the Contributor License agreement
- Logon to the Gerrit Web UI at <https://git.eclipse.org/r/> using the email address you registered with your Eclipse (and Bugzilla) account and your Eclipse password.
- <https://git.eclipse.org/r/#/settings/> and upload your public SSH key
- Clone platform.ui from git.eclipse.org (this takes a while)
- Fix something and upload the change

Agenda

Introduction

Exercises

Setup & Cloning the Sample Repository

Local Development with EGit

Gerrit Code Review

Contribution to Eclipse

Q & A

Git

Version Control

Distributed



Created 2005 for Linux Kernel development

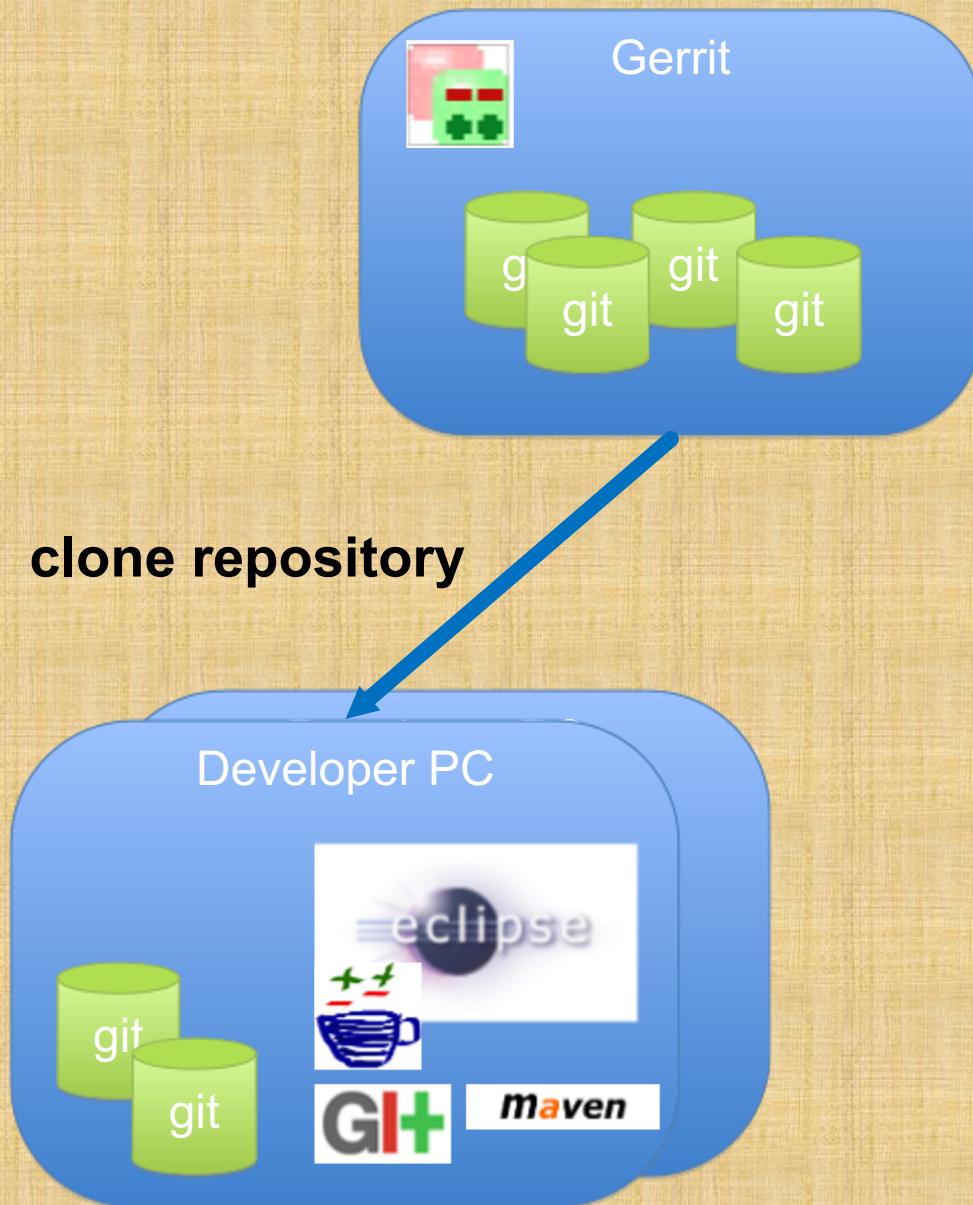


Enables collaborative Workflows

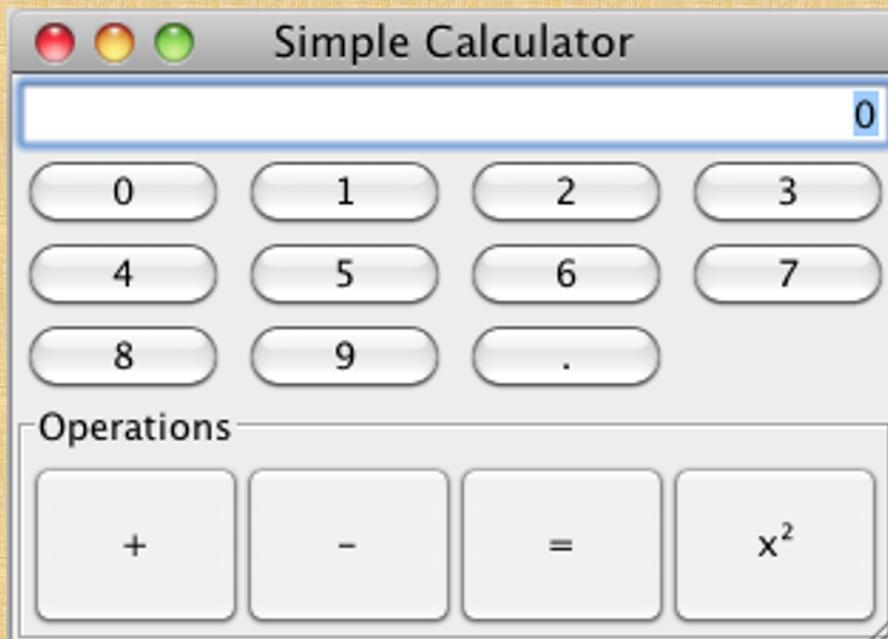
Git at Eclipse



Development with Git and Eclipse



Sample Application

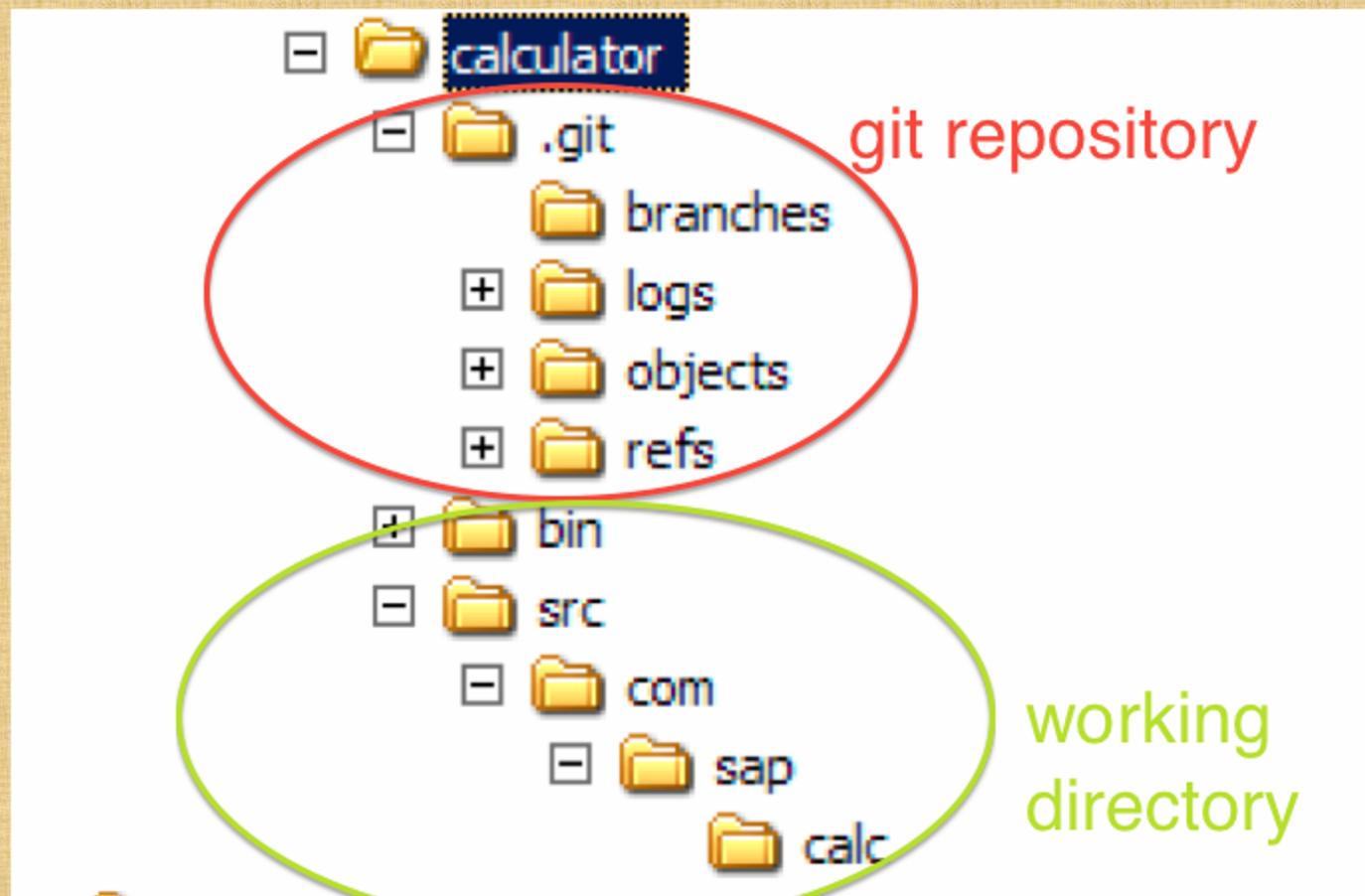


Git Exercises

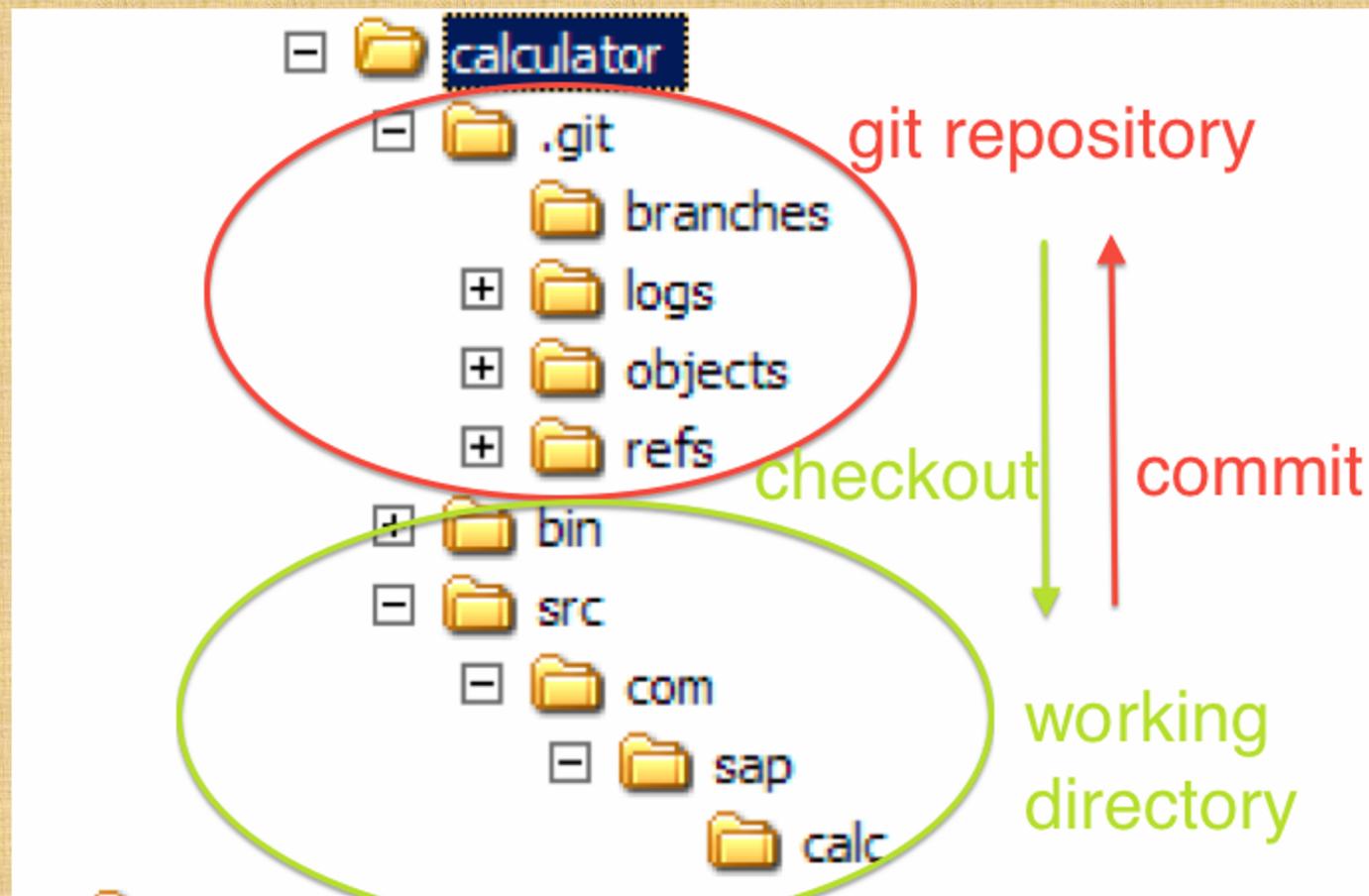
- 1 Setup & Clone the example repository**
- 2 Develop a feature**
- 3 Work on branches in parallel**
- 4 Fetch the latest state**

Git in a nutshell

Git Concepts: Storage



Git Concepts: Storage



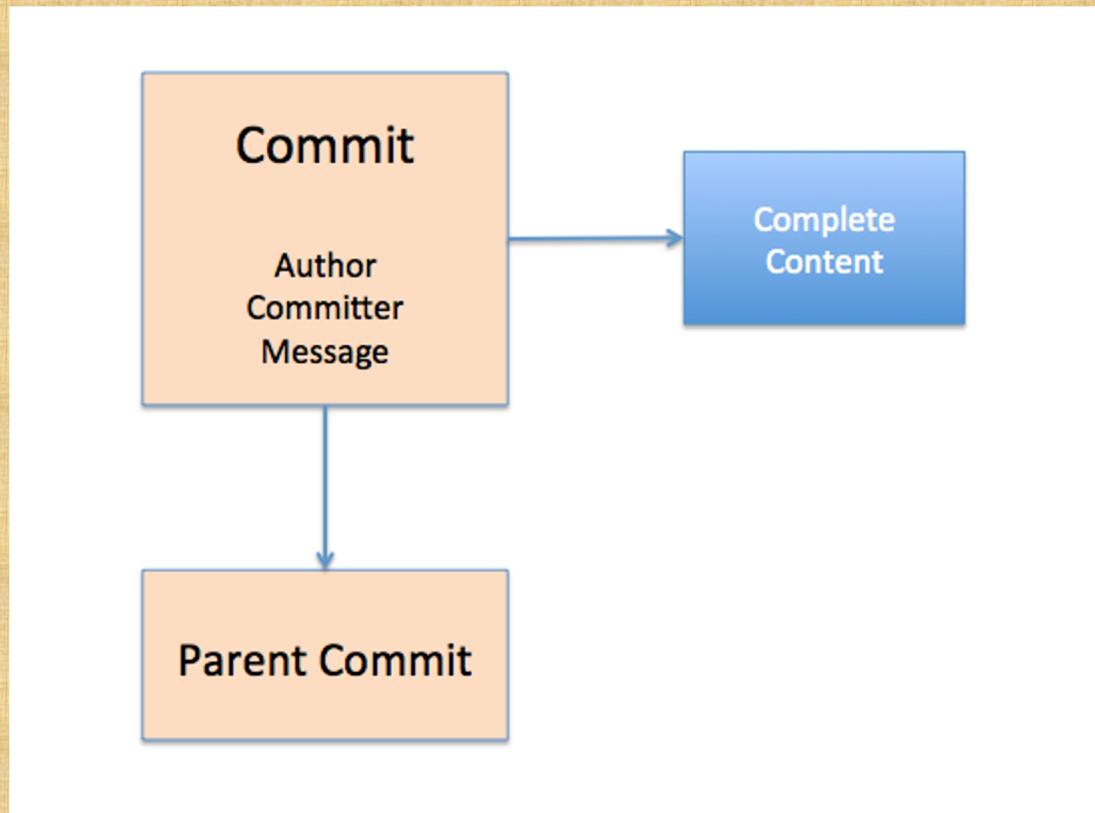
git repository

checkout

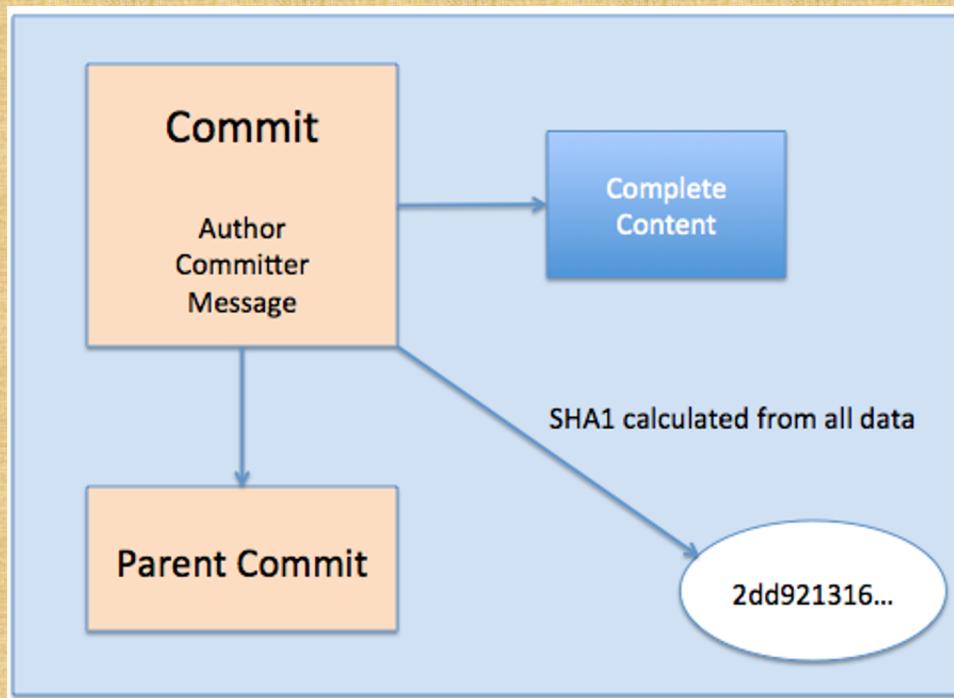
commit

working
directory

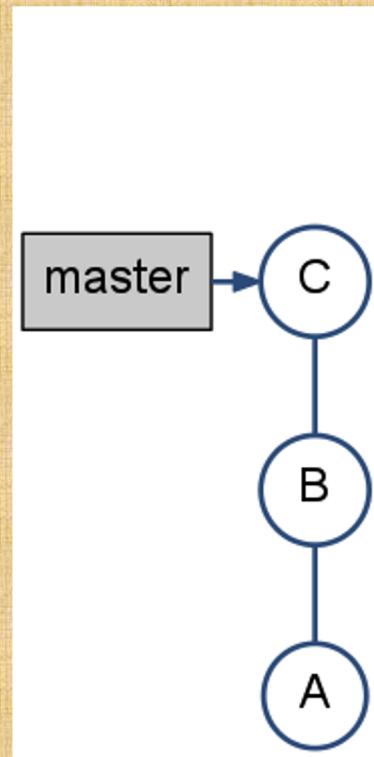
Git Concepts: Commits



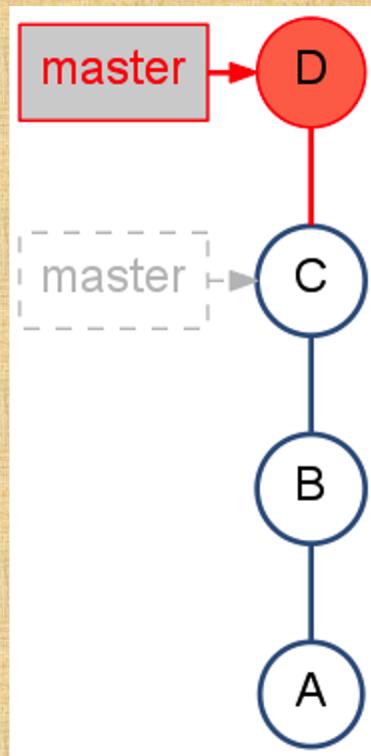
Git Concepts: Commits



Git Concepts: Branches



Git Concepts: Branches



Git Exercises

- 5 Merging, Rebasing, Resolving Conflicts**
- 6 History view**
- 7 Change a series of commits**
- 8 Git blame**

Gerrit code review

Originally developed by
Google for code review of the
Android OS project

Gerrit Code Review @ Eclipse



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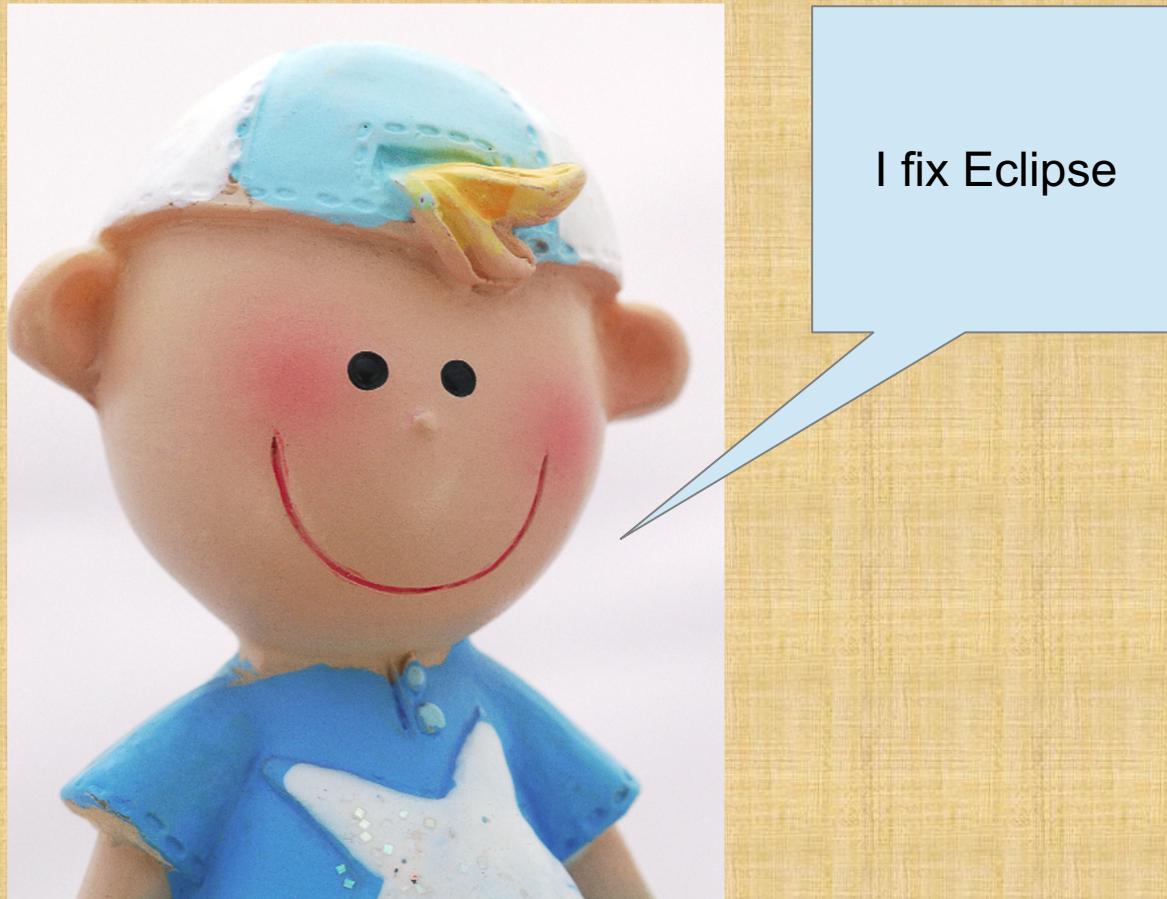
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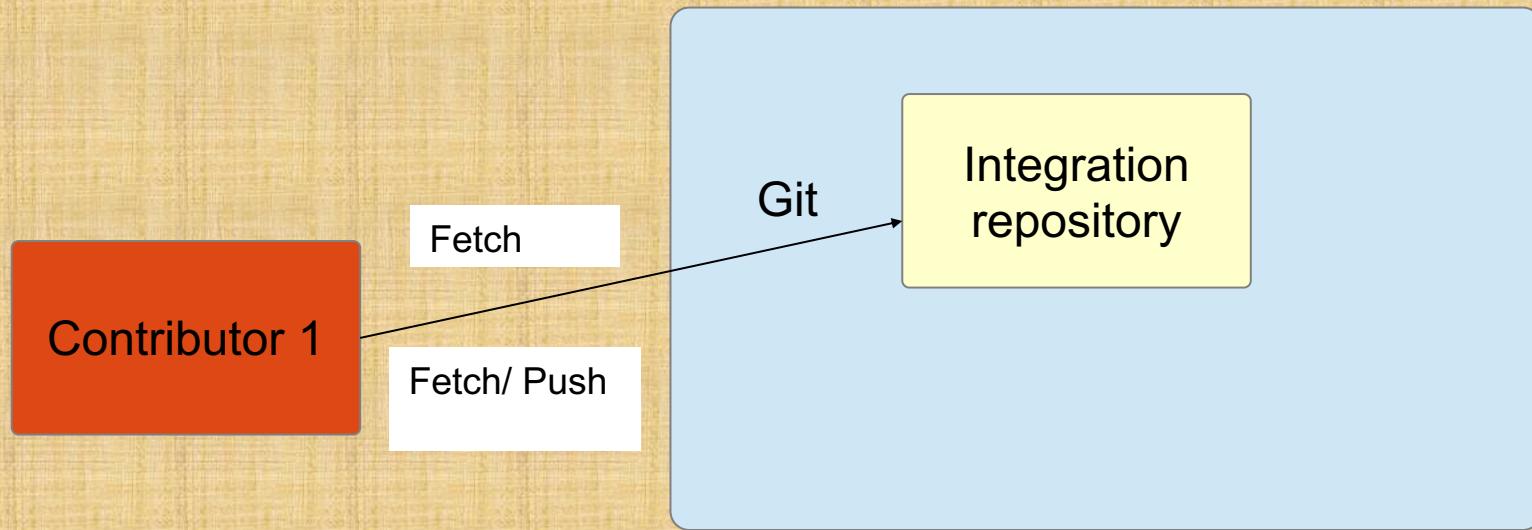
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Contributions in Git



Contributions in Git



Contributions either via patches or commit rights



Committer

Reviewing patches



Committer

Rule #1 of good code review - Make it easy!

Reviews must
be easy



Contributions
must be
easy

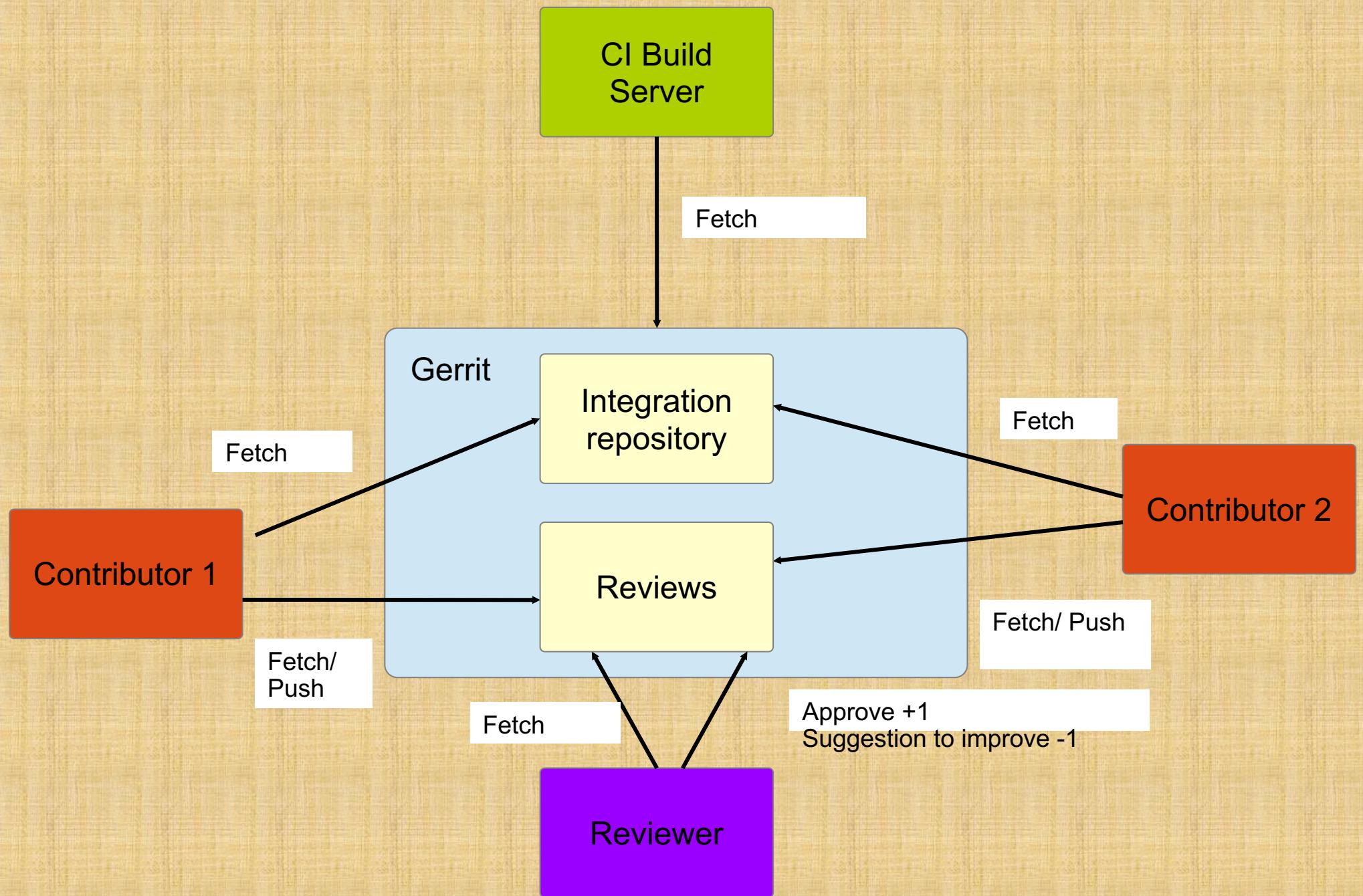


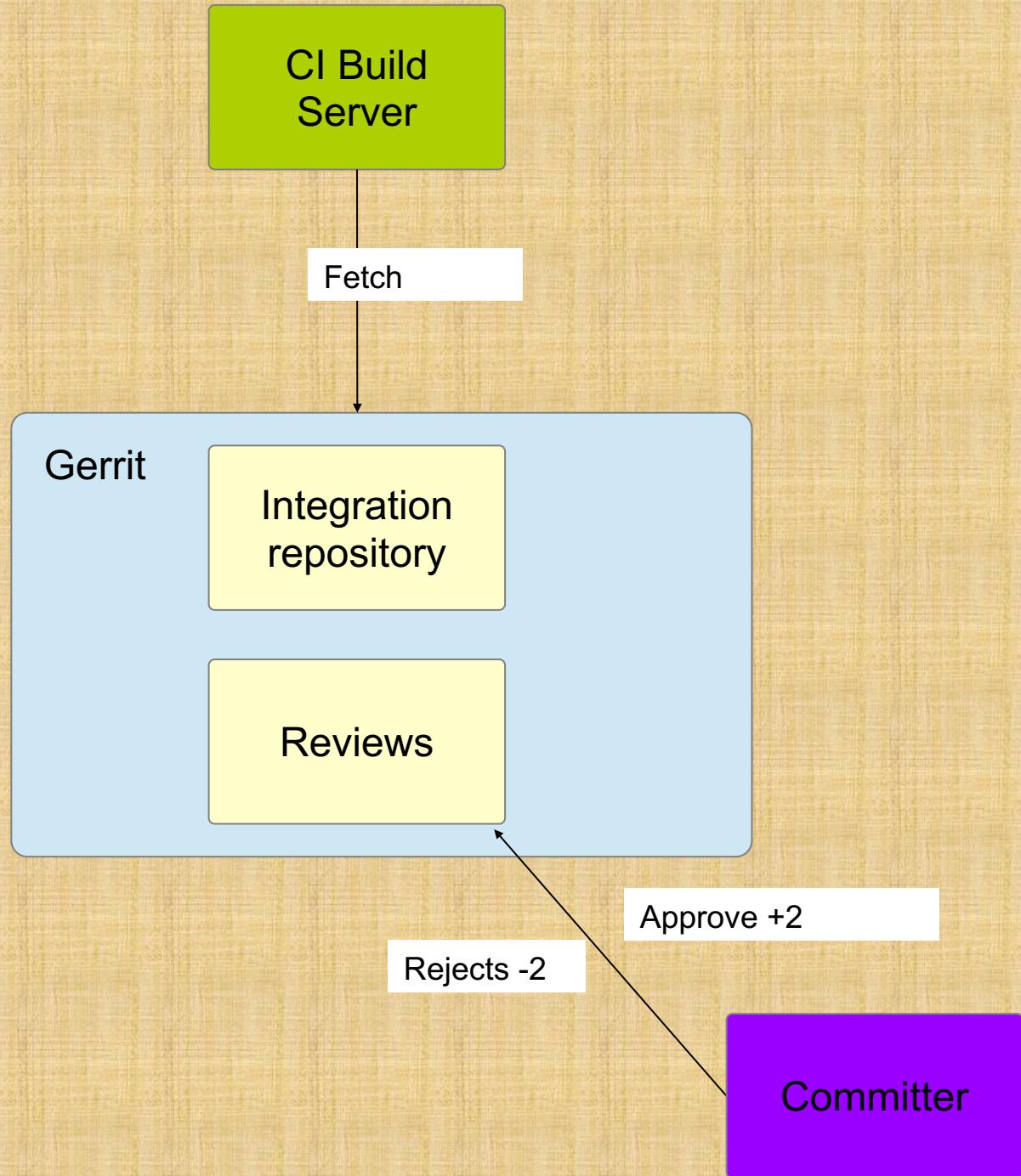
Roles in a Gerrit project

- Contributor
- Reviewer
- Committer
- Admin

Review feedback

- -2 Blocks (**committer only**)
- -1 Please adjust
- 1 OK
- 2 Good to go (**committer only**)





Advantages of Gerrit code review

- “Safe” to contribute
- Easy for all sides
- Feedback possible on a line-by-line basis
- Great learning environment

One Commit == one Gerrit review

Gerrit review is identified via the Change-ID in the commit message

Amend the commit and push the changes to update the review



Dark side of Gerrit

Author: Nho Luong

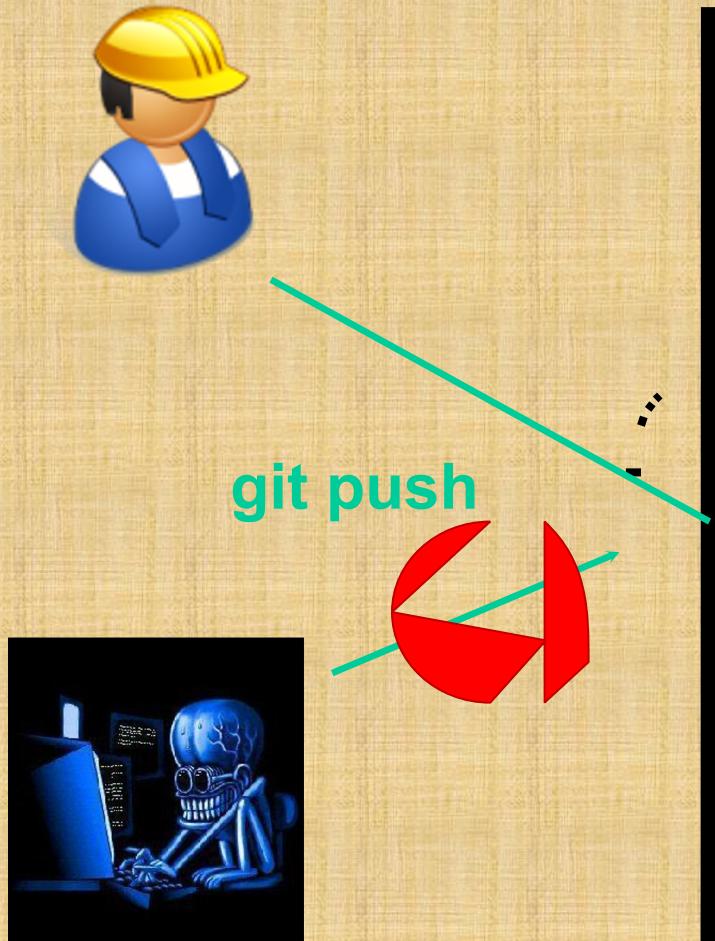
Skill: DevOps Engineer Lead

Comparison to Github

- Merge requests based on branches
- Feels easier than reviews based on commits
- But: Github review system not as advanced as with Gerrit



Access Control

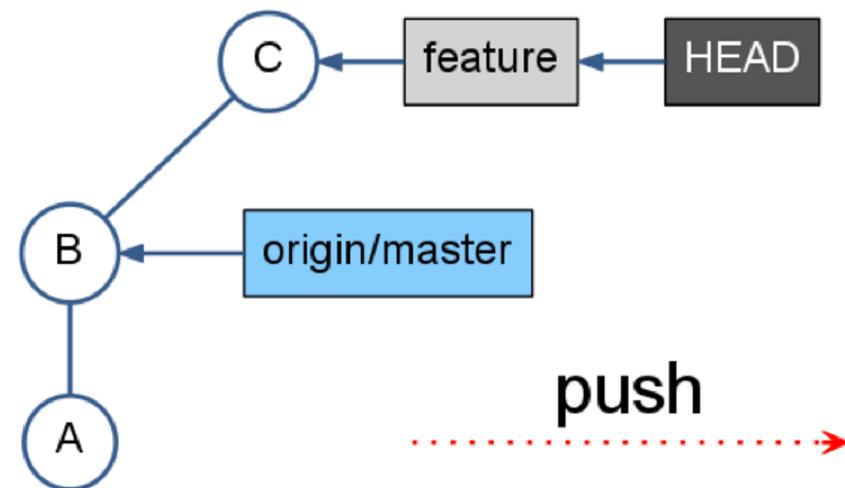


Gerrit

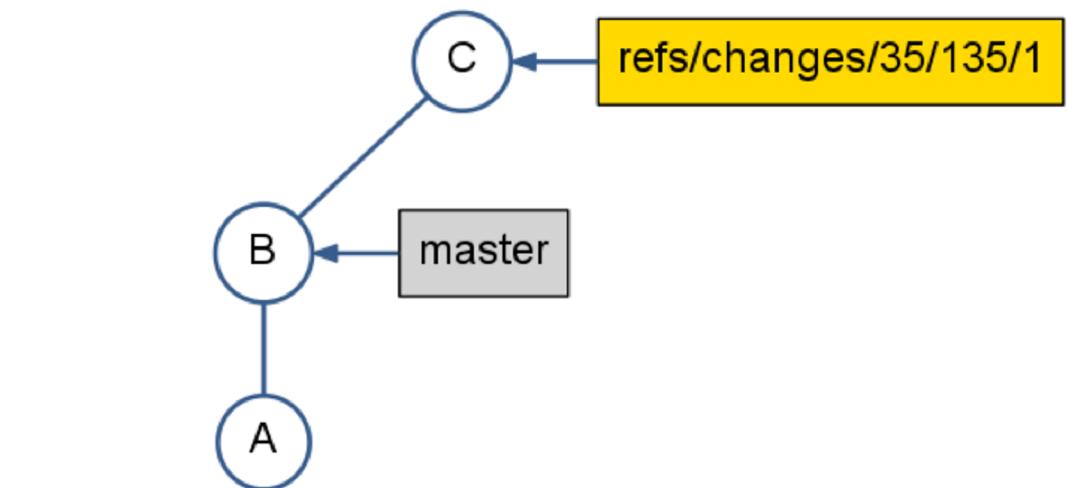
- ◀ **review_site**
- ◀ **git**
- calculator.git**
- meeting-organizer.git**
- room-booker.git**
- schedule-app.git**
- travel-booking.git**
- vacation-planner.git**

Git Concepts: Pushing to Gerrit

```
git push origin HEAD:refs/for/master
```



local repo



Gerrit hosted 'origin' repo

On push an open change
in the Gerrit DB is created.

Demo



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 :

Matthias Sohn I tried eclipse-SDK-I2012

Matthias Sohn

where can I find the p2 repo for I201

[Reply ...](#) [Reply 'Done'](#)

Matthias Sohn

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

[Reply ...](#) [Reply 'Done'](#)

Tomasz Zarna

I've downloaded Eclipse 4.2.0 I201

The only errors I see are related to / else to look at this?

[Reply ...](#) [Reply 'Done'](#)

```
18+           importer="org.eclipse.
19+             page="org.eclipse.
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

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

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

Patch Set 8:

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



Gerrit

Discussing & Improving

► Dependencies

Old Version History: Base

► Patch Set 1 c95afcec82535bee688b54574126a7c9a6dc24f8 ([gitweb](#))
► Patch Set 2 b2fa7dba21254ec58fc2f06bc347e493a038cf34 ([gitweb](#))
► Patch Set 3 4d1462caa5eda20103a72315533fa33a8b843fa8 ([gitweb](#))
► Patch Set 4 7949fe001239fbdbf4c7db4a2d34071a4ee218c4 ([gitweb](#))
► Patch Set 5 ccd5a191a4324d51b8b201
► Patch Set 6 91839ee9352e9e71a950ba0
► Patch Set 7 e9c2a852bce4159cd0a601
► Patch Set 8 05baab28a38099a7b467d52
► Patch Set 9 d81ab43a6f19b70e61d2356
► Patch Set 10 ab0fdcfabdb7ce0d8157dd
► Patch Set 11 b056027bc9b8aac7c0cffc
► Patch Set 12 215e96e799019fcfd3752e
► Patch Set 13 df01f3ee42c3cf9b9a257df
► Patch Set 14 80a40aa188629a879b54a
► Patch Set 15 c8ea6a7c67816d44127361
► Patch Set 16 f8fdf4aa75ca2302829da51
► Patch Set 17 33427c84410ca18d2fc98a

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

229 +» » if (fanout != null && fanout.length > 0) {
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.beginTransaction().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.
Reply ... Reply 'Done'

Christian Halstrick
Done
Reply ... Reply '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())



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:

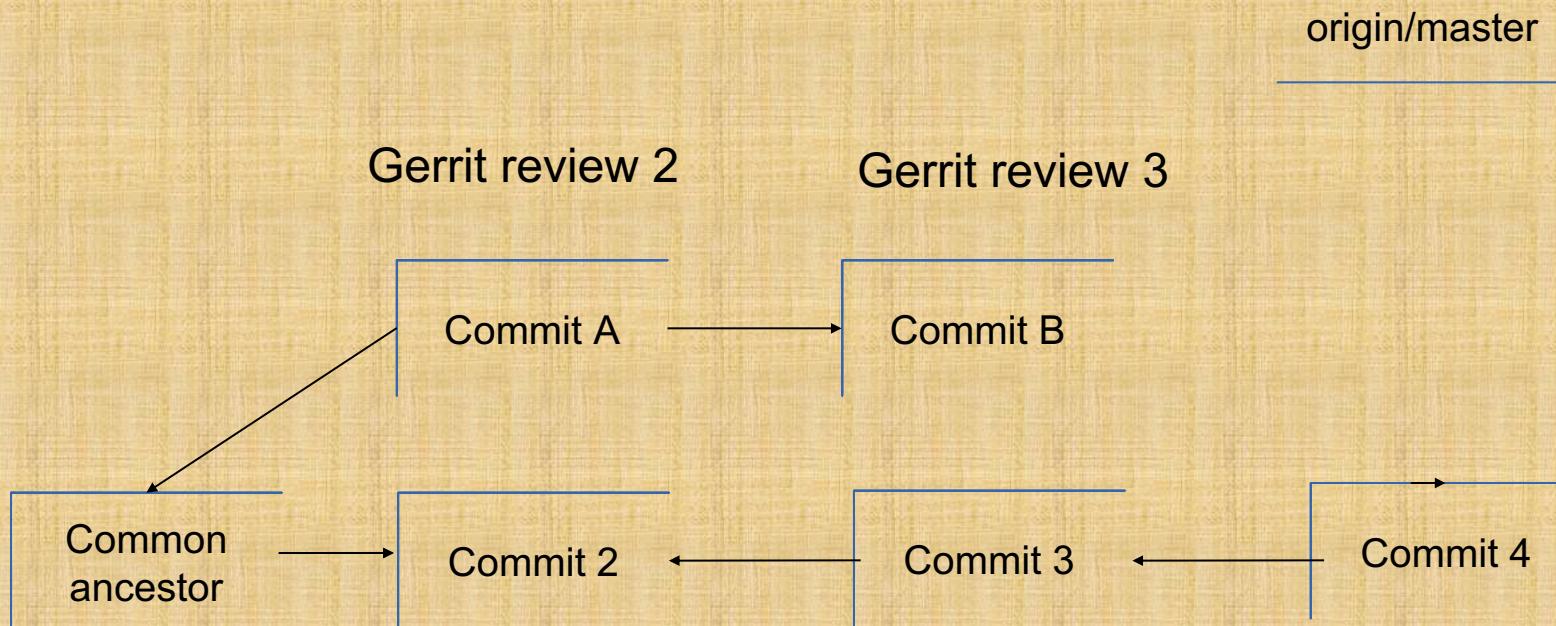
- +1 IP review completed
- 0 No score
- 1 Unclean IP, do not check in

Cover Message:Publish CommentsPublish and SubmitCancel

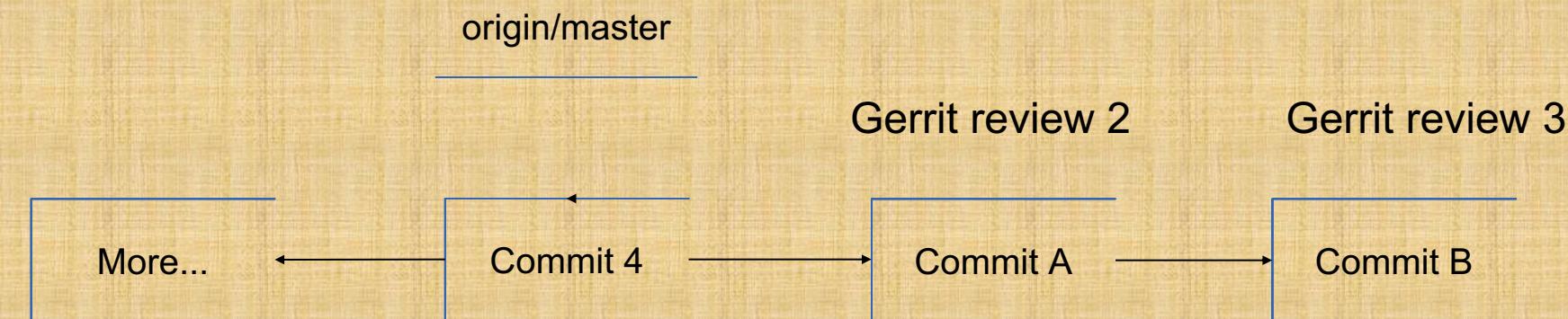
Gerrit Exercises

- 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 New Changescreen**
- 7 View Gerrit review notes**

Gerrit issue #1 – non fast forward change

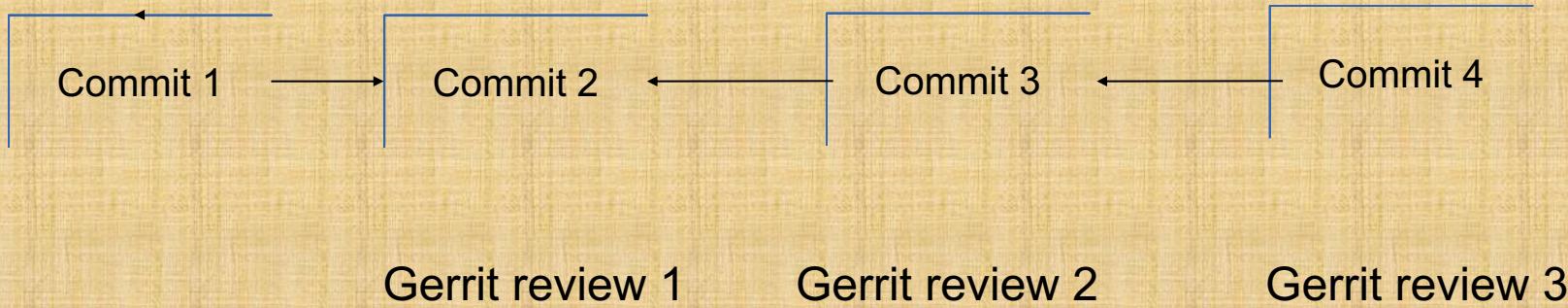


Solution issue #1 – Rebase



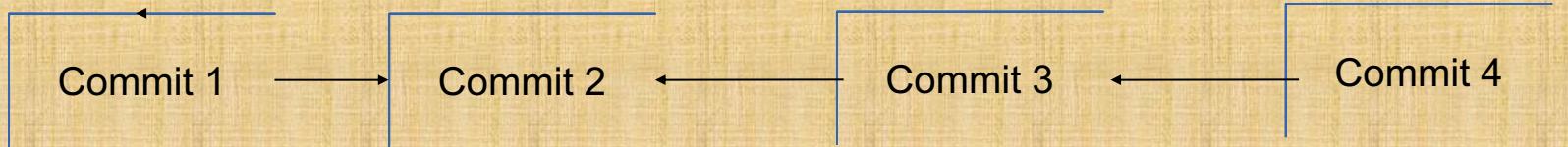
Gerrit issue #2 – Push a series of unrelated changes

origin/master



Gerrit issue #2 – Push a series of unrelated changes

origin/master



NO WAY THIS
GETS INTO OUR
CODE BASE!!!

Gerrit review 2

Gerrit review 3

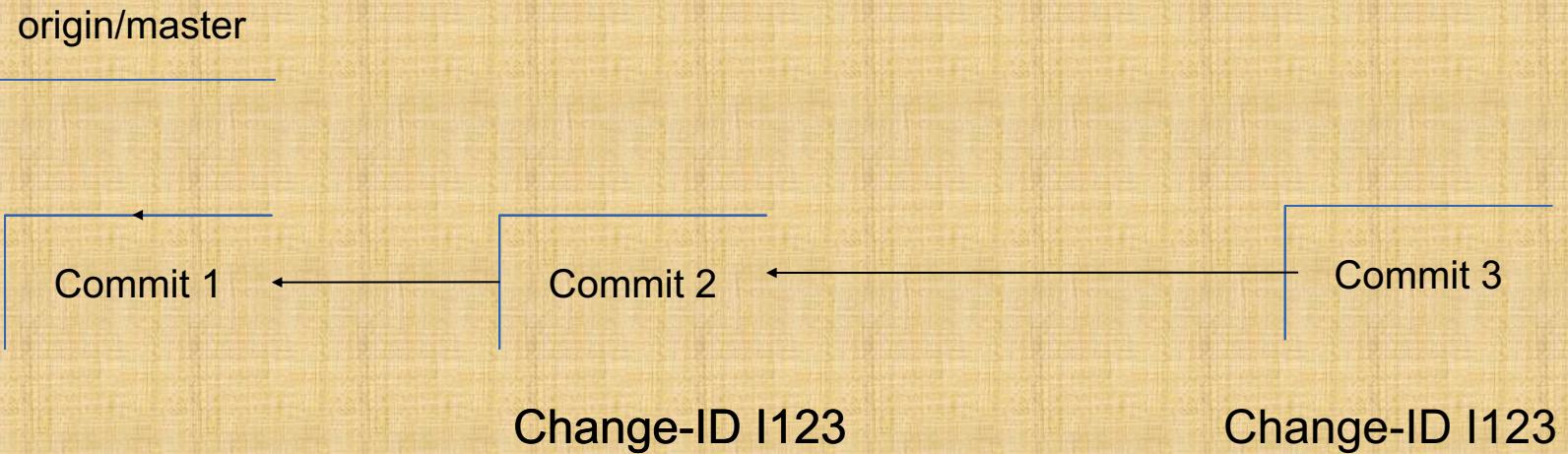
Gerrit issue #2 – Solution



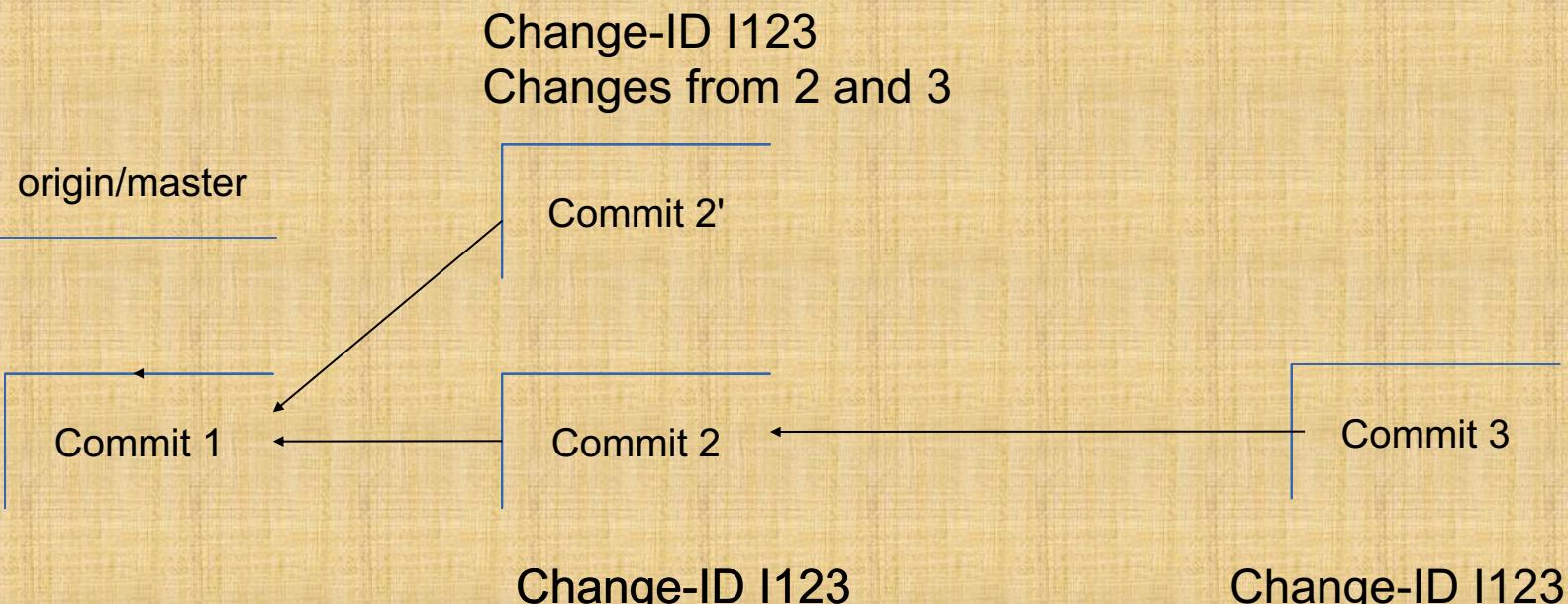
```
git reset --hard origin/master  
git cherrypick 4
```

Push again to Gerrit → new change set

Gerrit issue #3 – Using the same Change-ID in two commits



Gerrit issue #3 – Solution: Squash commits



Squash commits

Push again to Gerrit → new change set

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- <https://git.eclipse.org/r/#/settings/> and upload your public SSH key
- Clone platform.ui from git.eclipse.org (this takes a while)
- Fix something and upload the change

Evaluate This Session

1

Sign-in:

www.eclipsecon.org

2

Select session from schedule

3

Evaluate

:

+1

0

-1



Thank You