10 GIT ANTI PATTERNS

YOU SHOULD BE AWARE OF

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Turkish Software Craftsmanship Community

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Do you push every commit

just after you create ?

ANTIPATTERN DANGER

Do you push every commit

just after you create ?

ANTIPATTERN DANGER

if all you do is commit and immediate push

you lose the opportunity to organize your commits
via reset, rebase, commit with amend safely

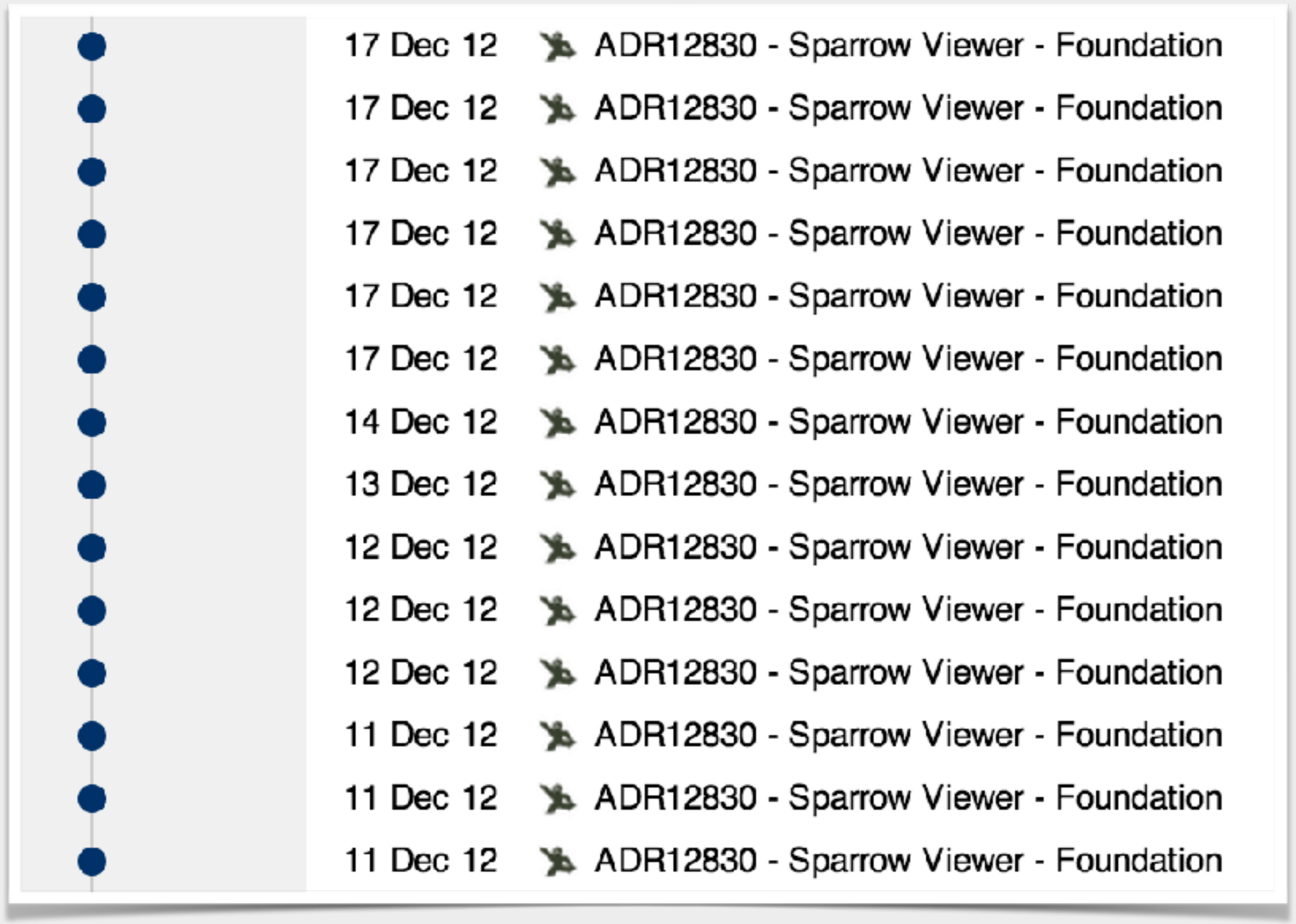
and you have to use force push at every time
you organize your commits

are you brave enough to
jump to any commit ?

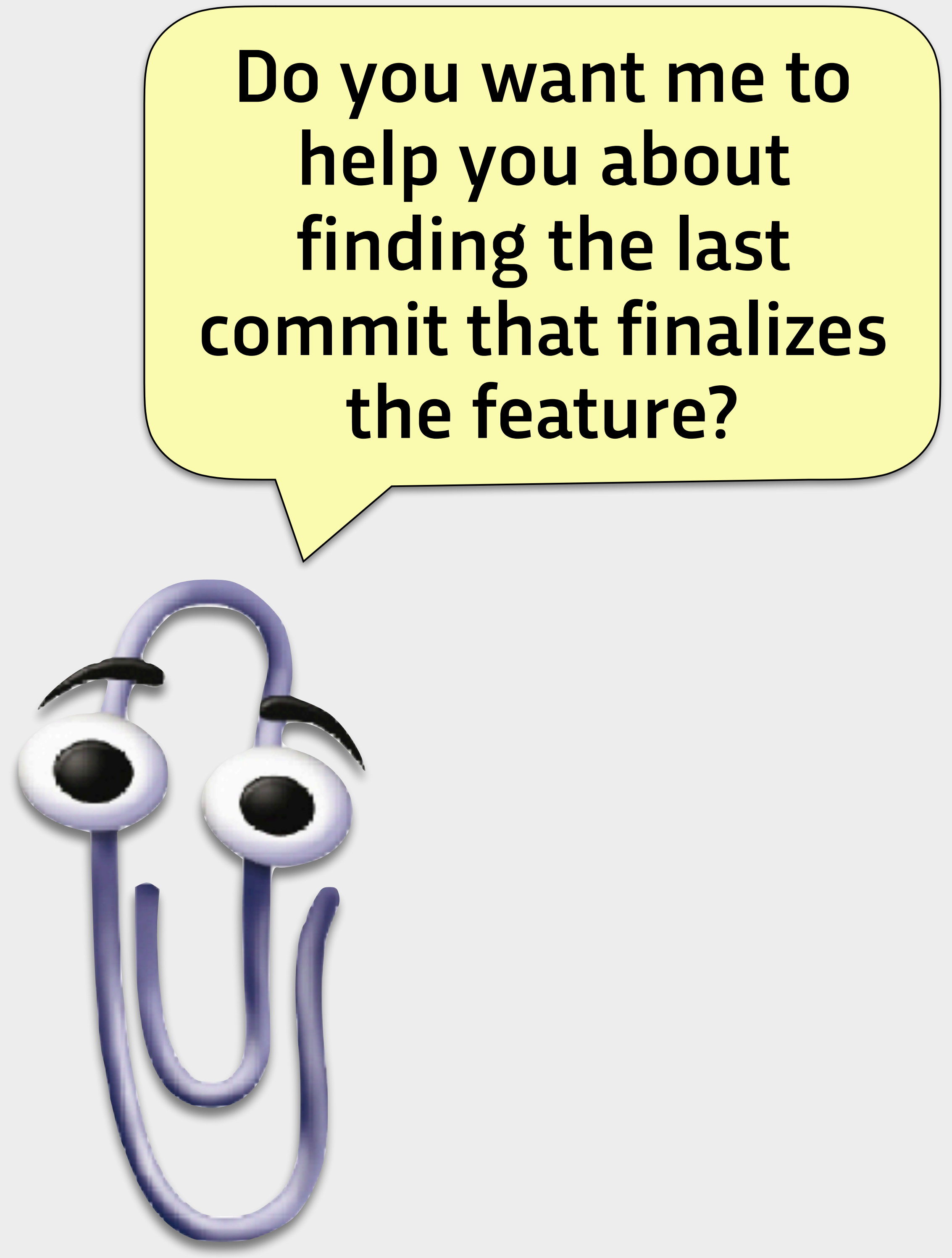
are you brave enough to **jump to any commit ?**

Nope. Usually tests do not pass, the application does not work, even the code does not compile in majority of commits.

are you brave enough to jump to any commit ?



●	17 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	17 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	17 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	17 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	17 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	17 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	14 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	13 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	12 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	12 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	12 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	11 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	11 Dec 12	ADR12830 - Sparrow Viewer - Foundation
●	11 Dec 12	ADR12830 - Sparrow Viewer - Foundation


Do you want me to help you about finding the last commit that finalizes the feature?

do you have

looooooong living

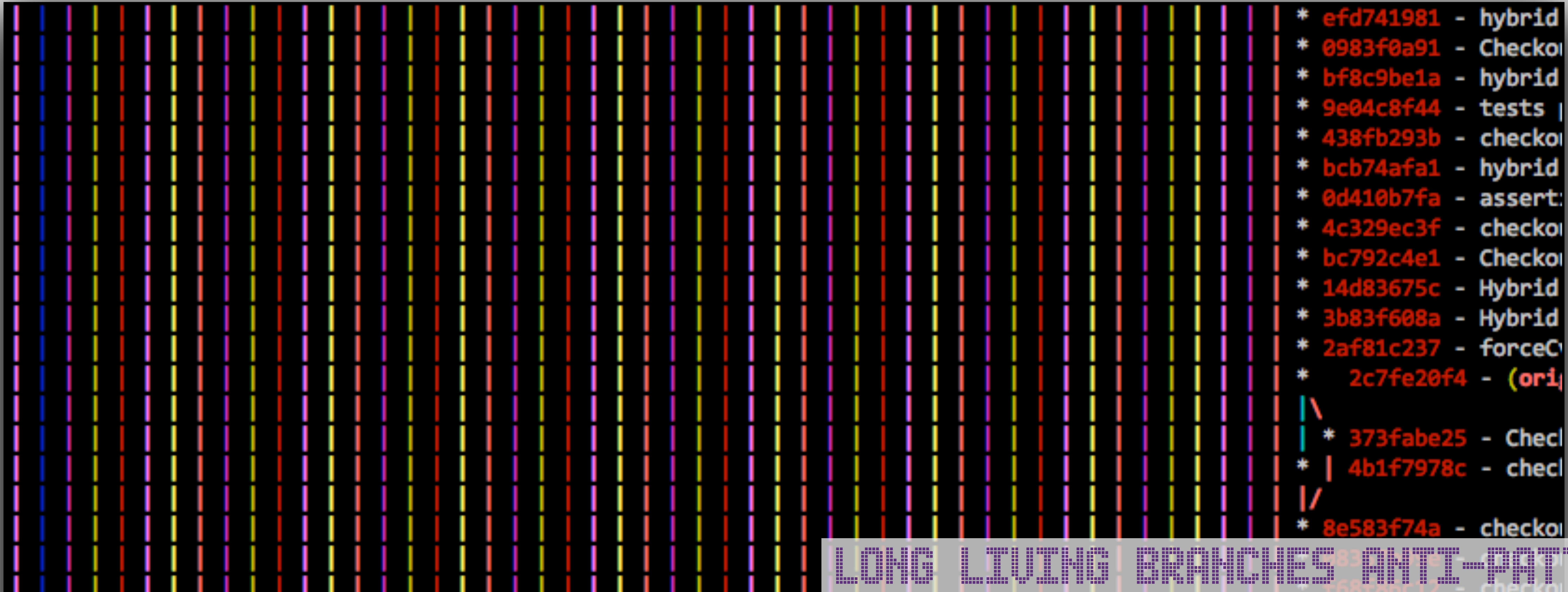
topic branches ?

ANTIPATTERN DANGER

do you have looooooong living topic branches ?

do you have loooooong living topic branches ?

welcome to merge hell



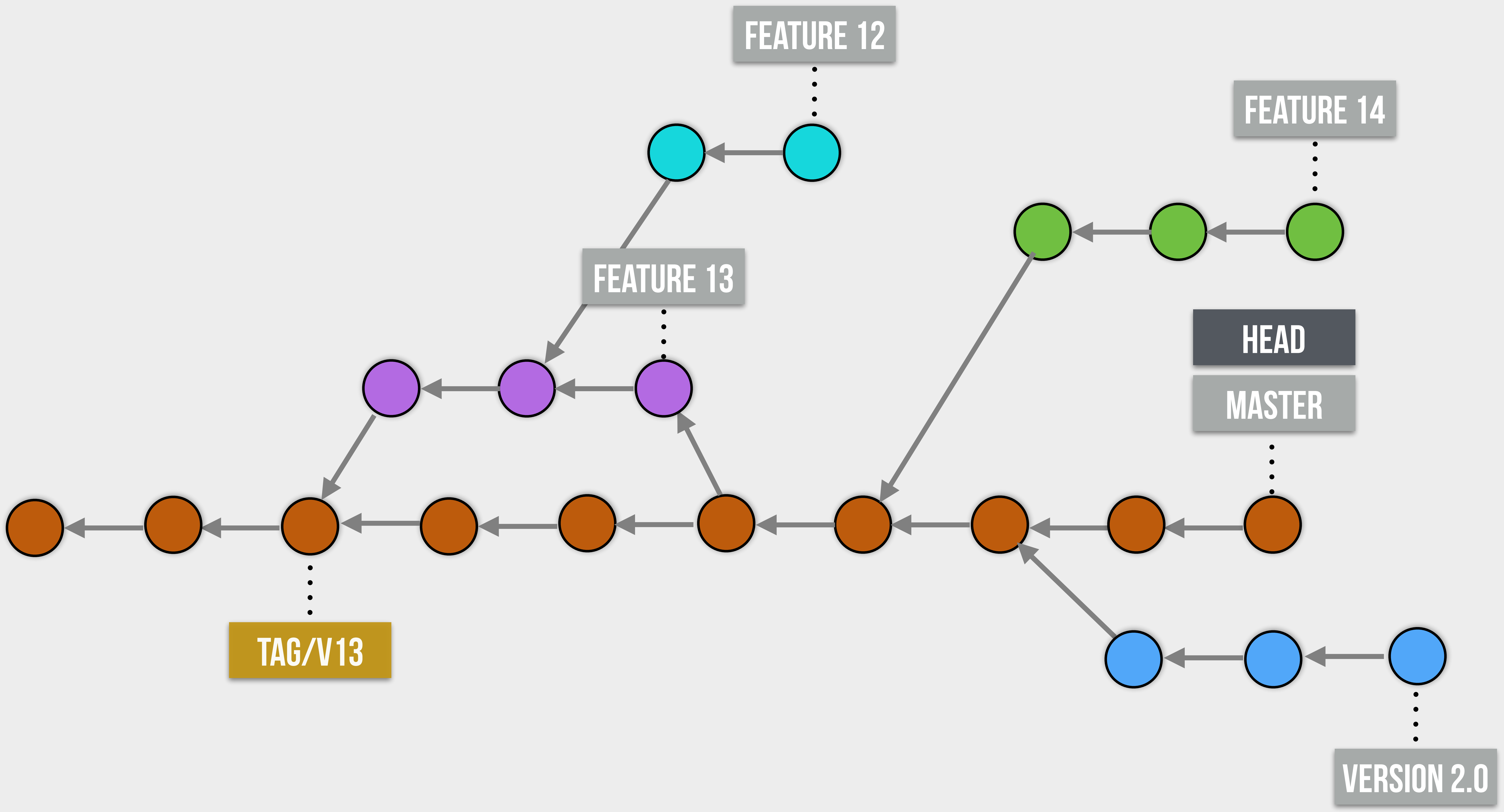
```
* efd741981 - hybrid
* 0983f0a91 - Checko
* bf8c9be1a - hybrid
* 9e04c8f44 - tests
* 438fb293b - checko
* bcb74afa1 - hybrid
* 0d410b7fa - assert
* 4c329ec3f - checko
* bc792c4e1 - Checko
* 14d83675c - Hybrid
* 3b83f608a - Hybrid
* 2af81c237 - forceC
*   2c7fe20f4 - (ori
|\
| * 373fabe25 - Chec
* | 4b1f7978c - chec
|/
* 8e583f74a - checko
```

LONG LIVING BRANCHES ANTI-PATTERN

do you use **cherry-pick**
to prepare releases ?

ANTIPATTERN DANGER

do you use **cherry-pick** to prepare releases ?



```
$ git cherry-pick Every-Single-Commit-We-Want-To-Deploy
```

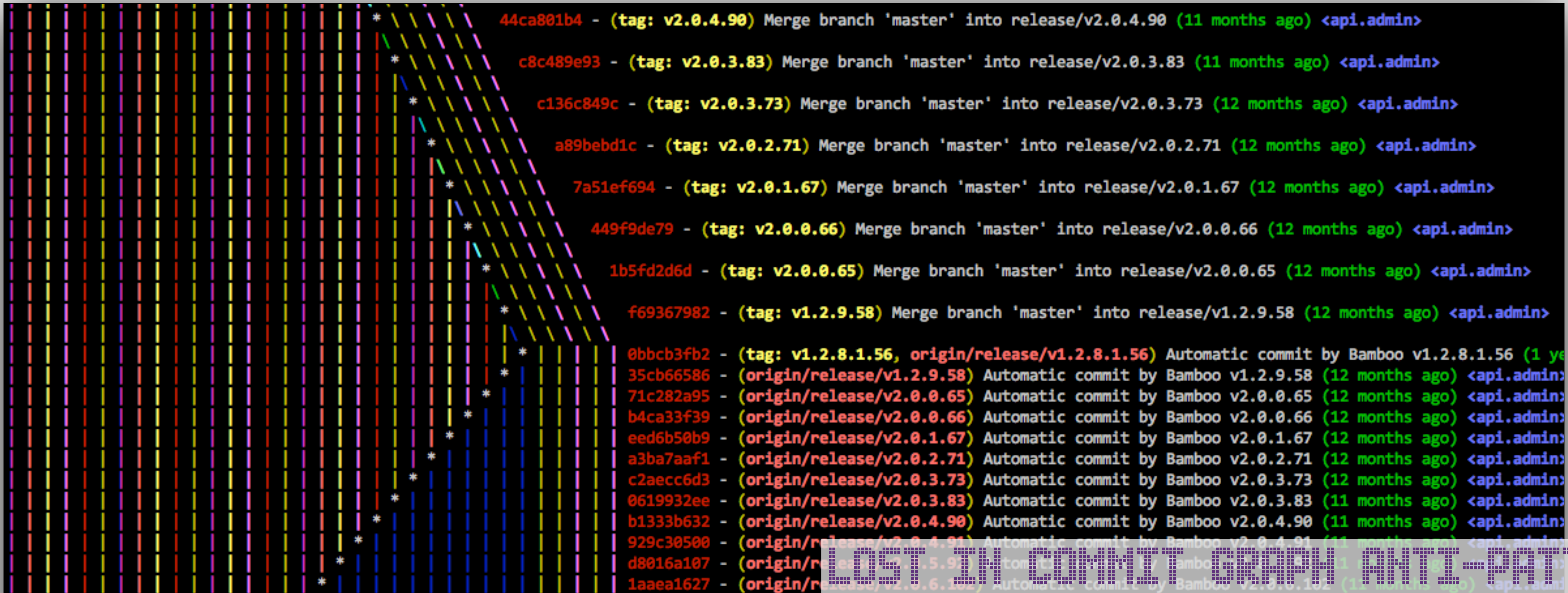
do you fully understand
when you read
the commit graph ?

ANTIPATTERN DANGER

do you fully understand
when you read
the commit graph ?

do you fully understand when you read the commit graph ?

topic and shared branches, tracking branches, tags, HEADs, merge commits, reverted commits…



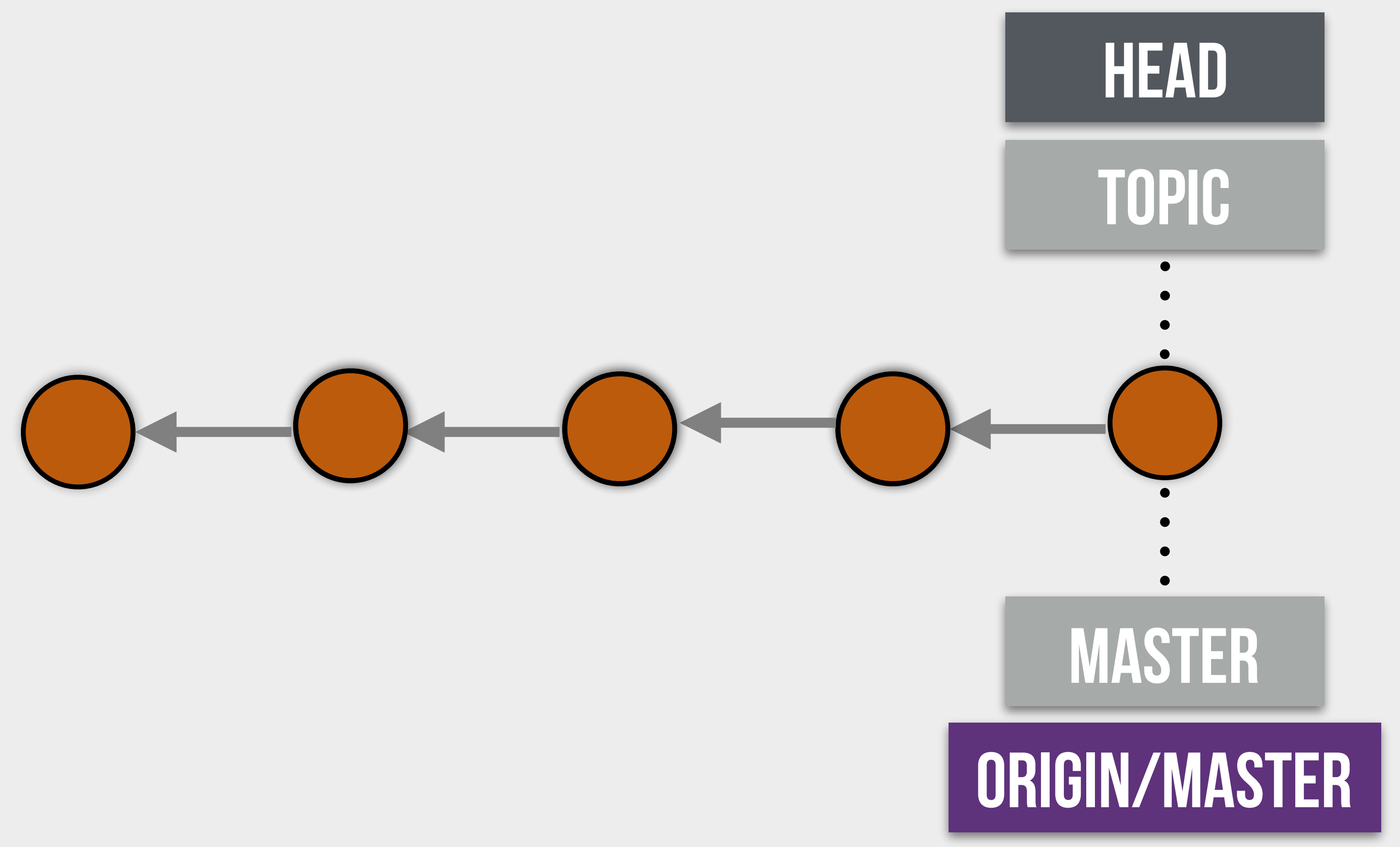
```
44ca801b4 - (tag: v2.0.4.90) Merge branch 'master' into release/v2.0.4.90 (11 months ago) <api.admin>
c8c489e93 - (tag: v2.0.3.83) Merge branch 'master' into release/v2.0.3.83 (11 months ago) <api.admin>
c136c849c - (tag: v2.0.3.73) Merge branch 'master' into release/v2.0.3.73 (12 months ago) <api.admin>
a89bebd1c - (tag: v2.0.2.71) Merge branch 'master' into release/v2.0.2.71 (12 months ago) <api.admin>
7a51ef694 - (tag: v2.0.1.67) Merge branch 'master' into release/v2.0.1.67 (12 months ago) <api.admin>
449f9de79 - (tag: v2.0.0.66) Merge branch 'master' into release/v2.0.0.66 (12 months ago) <api.admin>
1b5fd2d6d - (tag: v2.0.0.65) Merge branch 'master' into release/v2.0.0.65 (12 months ago) <api.admin>
f69367982 - (tag: v1.2.9.58) Merge branch 'master' into release/v1.2.9.58 (12 months ago) <api.admin>
0bbcb3fb2 - (tag: v1.2.8.1.56, origin/release/v1.2.8.1.56) Automatic commit by Bamboo v1.2.8.1.56 (1 ye
35cb66586 - (origin/release/v1.2.9.58) Automatic commit by Bamboo v1.2.9.58 (12 months ago) <api.admin
71c282a95 - (origin/release/v2.0.0.65) Automatic commit by Bamboo v2.0.0.65 (12 months ago) <api.admin
b4ca33f39 - (origin/release/v2.0.0.66) Automatic commit by Bamboo v2.0.0.66 (12 months ago) <api.admin
eed6b50b9 - (origin/release/v2.0.1.67) Automatic commit by Bamboo v2.0.1.67 (12 months ago) <api.admin
a3ba7aaf1 - (origin/release/v2.0.2.71) Automatic commit by Bamboo v2.0.2.71 (12 months ago) <api.admin
c2aecc6d3 - (origin/release/v2.0.3.73) Automatic commit by Bamboo v2.0.3.73 (12 months ago) <api.admin
0619932ee - (origin/release/v2.0.3.83) Automatic commit by Bamboo v2.0.3.83 (11 months ago) <api.admin
b1333b632 - (origin/release/v2.0.4.90) Automatic commit by Bamboo v2.0.4.90 (11 months ago) <api.admin
929c30500 - (origin/release/v2.0.4.91) Automatic commit by Bamboo v2.0.4.91 (11 months ago) <api.admin
d8016a107 - (origin/re[illegible].5.92) Automatic commit by Bamboo [illegible] (11 months ago) <api.admin
1aaea1627 - (origin/release/v2.0.6.102) Automatic commit by Bamboo v2.0.6.102 (11 months ago) <api.admin
```

LOST IN COMMIT GRAPH ANTI-PATTERN

Cure?

Commit Early, Commit Often
Perfect Later, Publish Once

PS: There are more than one way to achieve this



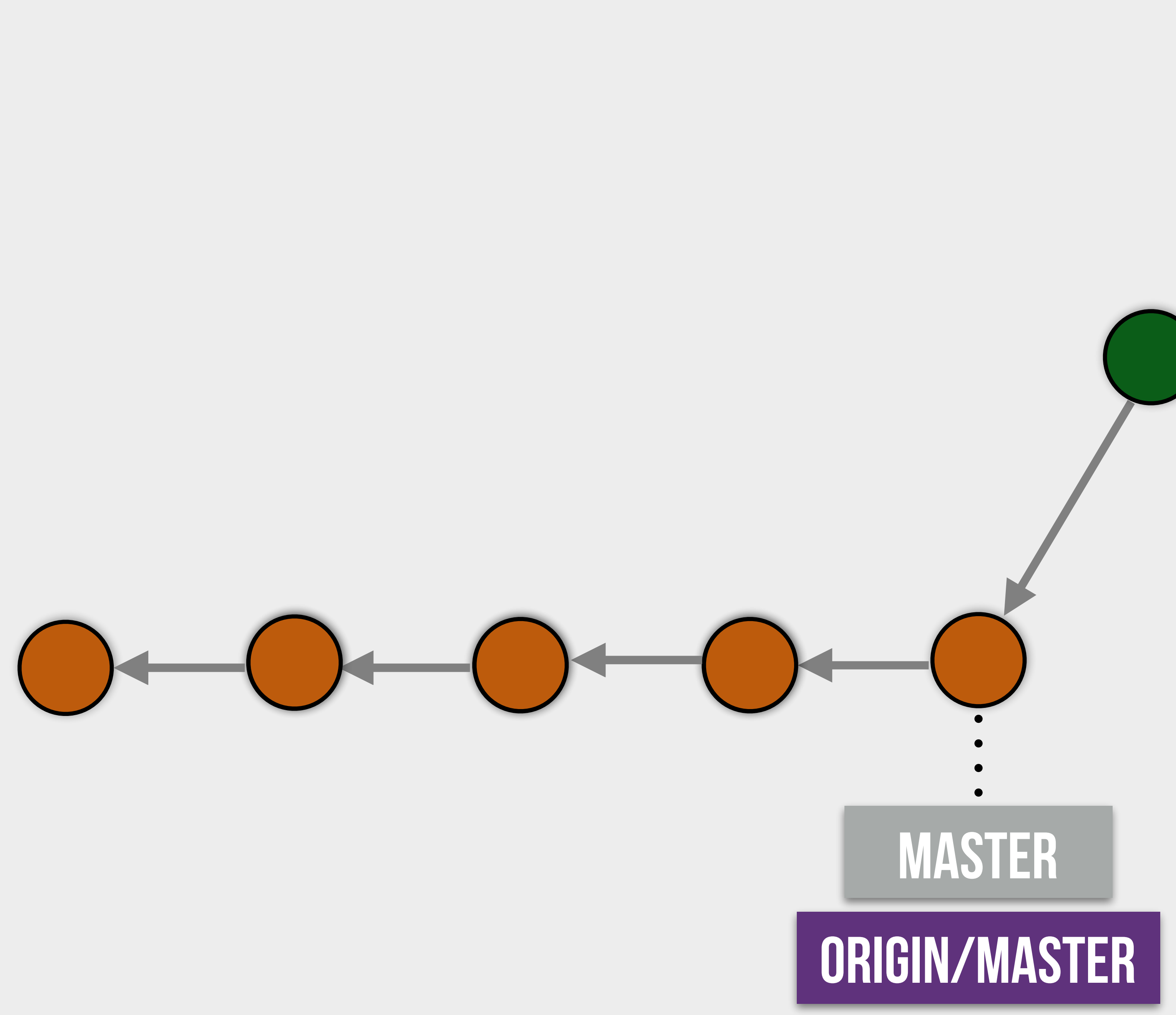
Our very first step is defining a strategy to **keep branches short**

split your big feature into mini shippable tasks

refactorings
tasks, like rest endpoints
red-green-refactor

each task will have a branch, not a feature

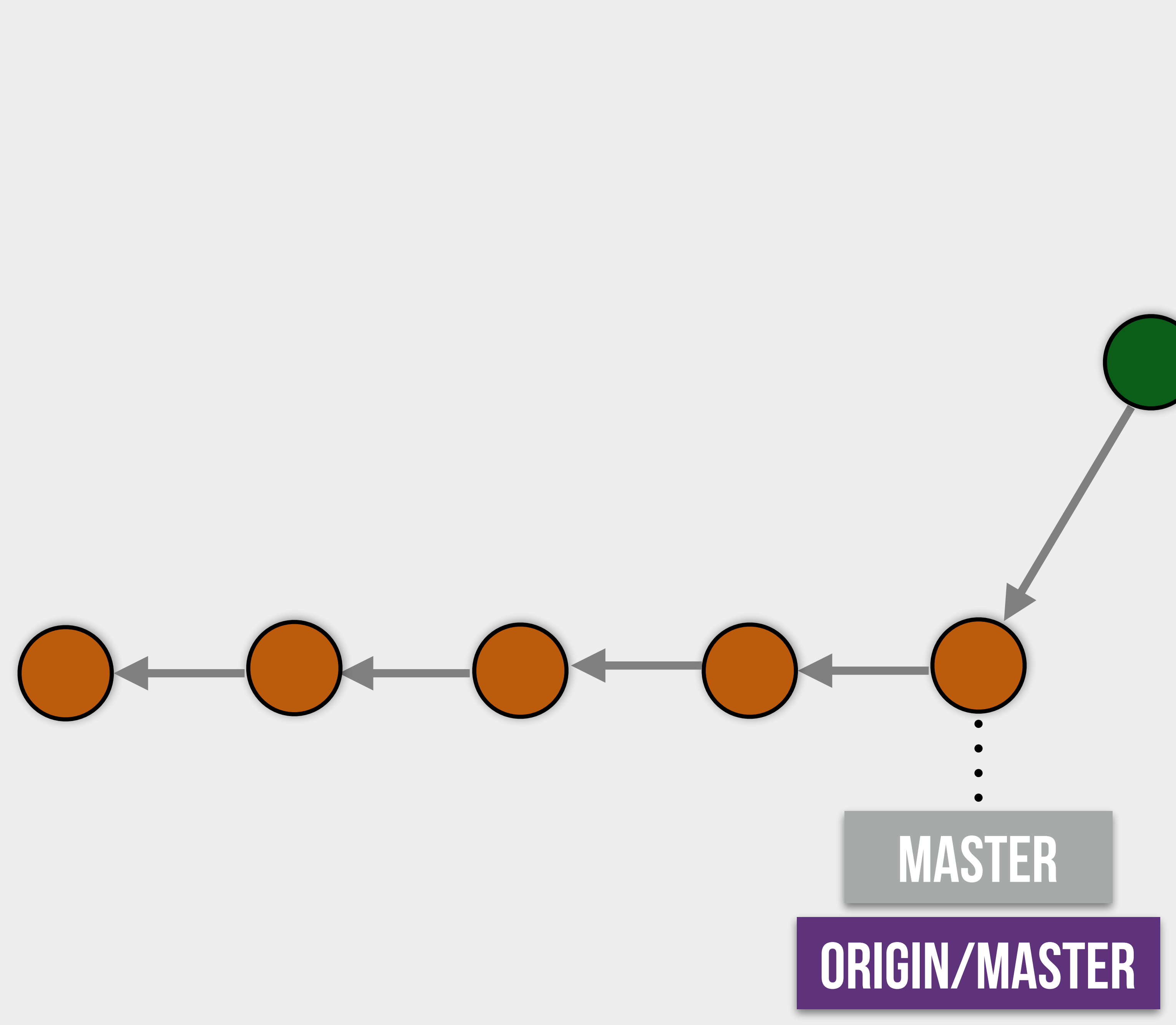
STEP 0



commit early
commit often
no need to compile
no need for CI
it's only for versioning

do not push

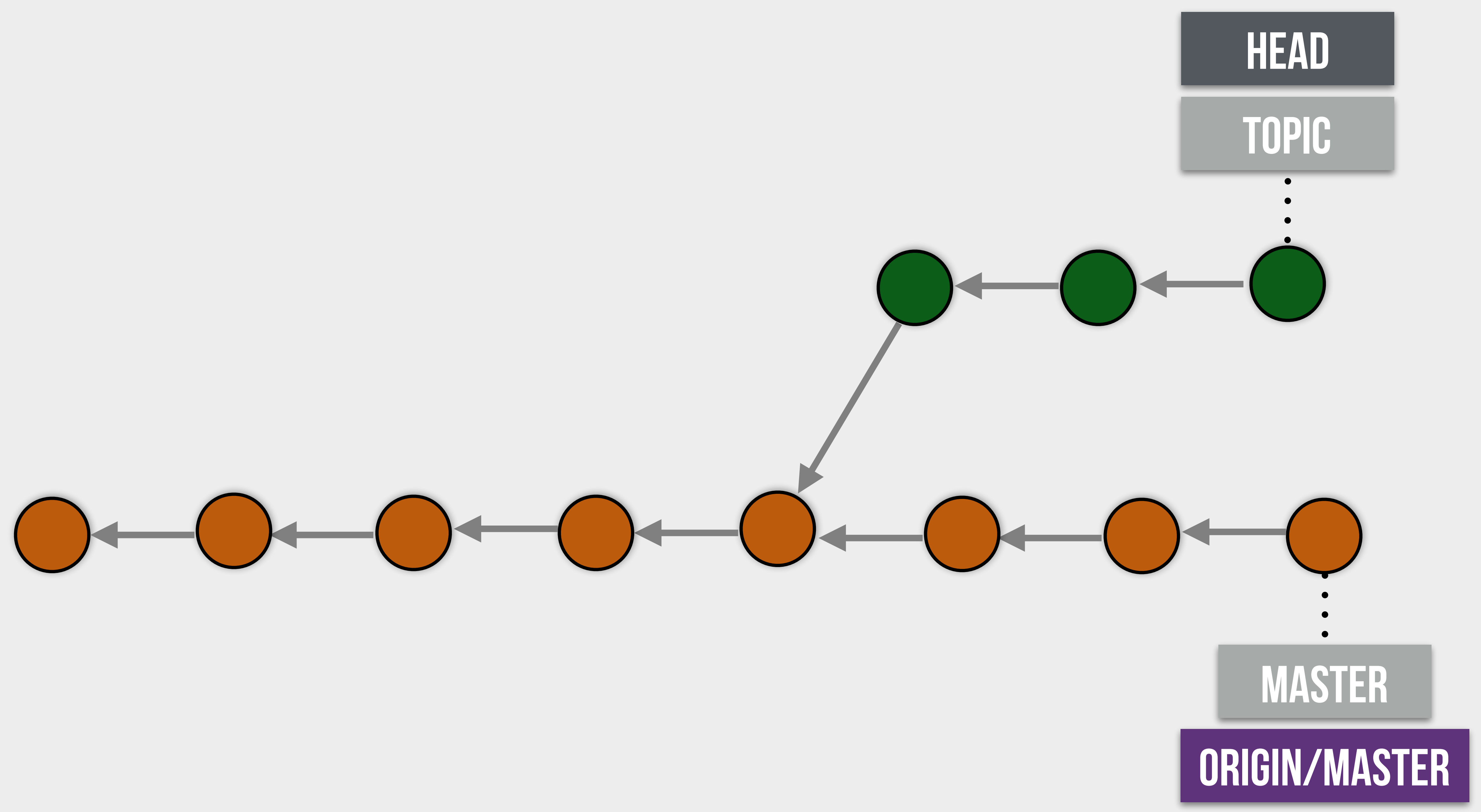
STEP 1



STEP 2

Sync source branch
with one simple command

```
$ git fetch origin master:master
```



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$ git fetch origin master:master
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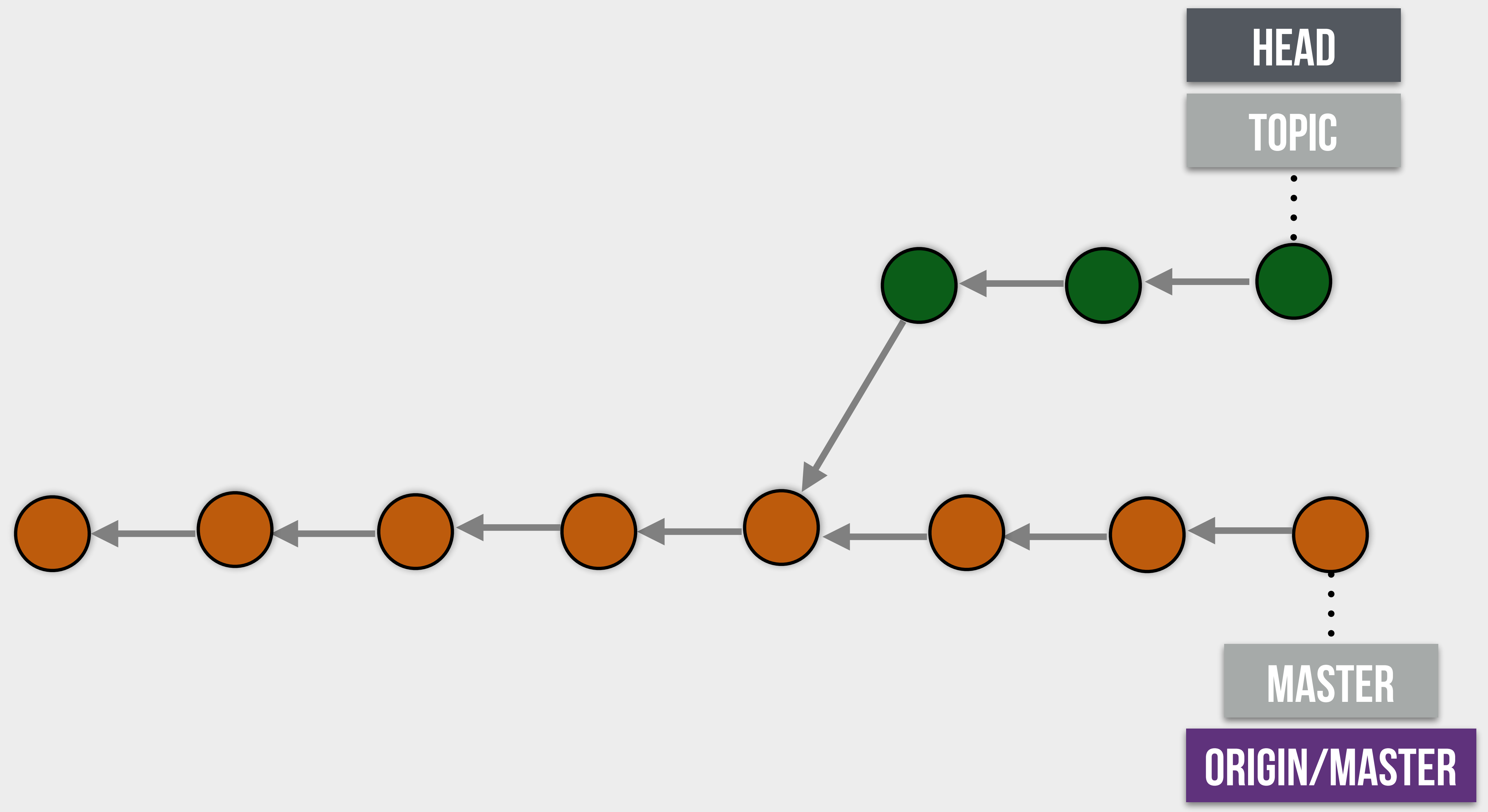
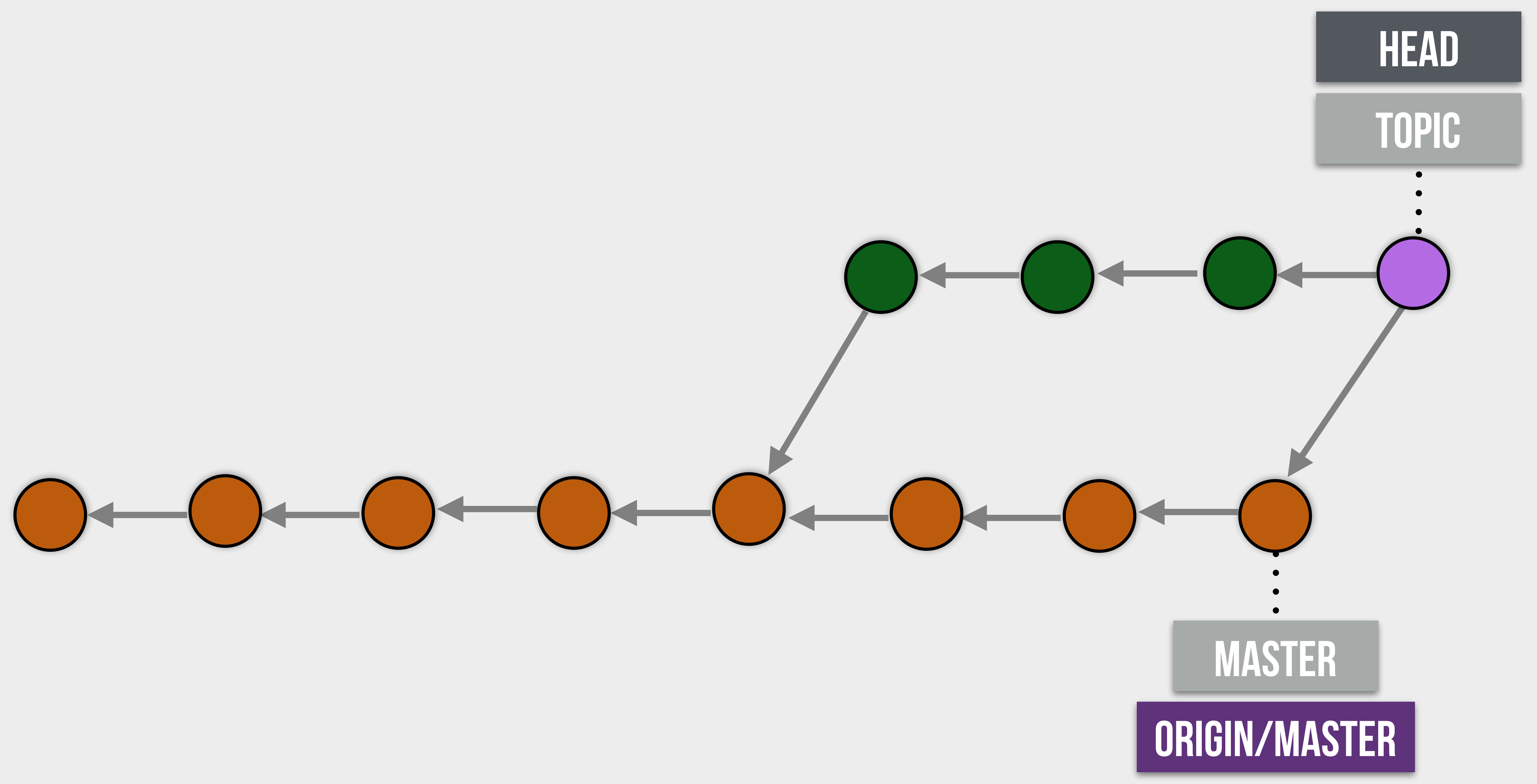
STEP 2



Get incoming change sets from source to topic branch via merge

```
$ git merge master
```

STEP 3



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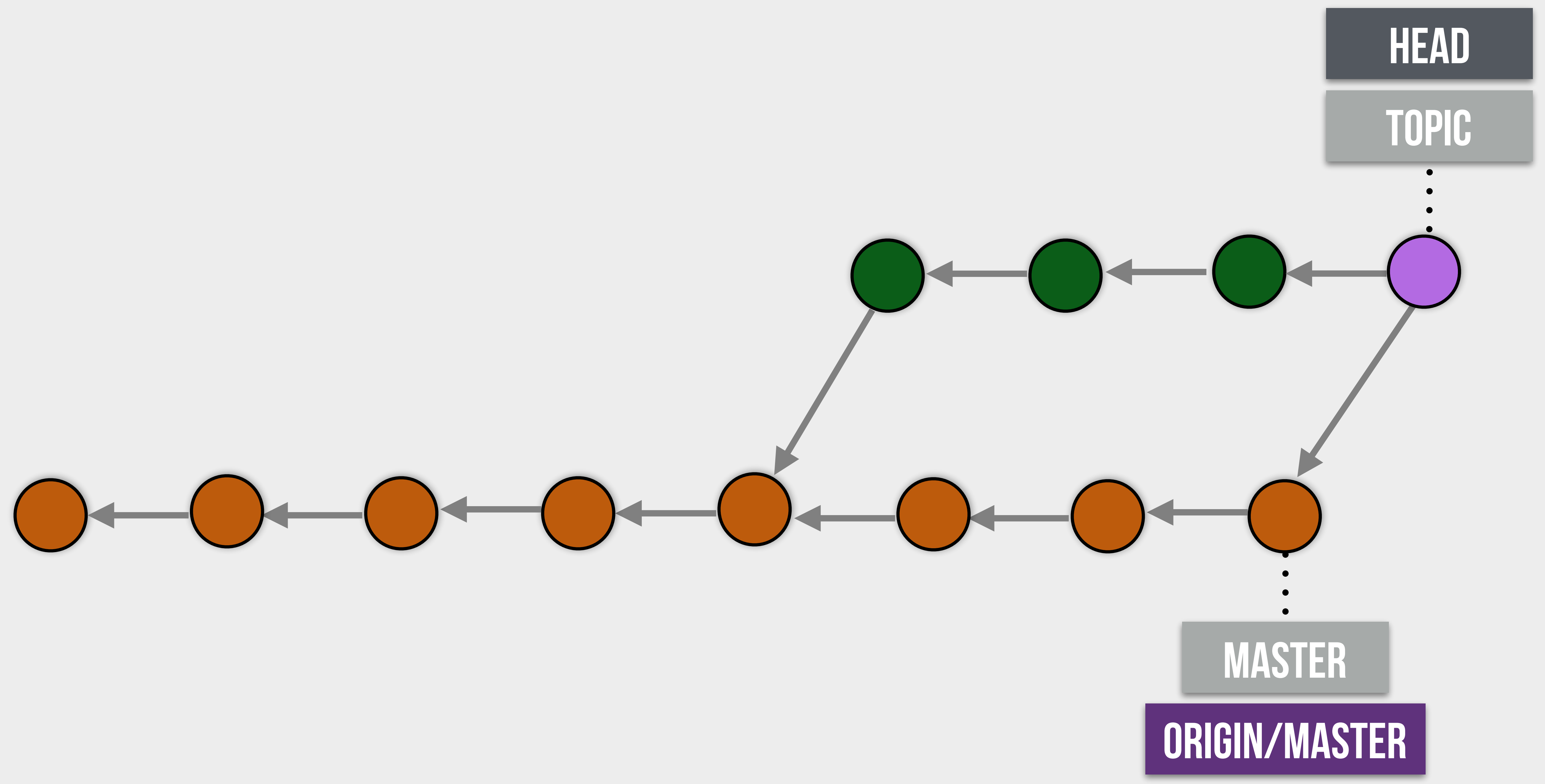
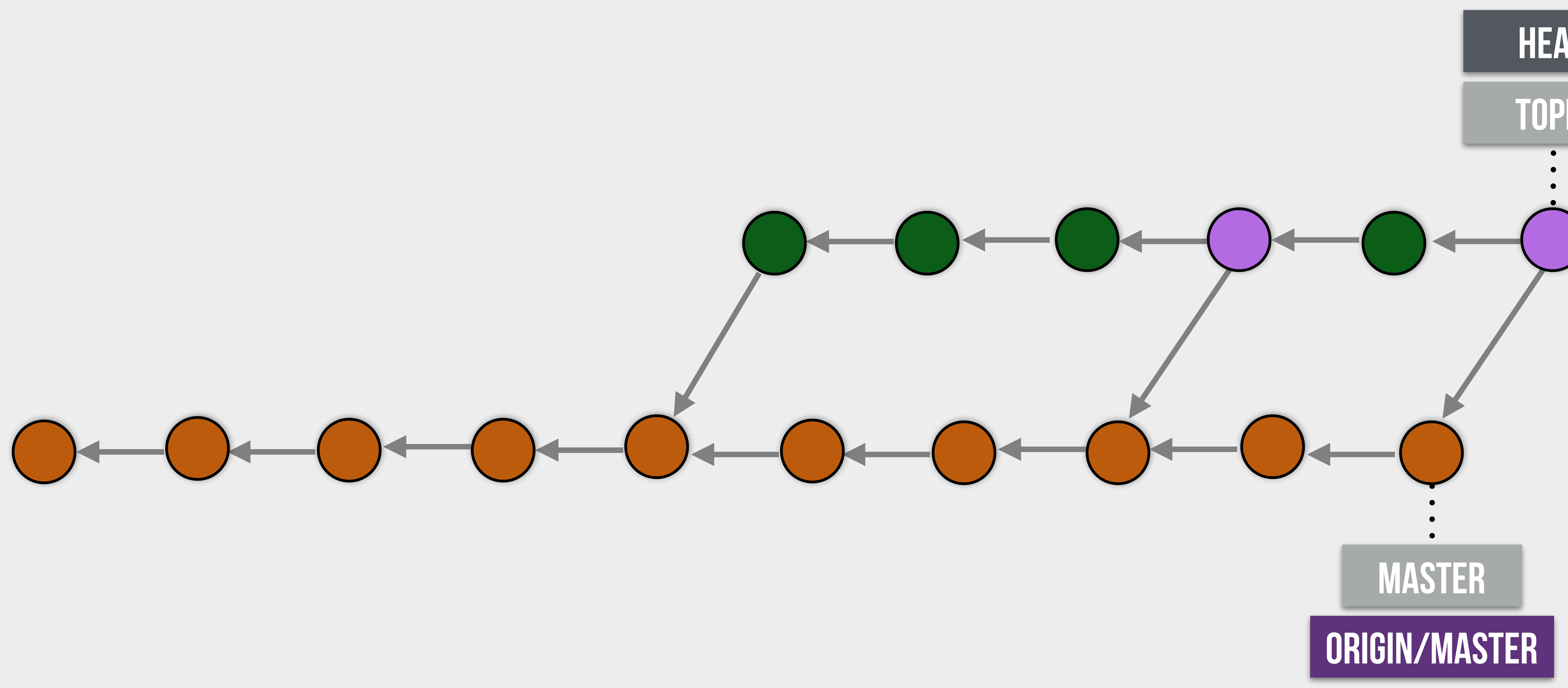


REGULARLY

Get incoming change sets from source to topic branch via merge

```
$ git merge master
```

STEP 3

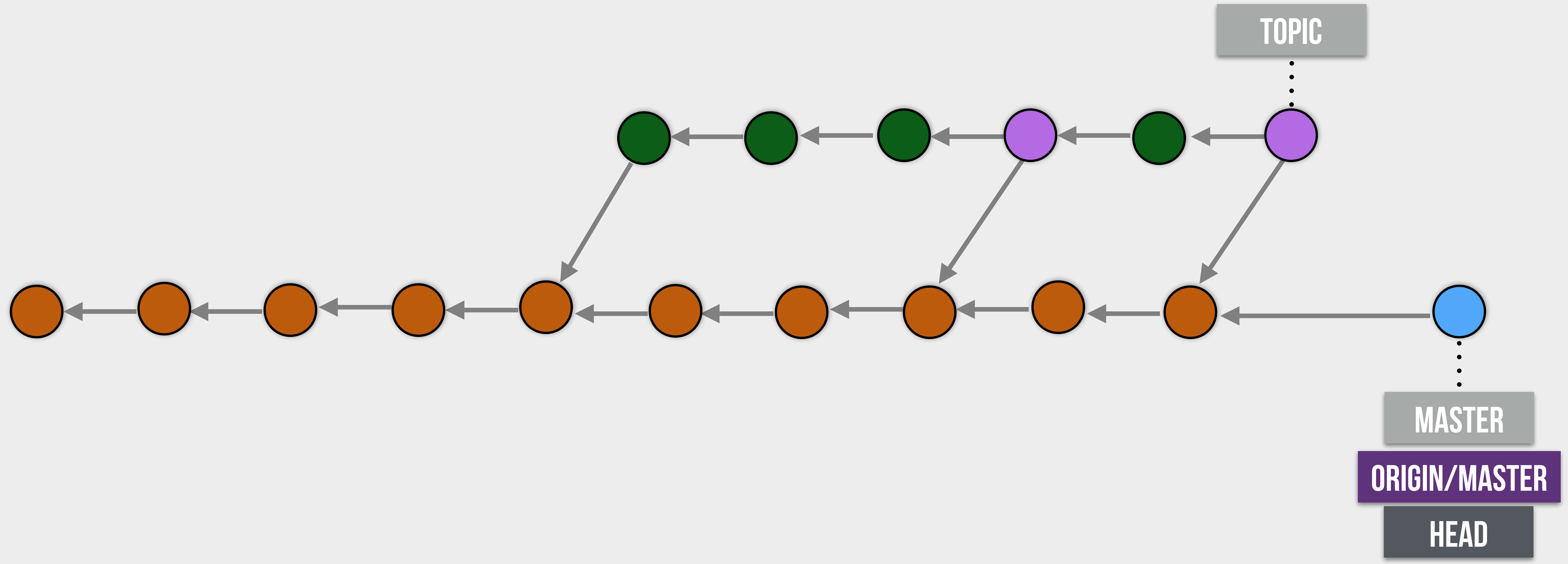


REGULARLY

Get incoming change sets from source to topic branch via merge

```
$ git merge master
```

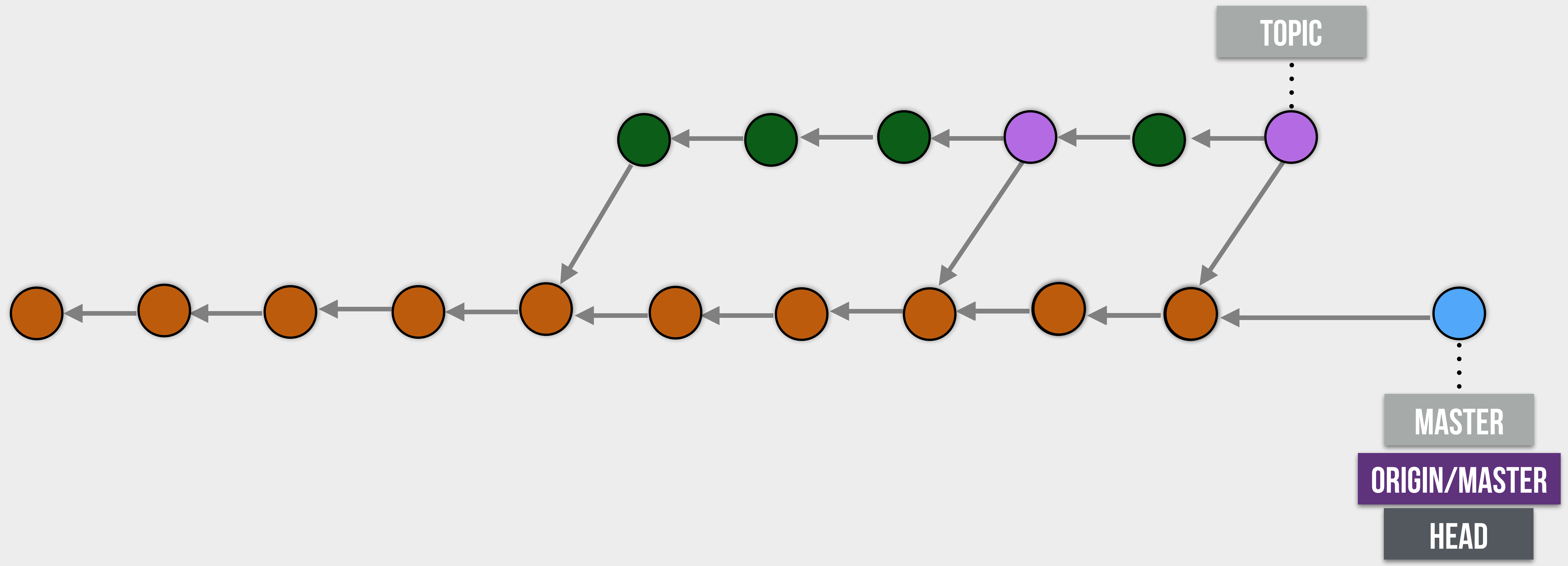
STEP 3



merge back to source
by squashing all commits
in topic branch

```
$ git checkout master
$ git merge --squash topic
```

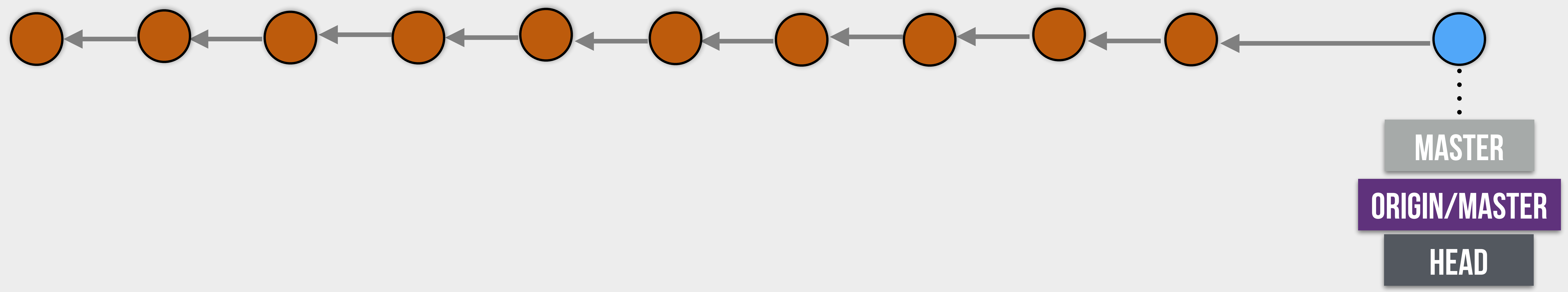
STEP 4



Delete the topic branch

```
$ git branch -D topic
```

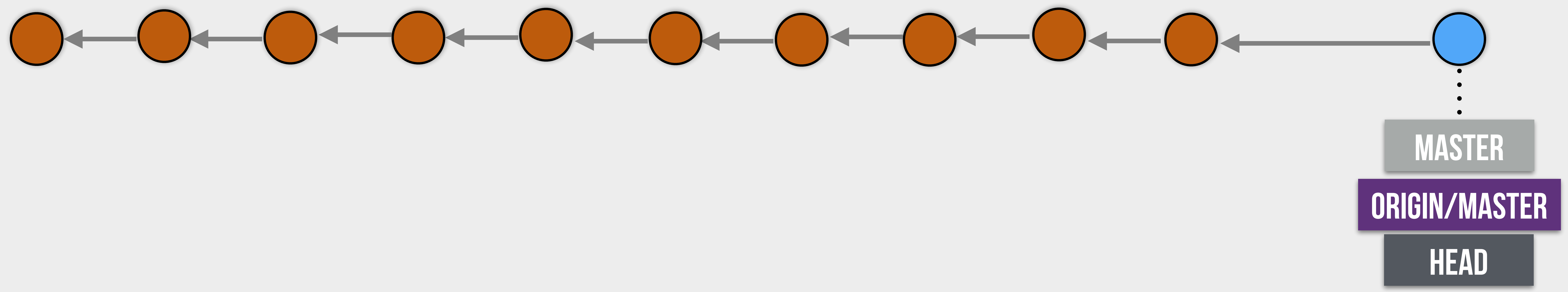
STEP 5



STEP 5

Delete the topic branch

```
$ git branch -D topic
```



Delete the topic branch

```
$ git branch -D topic
```

Now you can push

STEP 5

TRUNK-BASED DEVELOPMENT

let's make git king again

Deleting branches after merge will make your commit graph readable

Continuous Integration validates master branch continuously

Pull requests can be used to review code and to validate before merging back to master

Commit early & often perfect later, publish once philosophy

Deliver frequently be prepared to send every single commit

Github Flow can be used to govern overall

Scrum tasks are mapped to commits, not stories

Feature flags should be used whenever possible

is it hard to learn **Git commands?**

use terminal

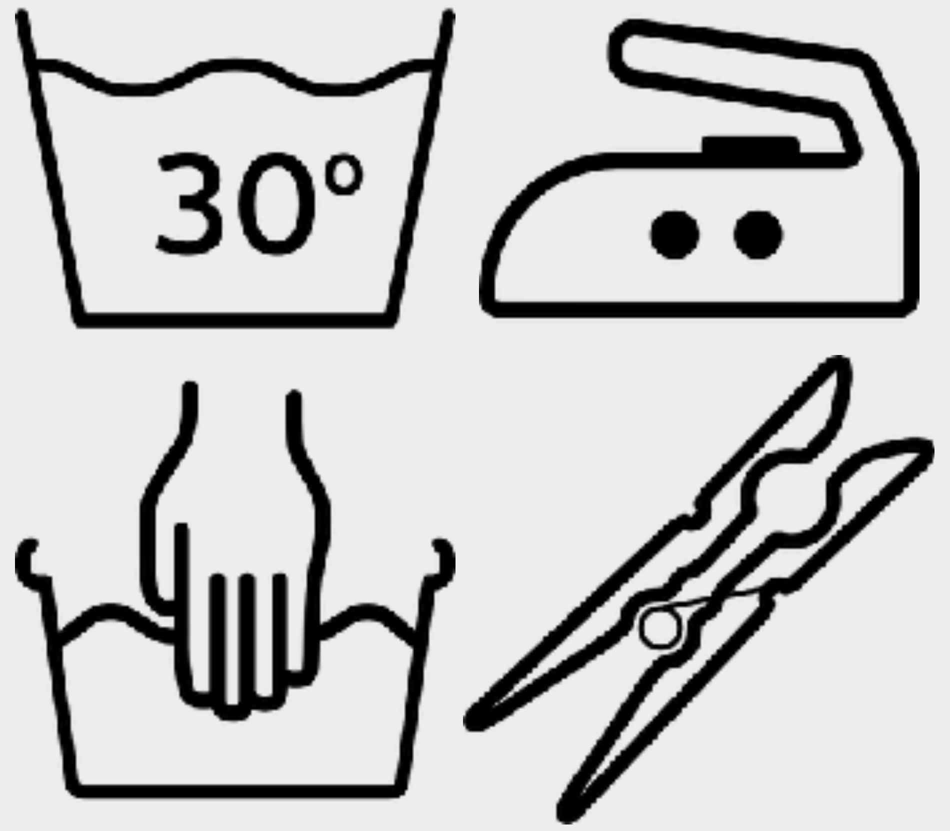
GUIs are prison balls of developers

it's ok to use GUIs while checking diffs,
resolving conflicts and viewing commit graph

does each of your commit have

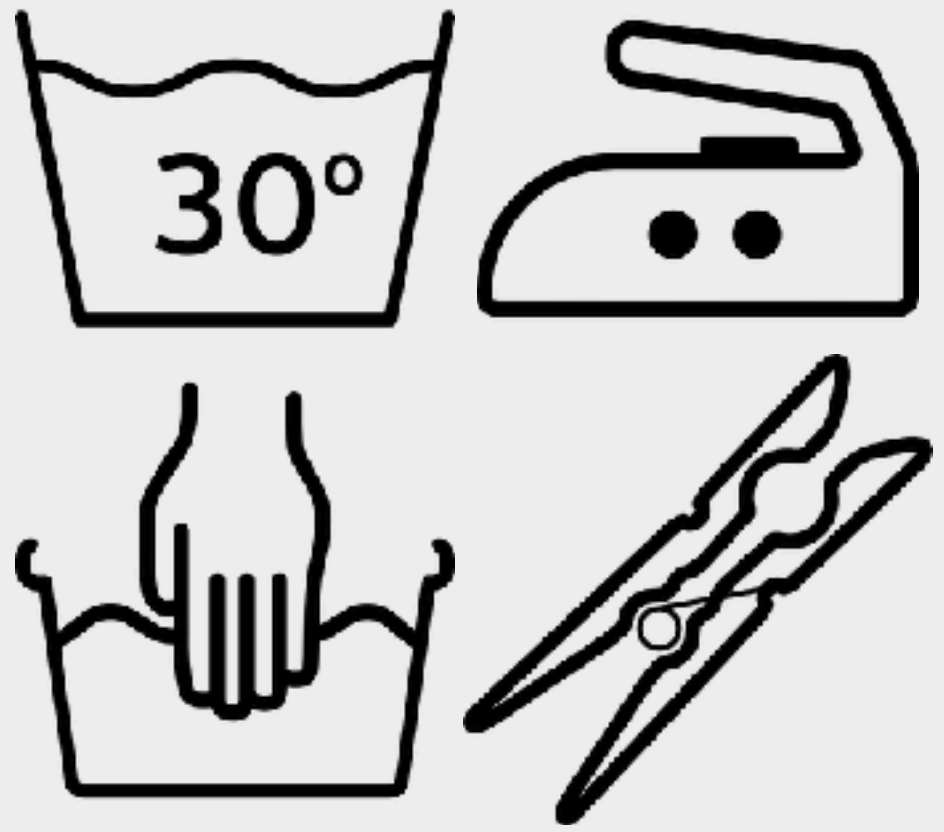
one special purpose?

or you commit anything you have changed



stop adding
every change

prevent commits from being big ball of muds



stop adding
# every change
prevent commits from being big ball of muds

local change sets at JetBrains IDEs

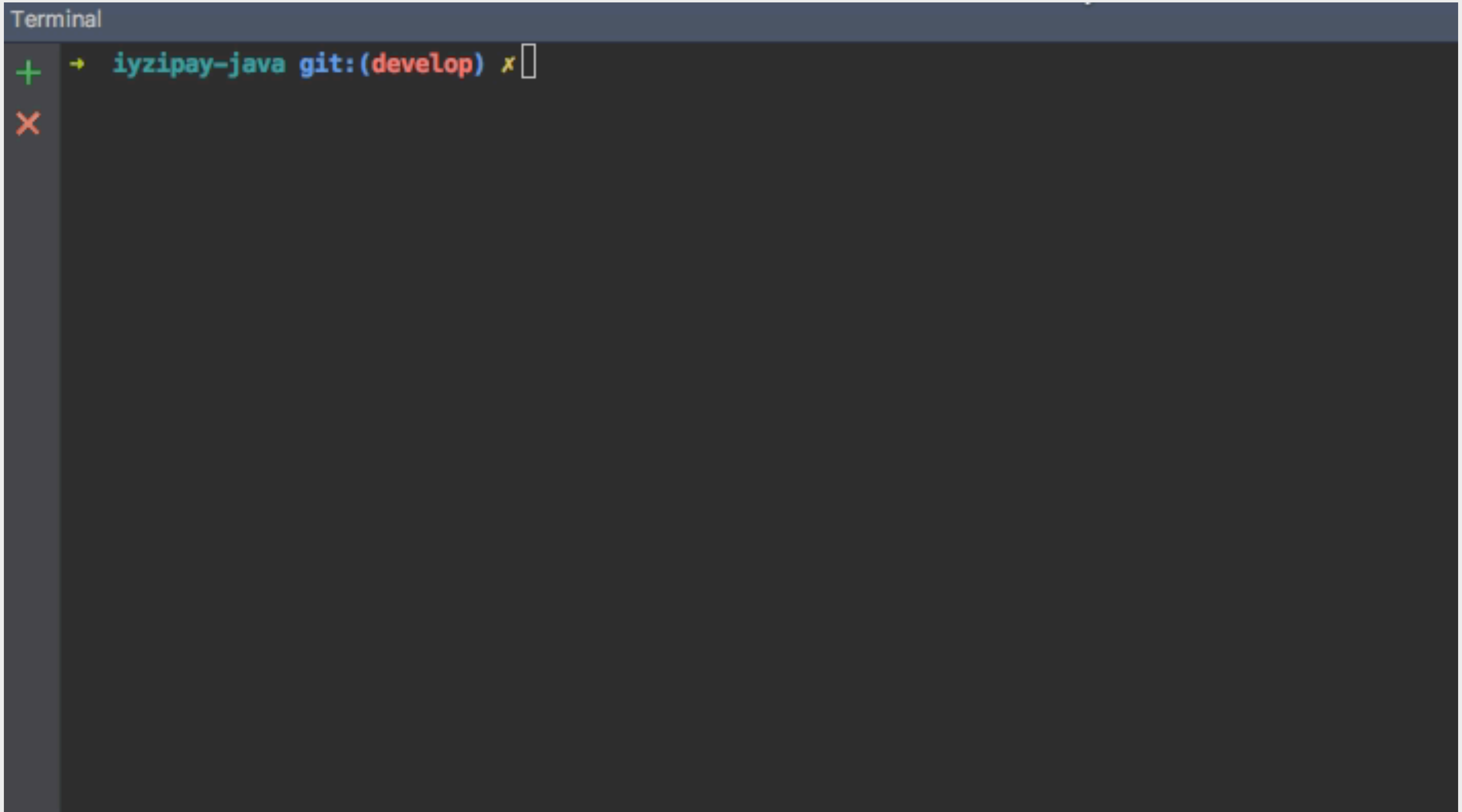
Version Control:
Local Changes
Log
Console

```
▼ Default 4 files
    BinCheckResponseMapper.java ~/Code/Iyzico/iyzipay-payment/iyzipay-payment-basic/iyzipay-payment-basic-rest/src/mair
    EcomRetrievePaymentCheckoutFormAuthResponse.java ~/Code/Iyzico/iyzipay-payment/iyzipay-payment-ecom/iyzipay-pay
    InstallmentControllerIT.java ~/Code/Iyzico/iyzipay-payment/iyzipay-payment-api/src/test/java/com/iyzipay/payment/api/eco
    InstallmentInfoResponseMapper.java ~/Code/Iyzico/iyzipay-payment/iyzipay-payment-basic/iyzipay-payment-basic-rest/src
▶ bincheck-refactoring 4 files
▶ controller-endpoint 7 files
▶ payment-refactoring 5 files
```

BIG BALL OF MUD ANTI-PATTERN

stop adding every change

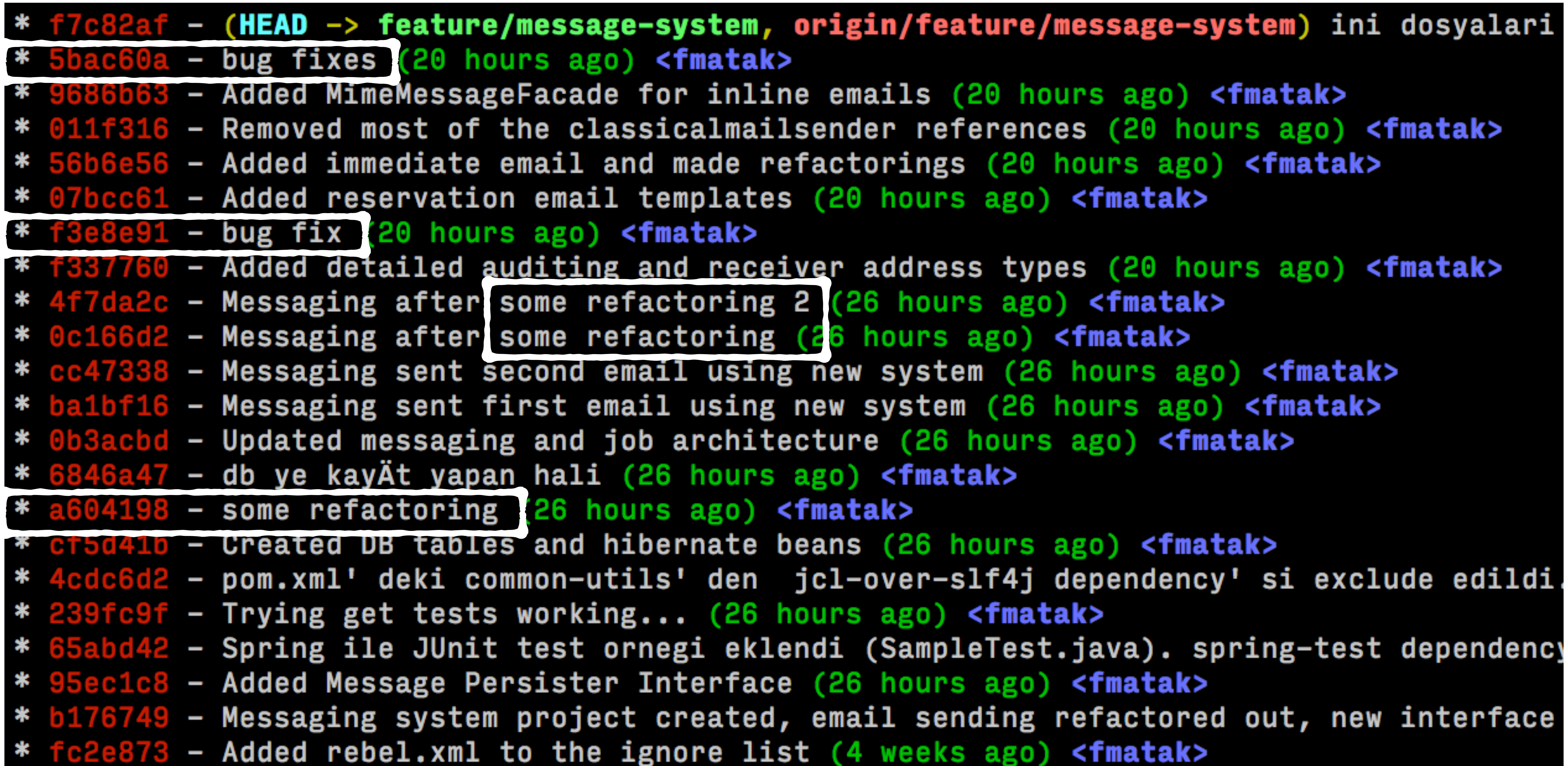
partial add : git add -p



Terminal

```
→  iyzipay-java git:(develop) ✗
```

do you really understand what’s written in commit messages?



```
* f7c82af - (HEAD -> feature/message-system, origin/feature/message-system) ini dosyalari
* 5bac60a - bug fixes (20 hours ago) <fmatak>
* 9686b63 - Added MimeMessageFacade for inline emails (20 hours ago) <fmatak>
* 011f316 - Removed most of the classicalmailsender references (20 hours ago) <fmatak>
* 56b6e56 - Added immediate email and made refactorings (20 hours ago) <fmatak>
* 07bcc61 - Added reservation email templates (20 hours ago) <fmatak>
* f3e8e91 - bug fix (20 hours ago) <fmatak>
* f337760 - Added detailed auditing and receiver address types (20 hours ago) <fmatak>
* 4f7da2c - Messaging after some refactoring 2 (26 hours ago) <fmatak>
* 0c166d2 - Messaging after some refactoring (26 hours ago) <fmatak>
* cc47338 - Messaging sent second email using new system (26 hours ago) <fmatak>
* ba1bf16 - Messaging sent first email using new system (26 hours ago) <fmatak>
* 0b3acbd - Updated messaging and job architecture (26 hours ago) <fmatak>
* 6846a47 - db ye kayÄt yapan hali (26 hours ago) <fmatak>
* a604198 - some refactoring (26 hours ago) <fmatak>
* cf5d41b - Created DB tables and hibernate beans (26 hours ago) <fmatak>
* 4cdc6d2 - pom.xml' deki common-utils' den  jcl-over-slf4j dependency' si exclude edildi.
* 239fc9f - Trying get tests working... (26 hours ago) <fmatak>
* 65abd42 - Spring ile JUnit test ornegi eklendi (SampleTest.java). spring-test dependency
* 95ec1c8 - Added Message Persister Interface (26 hours ago) <fmatak>
* b176749 - Messaging system project created, email sending refactored out, new interface
* fc2e873 - Added rebel.xml to the ignore list (4 weeks ago) <fmatak>
```

ANTIPATTERN DANGER

commit messages are documents!

use git commit templates to create better commit messages

```
$ git config --global commit.template ~/.git-commit-template.txt
$ git config --global commit.cleanup strip
```

```
# WHAT
# <issue id> (this commit will...) <subject>


# WHY and HOW
# Explain why this change is being made


# RELATED
# Provide links or keys to any relevant issues or other resources


# REMEMBER
# use lower case in the subject line
# start with a verb in imperative tone in the subject line
# do not end the subject line with a period
# separate subject from body with a blank line
# use the body to explain what and why vs. how
# can use multiple lines with "-" for bullet points in body
```

Which of the following commands can cause **duplicate commits** in the commit graph?

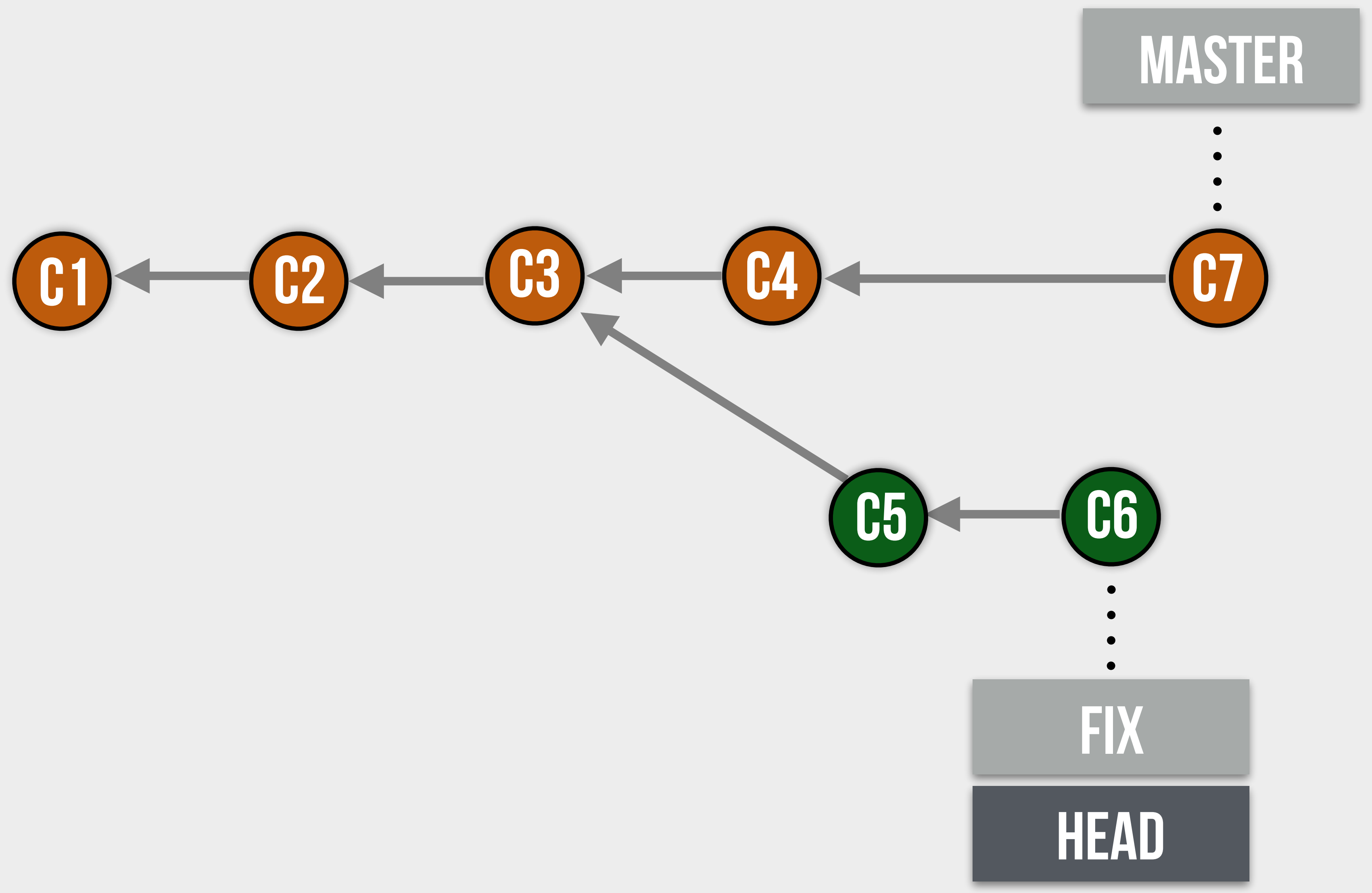
- **A** `git rebase`
- **B** `git push --force`
- **C** `git merge`
- **D** `git pull`

ANTIPATTERN DANGER

Which of the following commands can cause **duplicate commits** in the commit graph?

- A `git rebase`
- B `git push --force`
- C `git merge`
- [✓ D `git pull`]

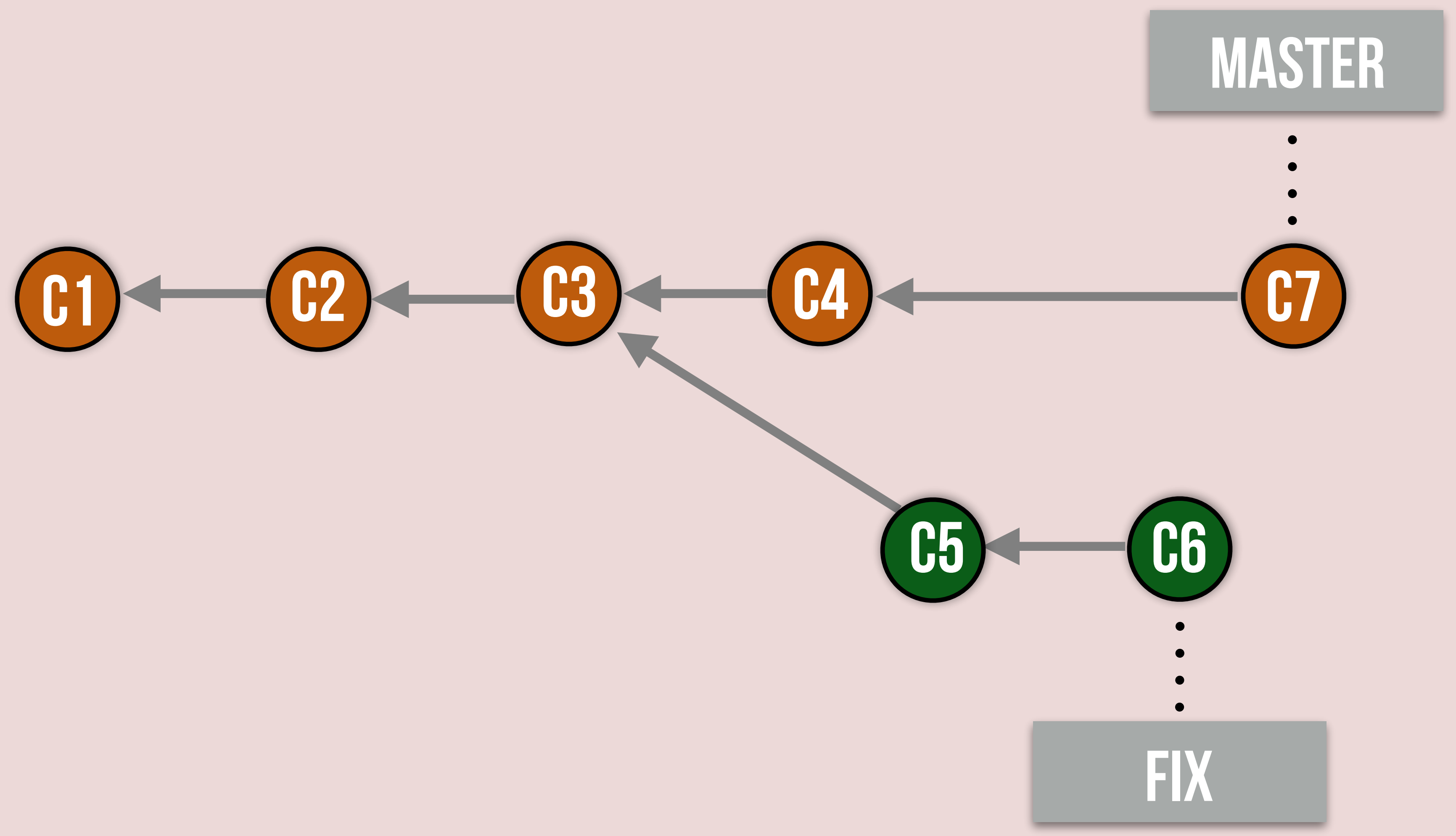
REBASE & FORCE PUSH



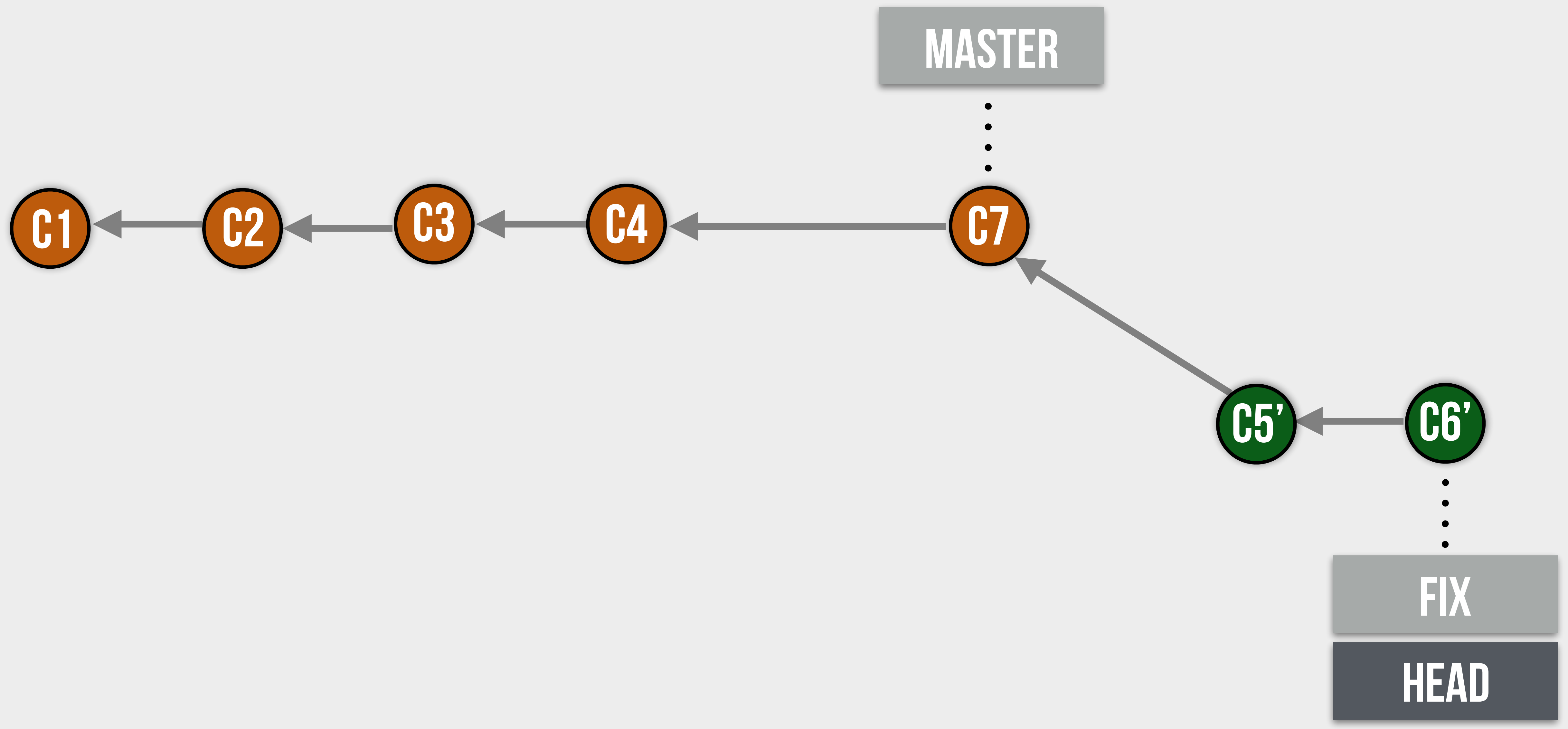
```
$ git rebase master
$ git push -f
```

LOCAL

UPSTREAM



REBASE & FORCE PUSH



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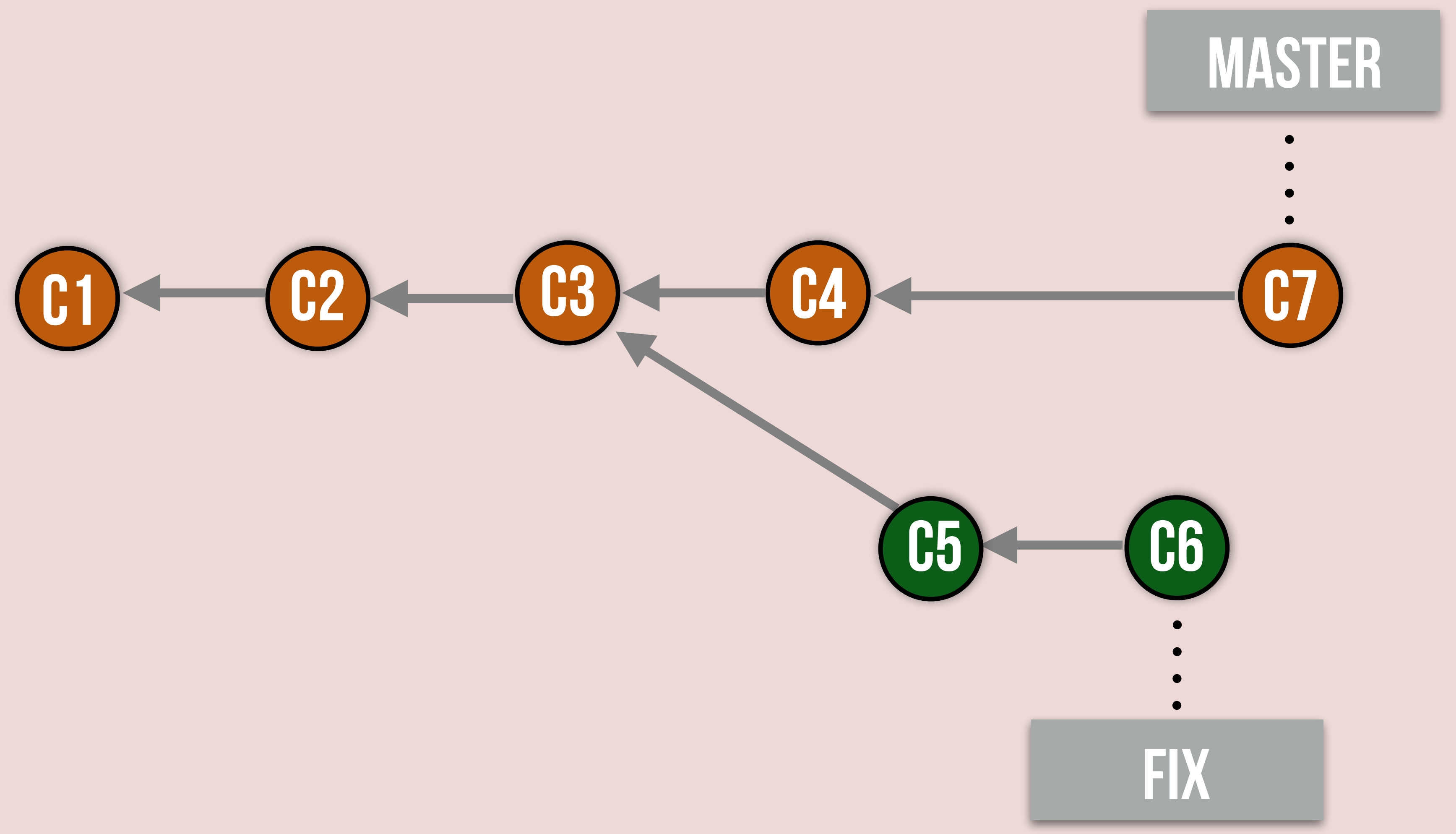
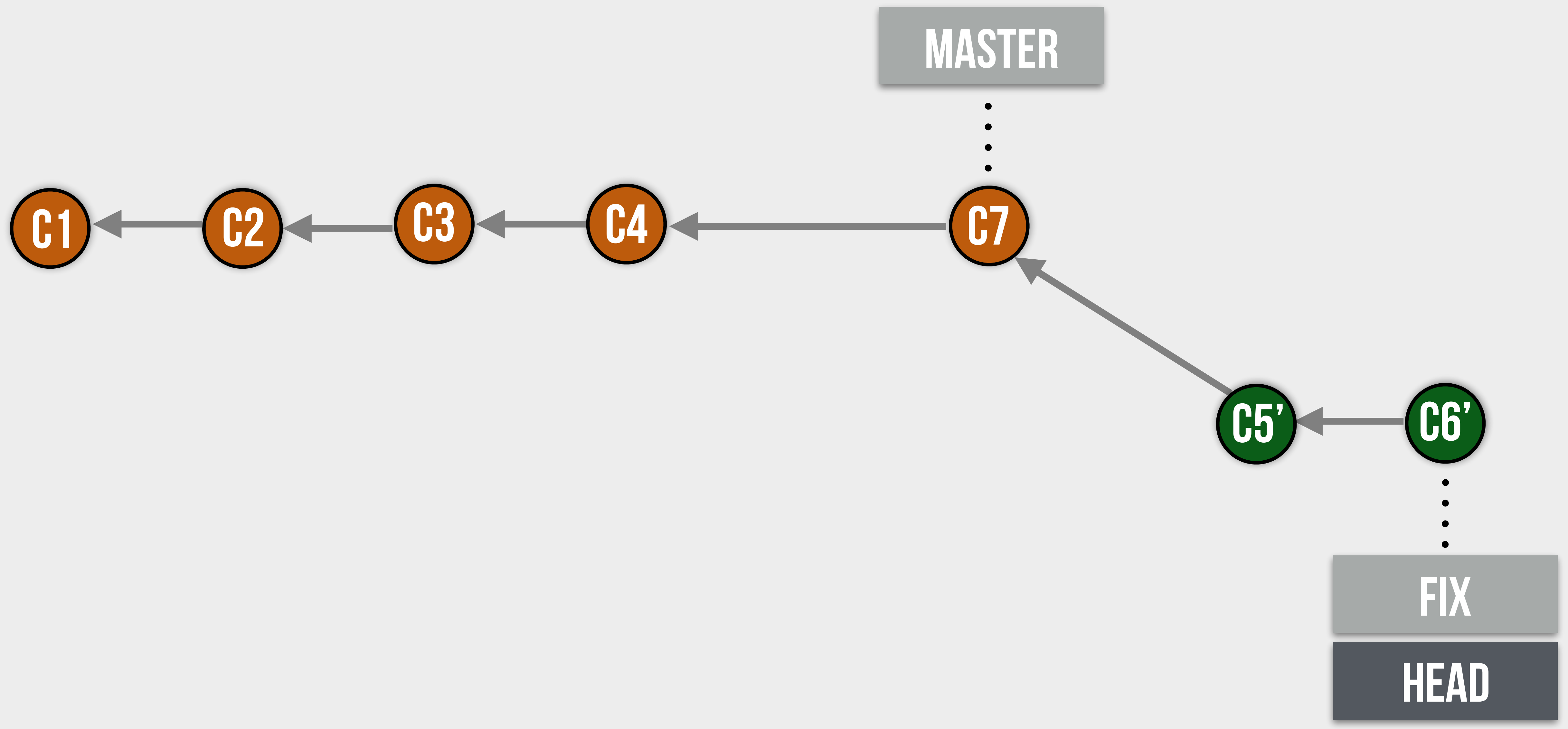


REBASE & FORCE PUSH



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```

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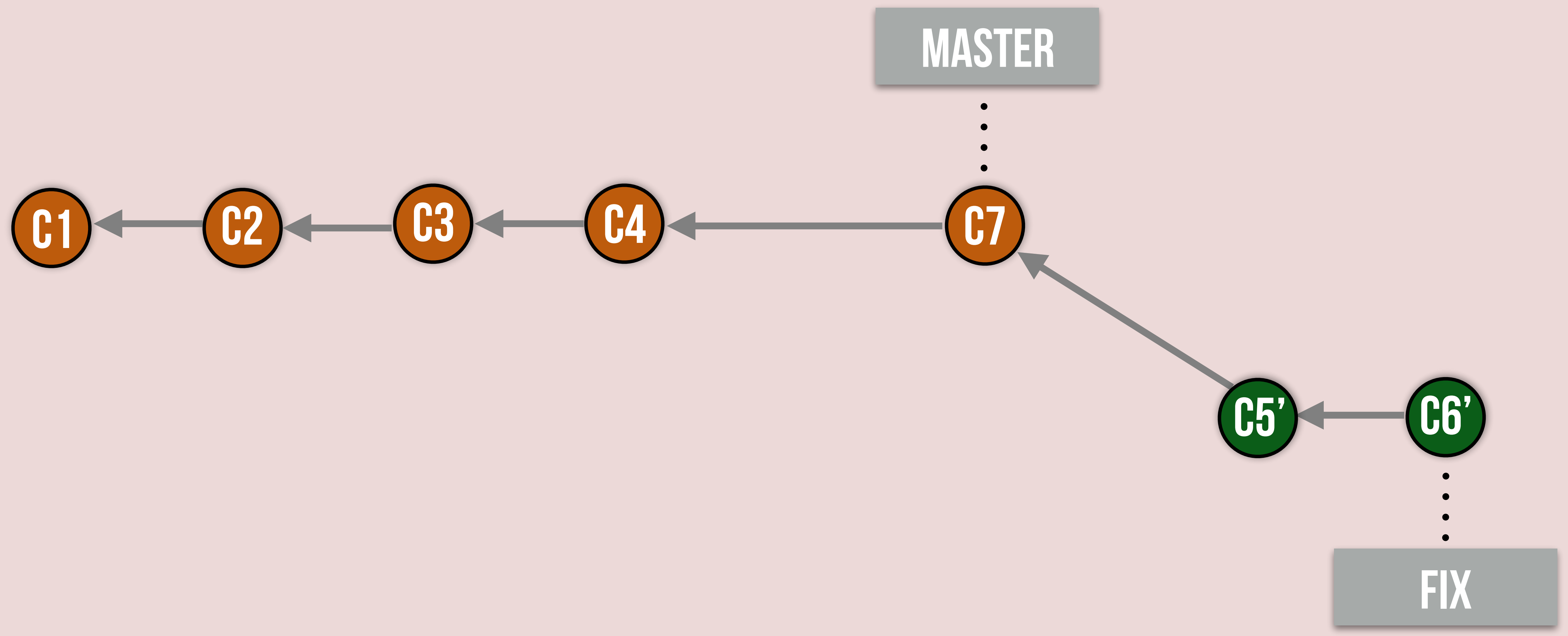
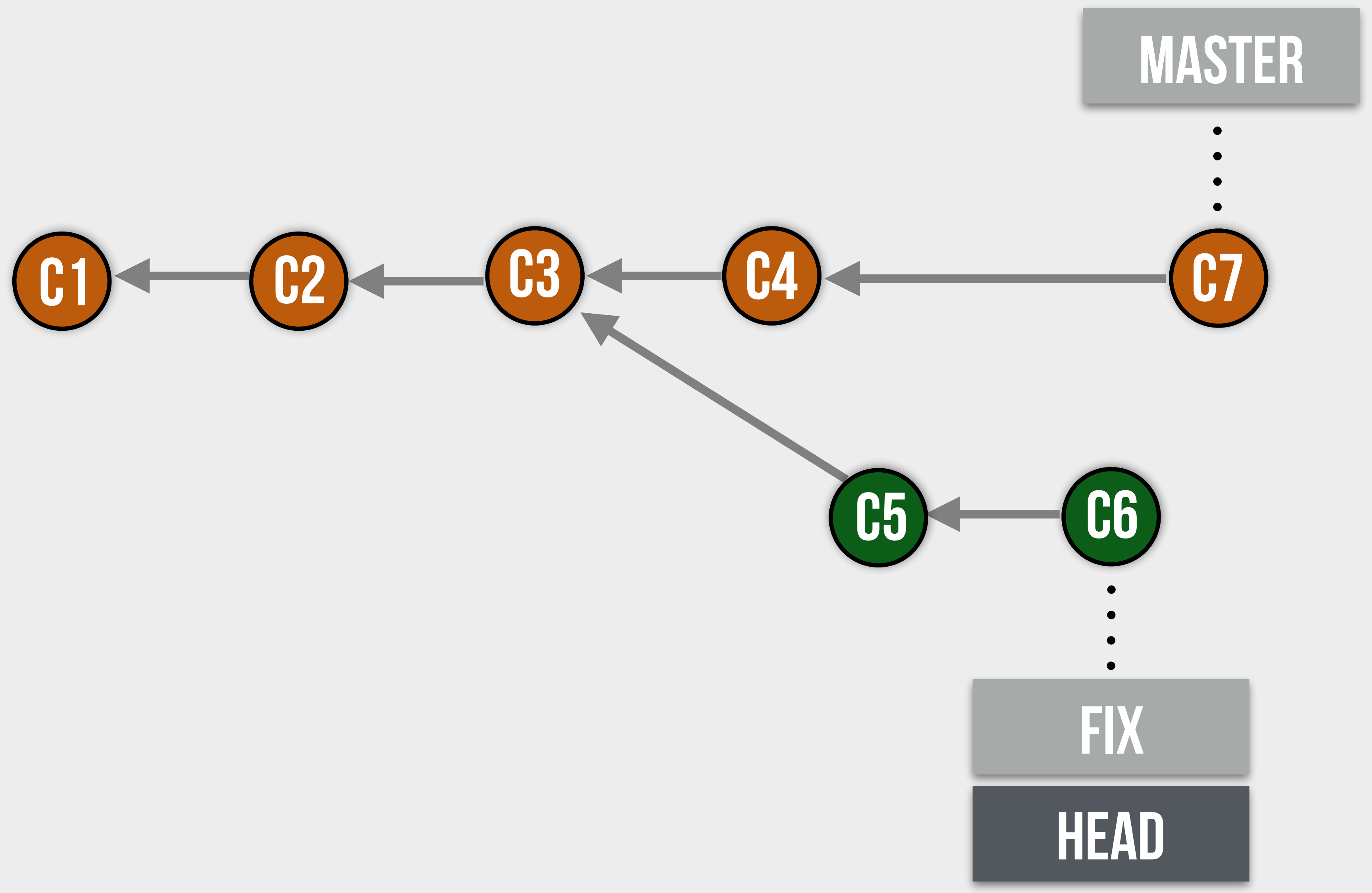
UPSTREAM



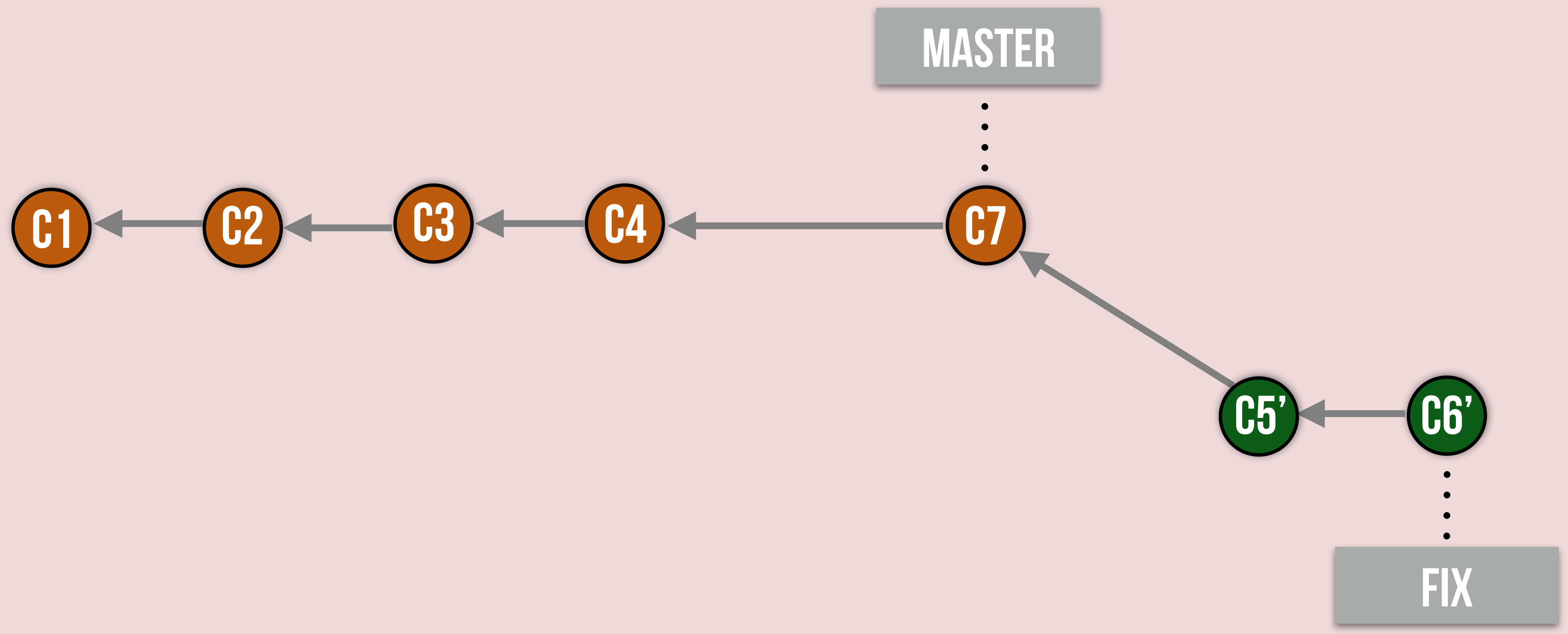
PULL A FORCE-PUSHED BRANCH



```
$ git pull
```

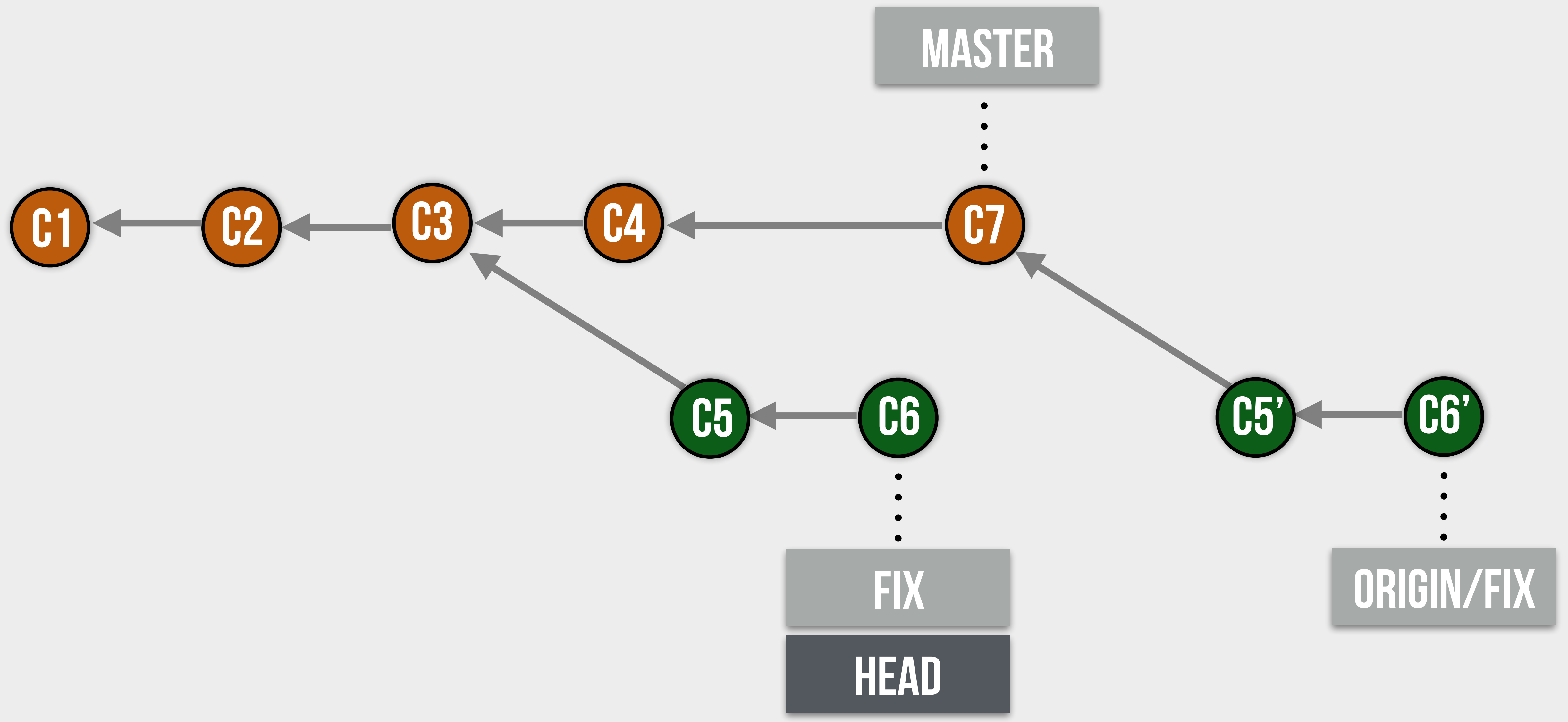
LOCAL

UPSTREAM



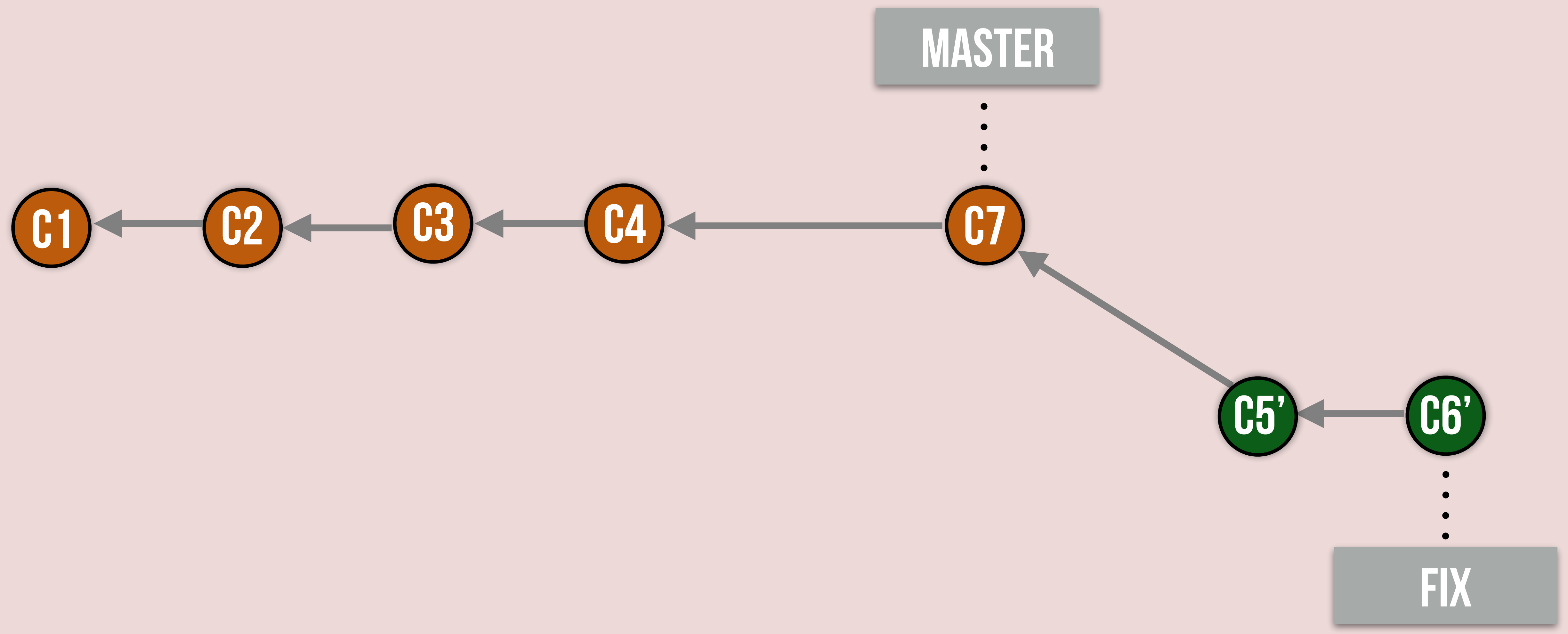
PULL A FORCE-PUSHED BRANCH

```
$ git pull
```

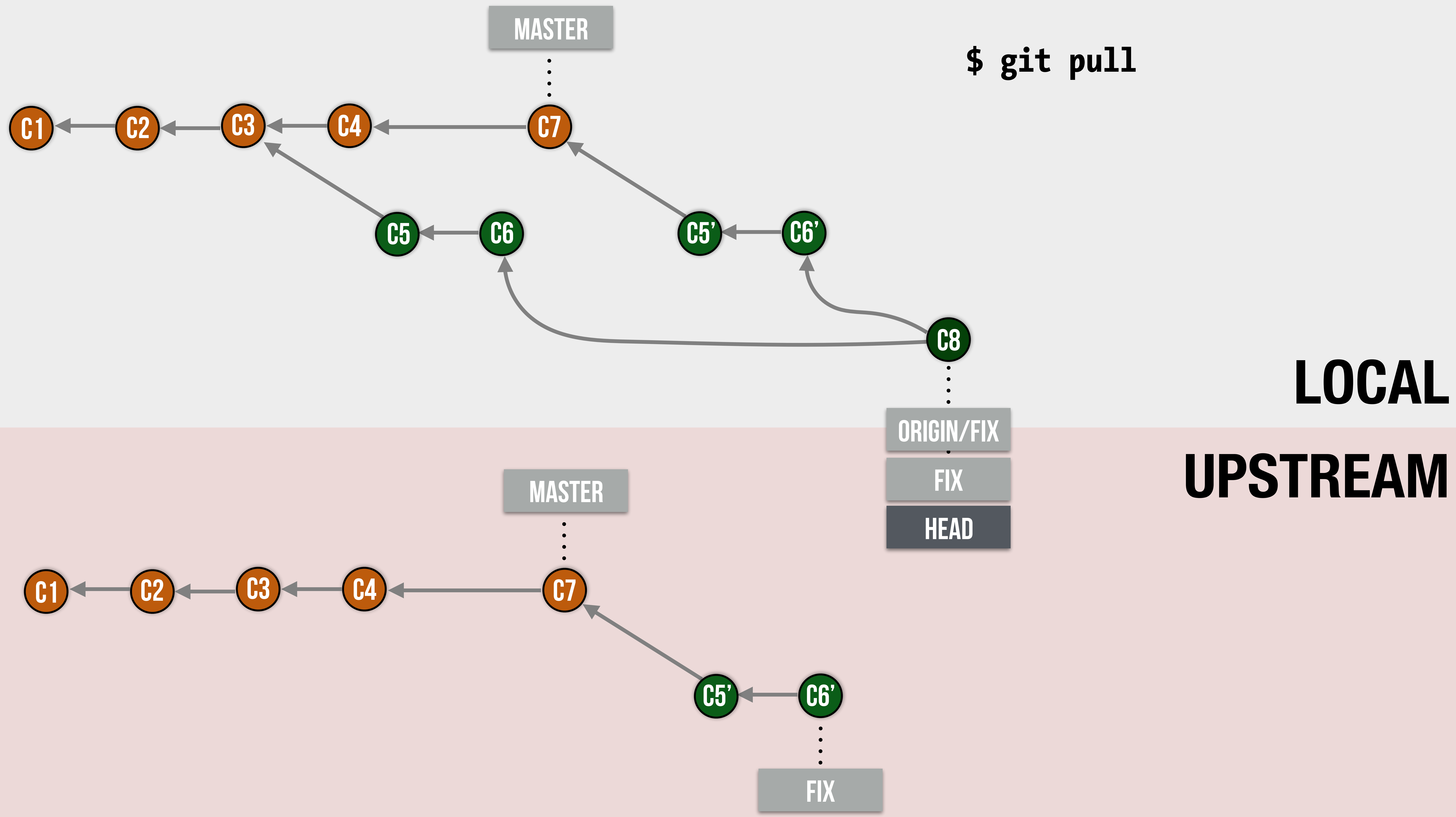


LOCAL

UPSTREAM

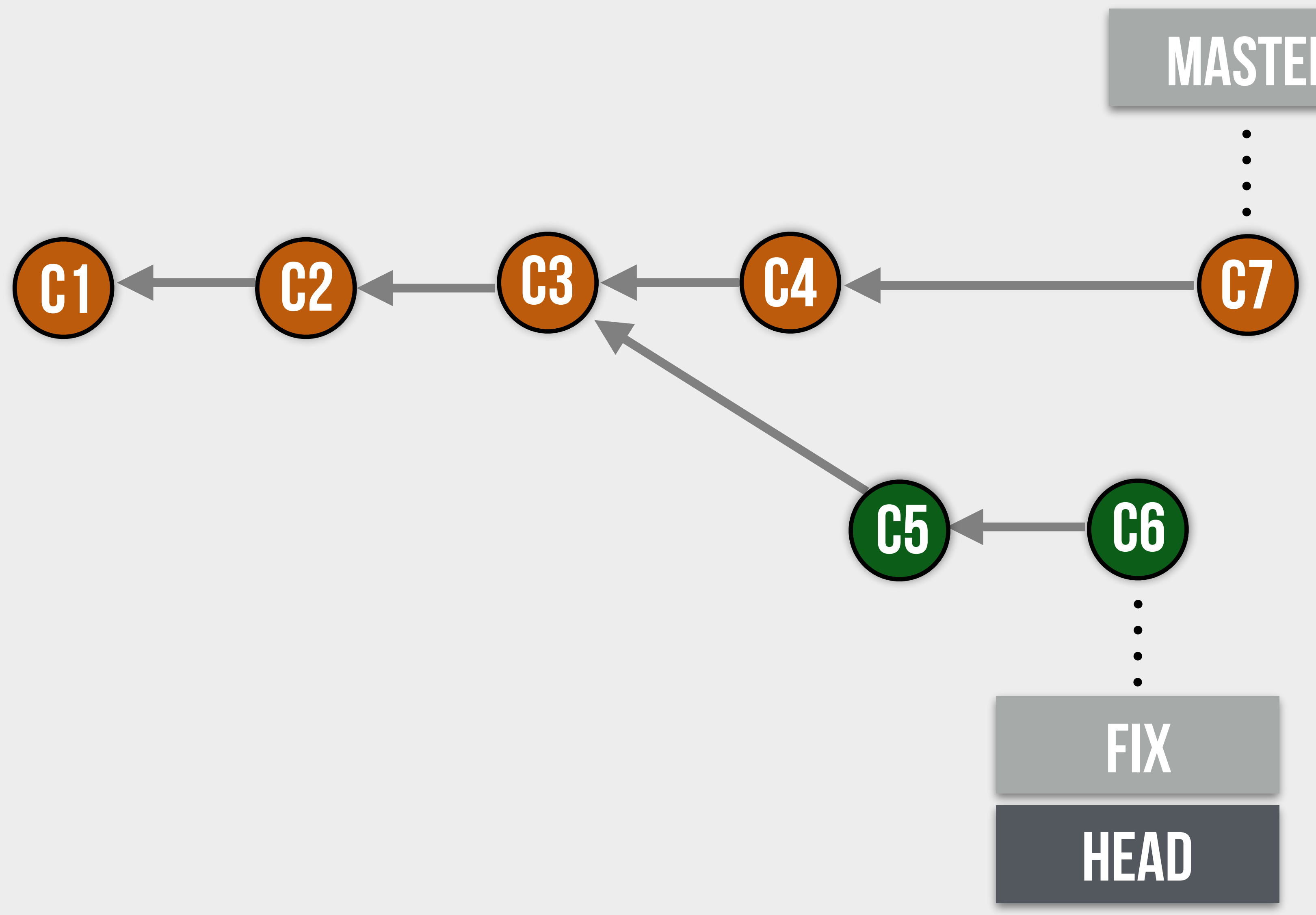


PULL A FORCE-PUSHED BRANCH



```
$ git pull
```

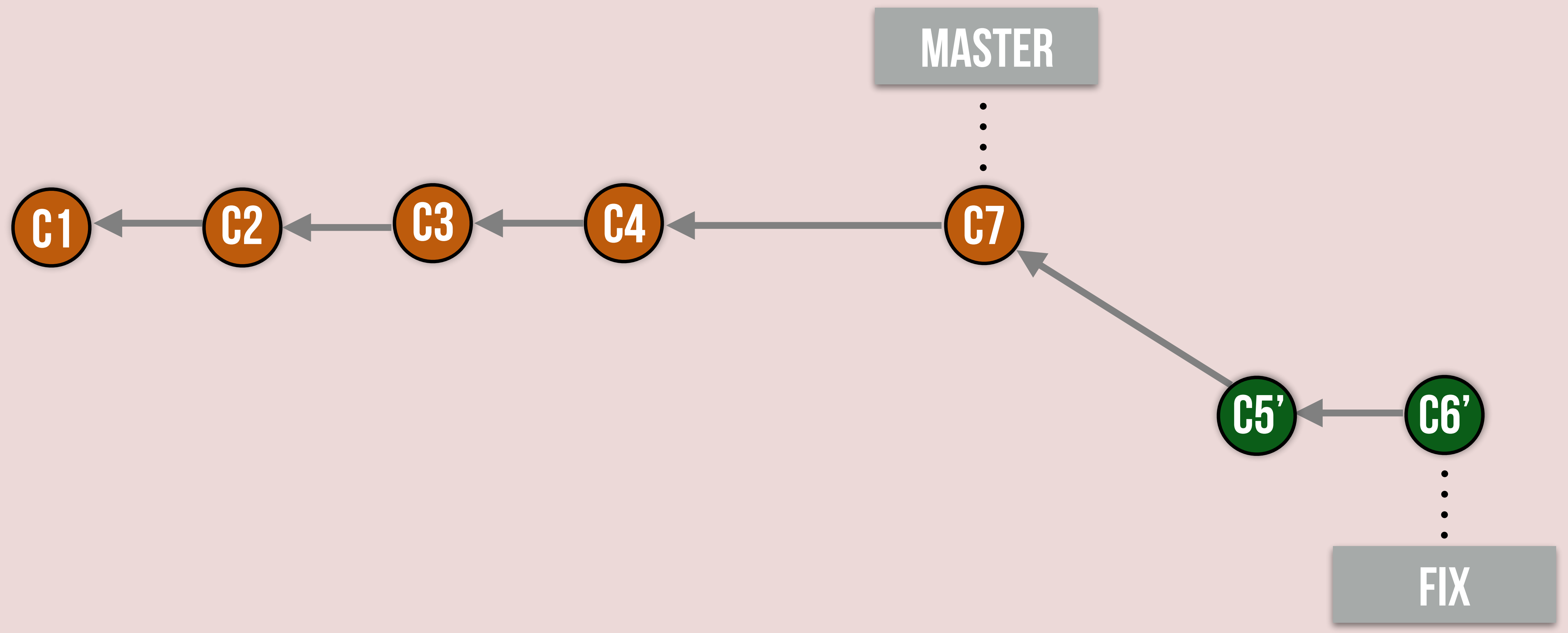
PULL WITH REBASE



```
$ git pull --rebase
```

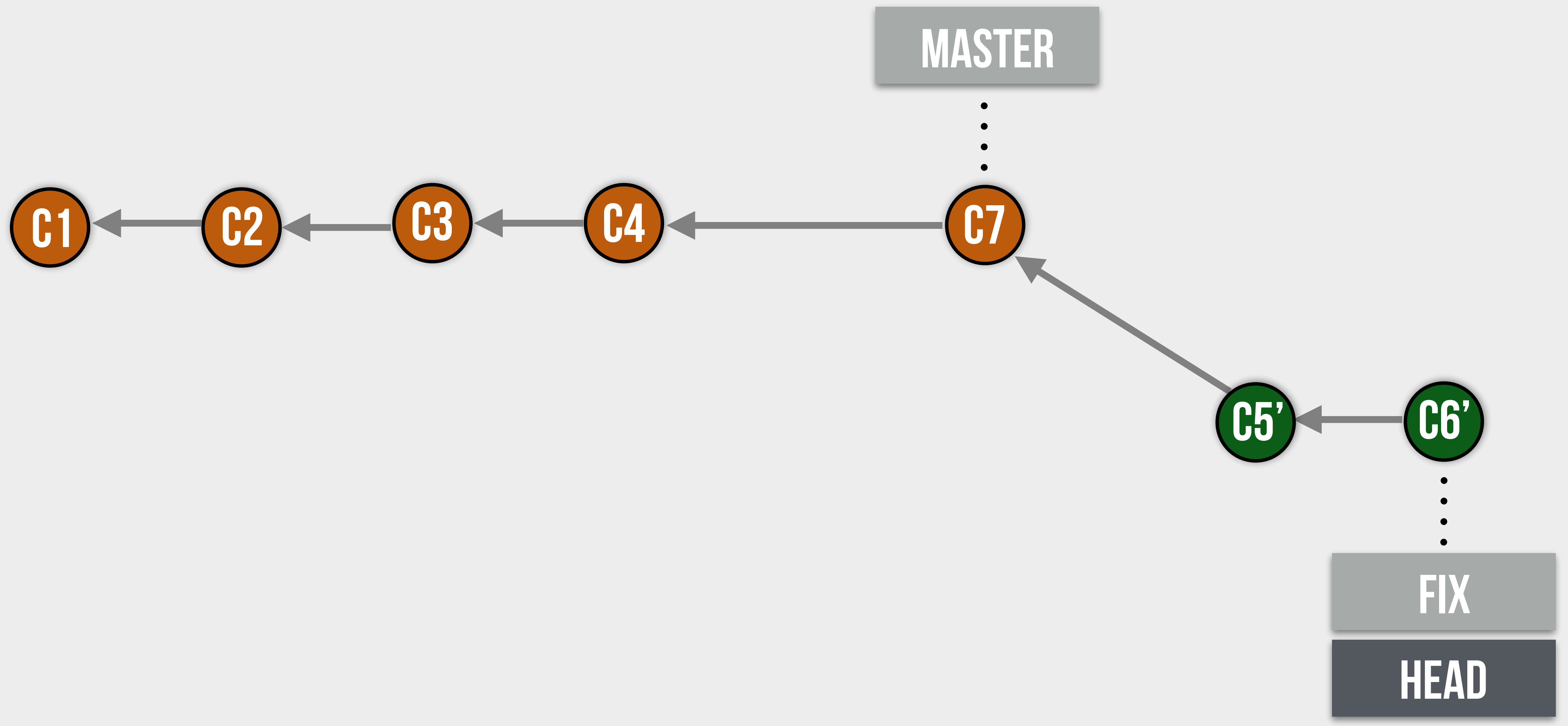
LOCAL

UPSTREAM



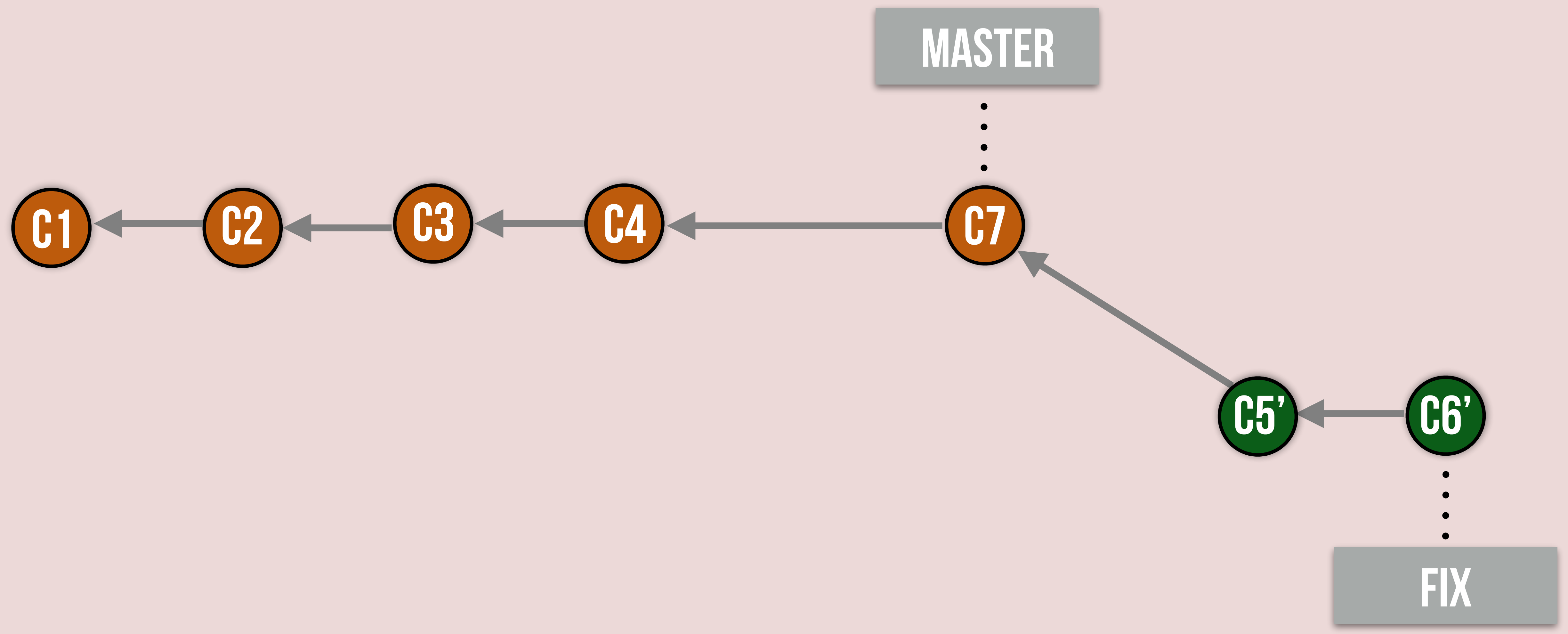
PULL WITH REBASE

```
$ git pull --rebase
```



LOCAL

UPSTREAM



1. TORTURING GIT BY PUSH
2. BROKEN TIME MACHINE
3. LONG LIVING BRANCHES
4. TOO LATE TO VALIDATE
5. CHERRY-PICK OVERDOSE
6. LOST IN COMMIT GRAPH
7. BUTTON ADDICT
8. TRASH HOUSE
9. BIG BALL OF MUD
10. AMBIGIOUS COMMIT MESSAGES
11. ZOMBIE REBASE
12. CODE LOSING SYNDROME
13. MESS UP WITH THE ROLLBACK
14. CENTRALIZED GIT
15. MERGE FANATIC
16. BRANCH CEMETERY
17. UNCONTROLLED POWER
18. WEB OF REPOSITORIES
19. ORACLE SYNDROME
20. WRITING FOR HACKERS
21. EVIL MERGE
22. BRANCH OVERDOSE
23. CHUCKY THE COMMAND
24. NO HERO TO SAVE LIVES
25. DUPLICATE COMMITS
26. BIG FAT COMMIT
27. CONFLICT-FOBIA
28. MERGE HELL
29. F#UCK UP WITH FORCE PUSH
30. LIVING AT DETACHED HEAD STATE

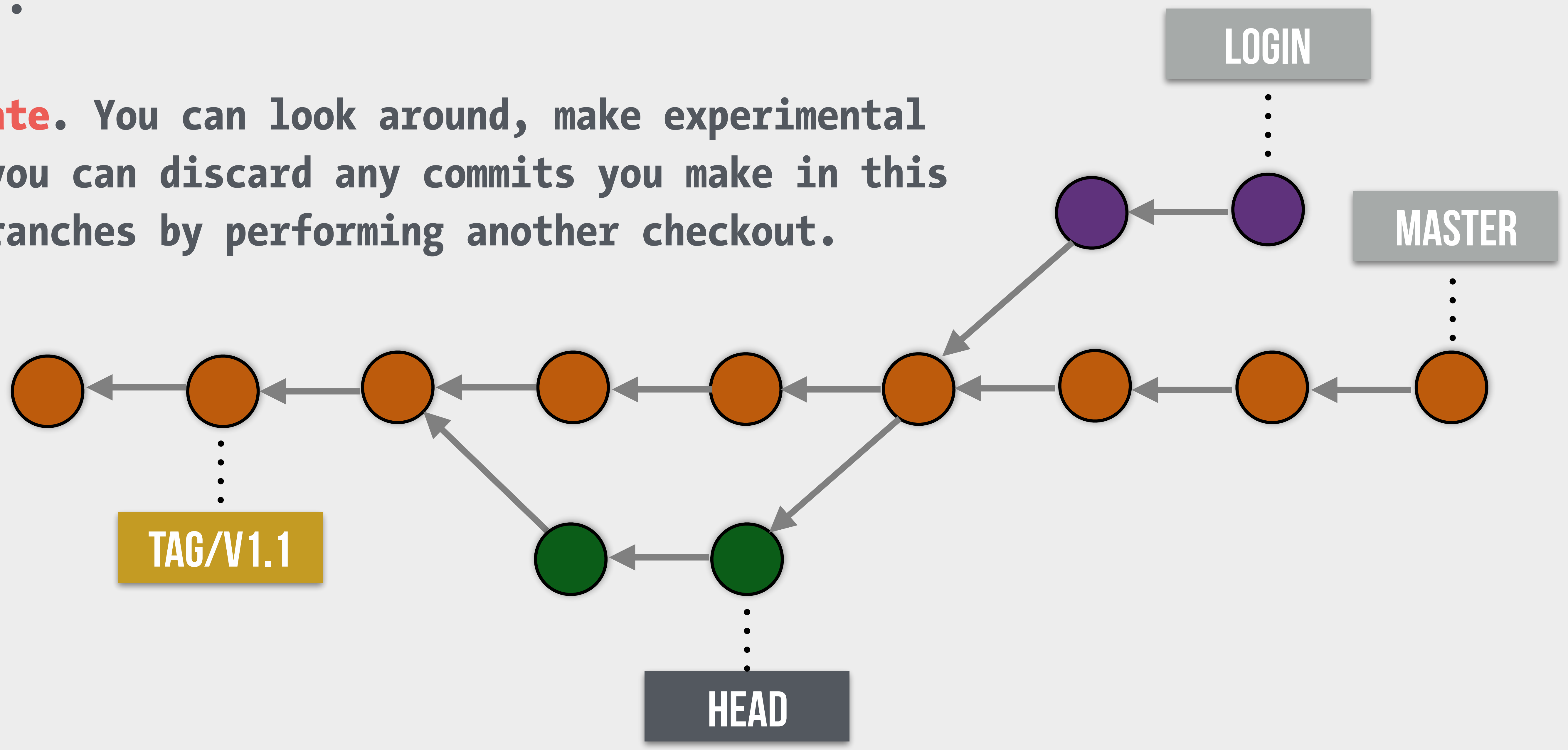
LET'S RECAP

what was really **happened** at that time?

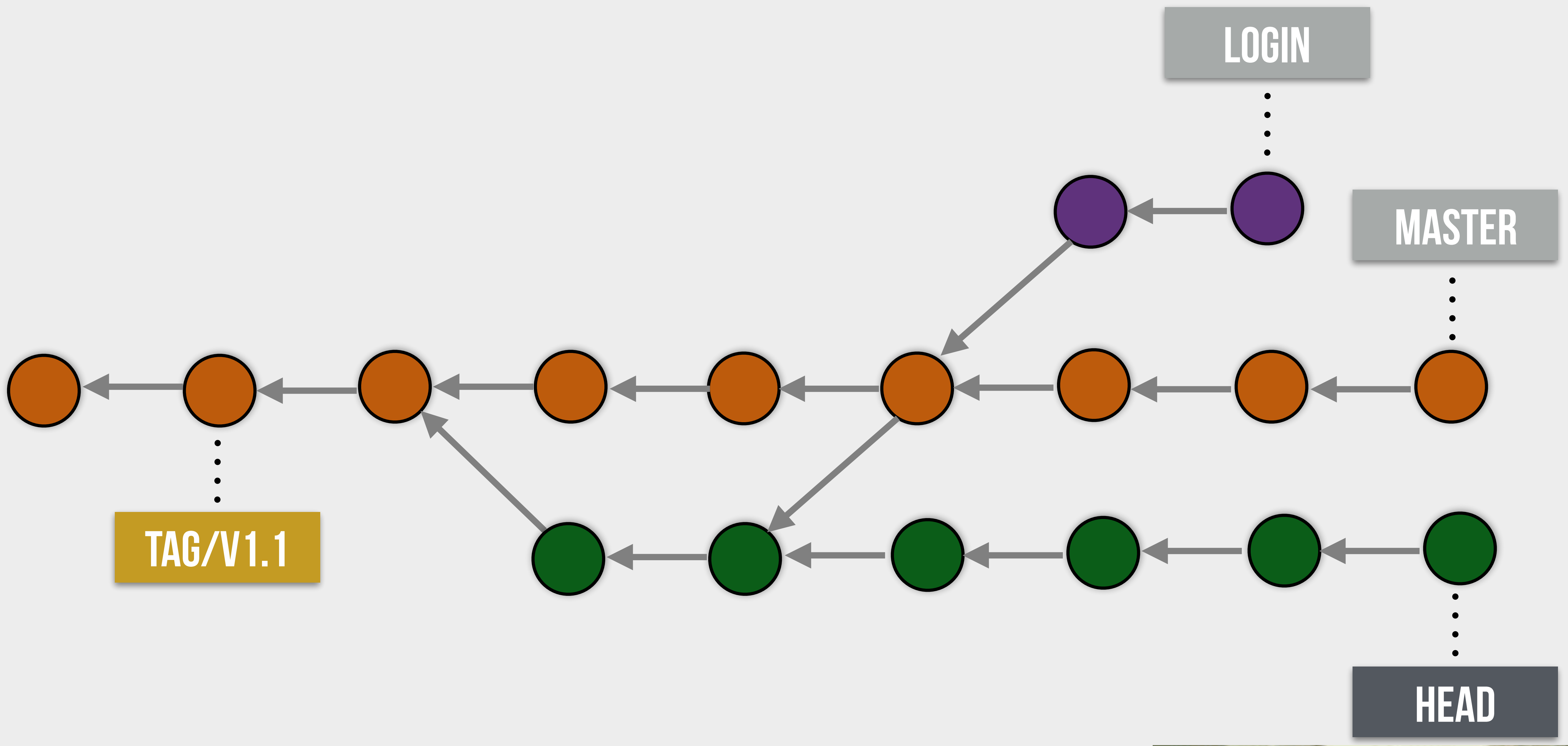
ANTIPATTERN DANGER

```
$ git checkout tags/v1.1
Note: checking out 'cecd95914'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by performing another checkout.
```

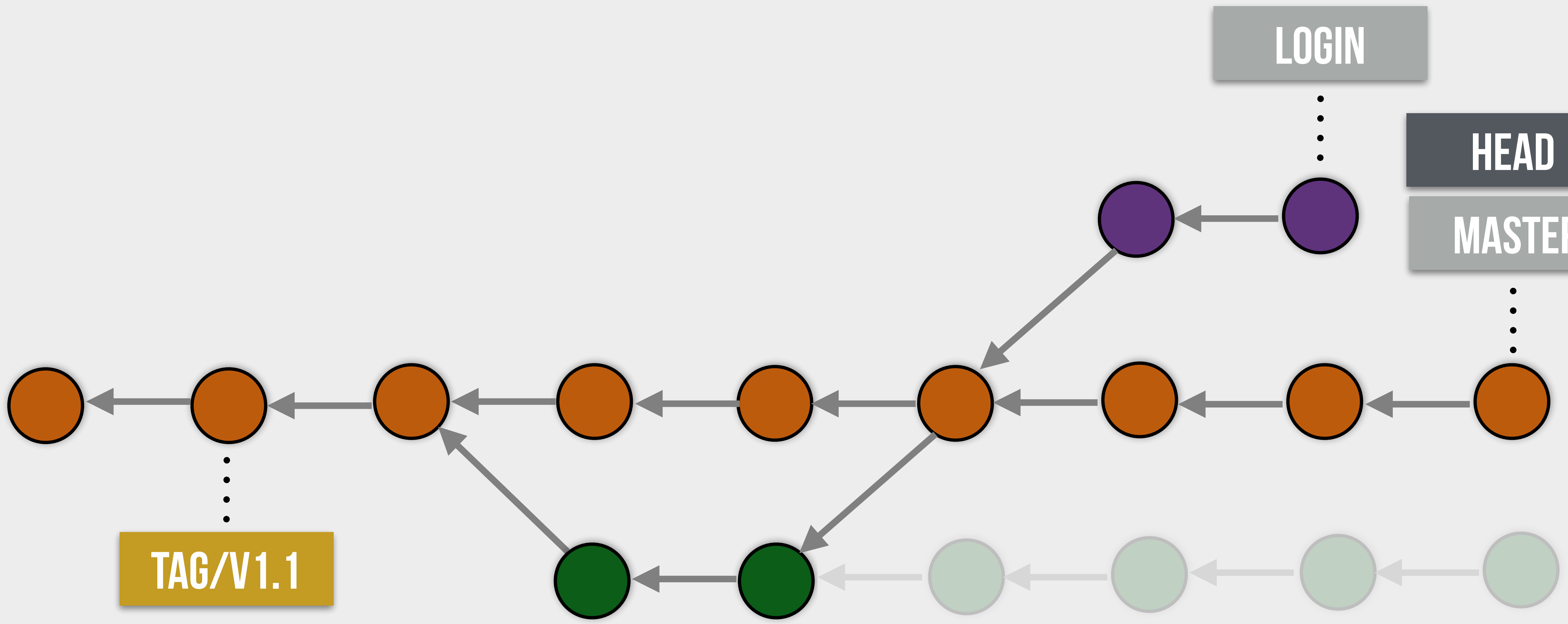


DETACHED HEAD STATE



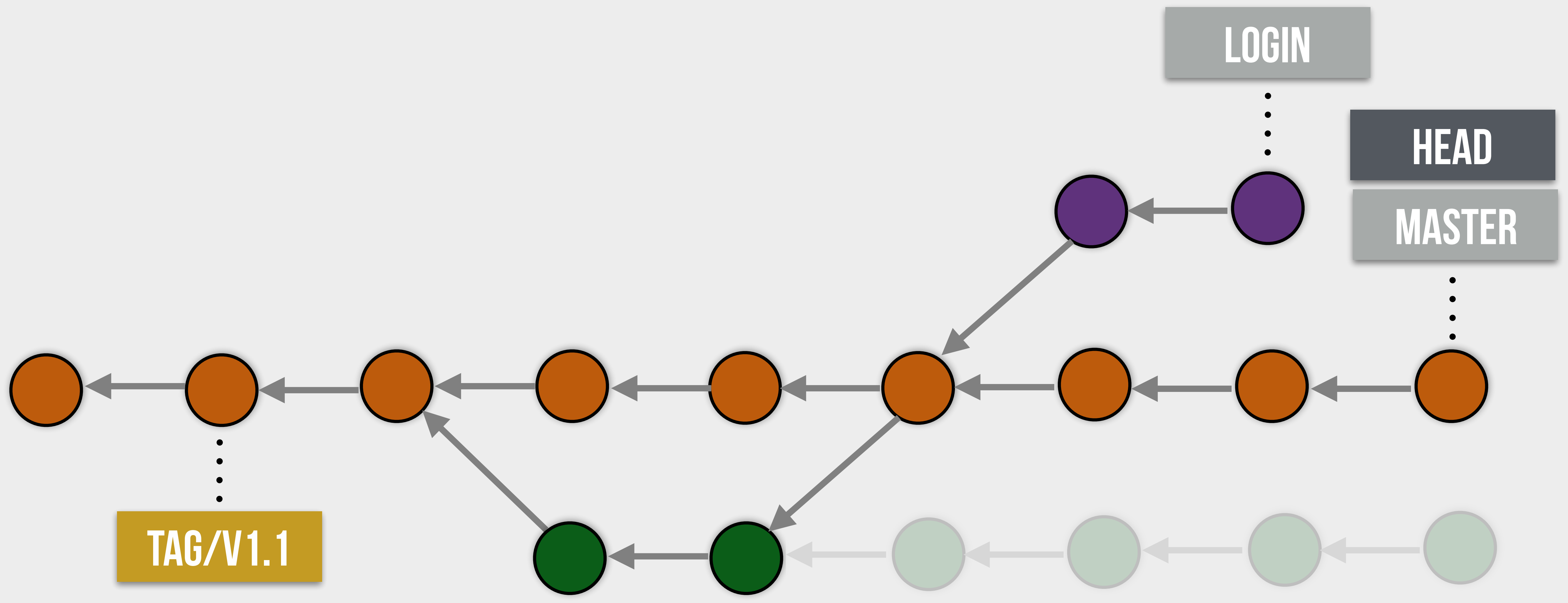
my poor friend
worked for
3 long days

```
$ git checkout master
```



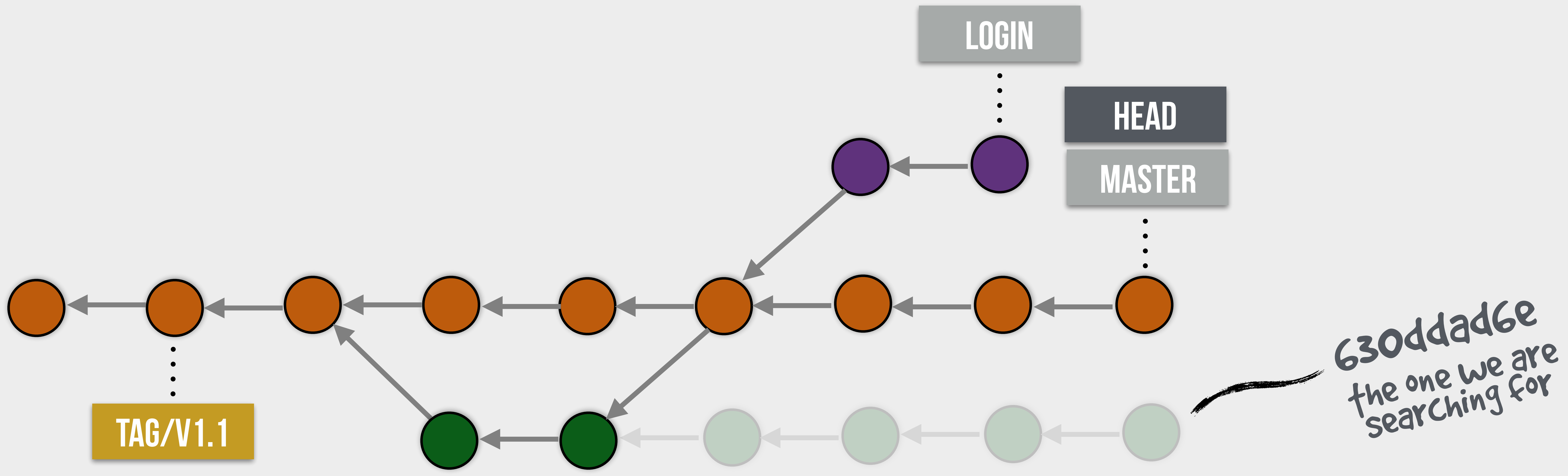
when he moved to another branch, all commits were gone

```
$ git reflog
```

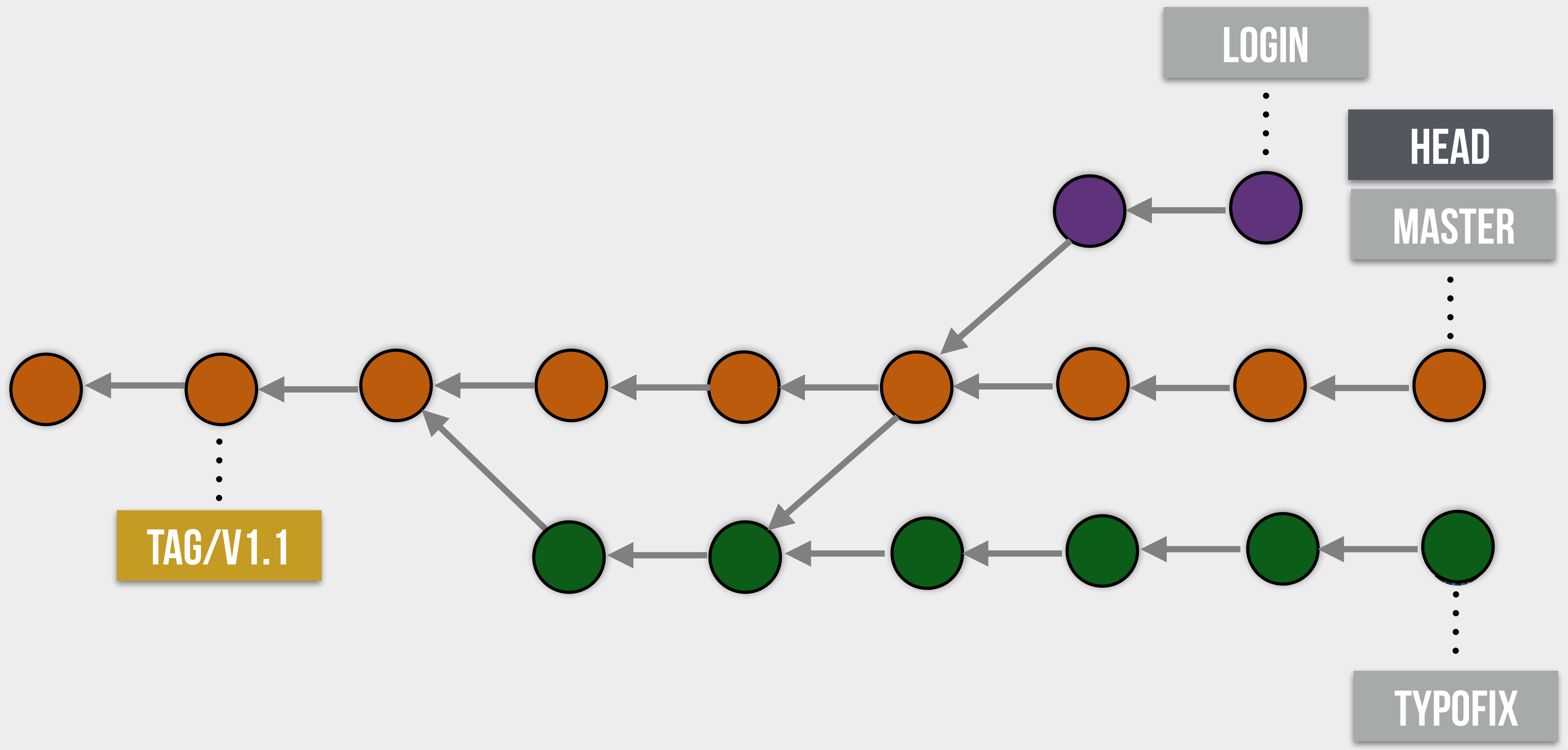


```
aa67e3a2c HEAD@{0}: rebase finished: returning to refs/heads/fix/java-sql-Date-violates-LSR
aa67e3a2c HEAD@{1}: rebase: fixes UnsupportedOperationException while calling toIstant() method of java.sql.Date
a45f3c4e5 HEAD@{2}: rebase: checkout develop
630ddad6e HEAD@{3}: checkout: moving from develop to fix/java-sql-Date-violates-LSR
b26cf7a1a HEAD@{4}: rebase: checkout develop
630ddad6e HEAD@{5}: checkout: moving from develop to fix/java-sql-Date-violates-LSR
b26cf7a1a HEAD@{6}: pull: Fast-forward
8b59f8f50 HEAD@{7}: checkout: moving from fix/java-sql-Date-violates-LSR to develop
630ddad6e HEAD@{8}: rebase: updating HEAD
```

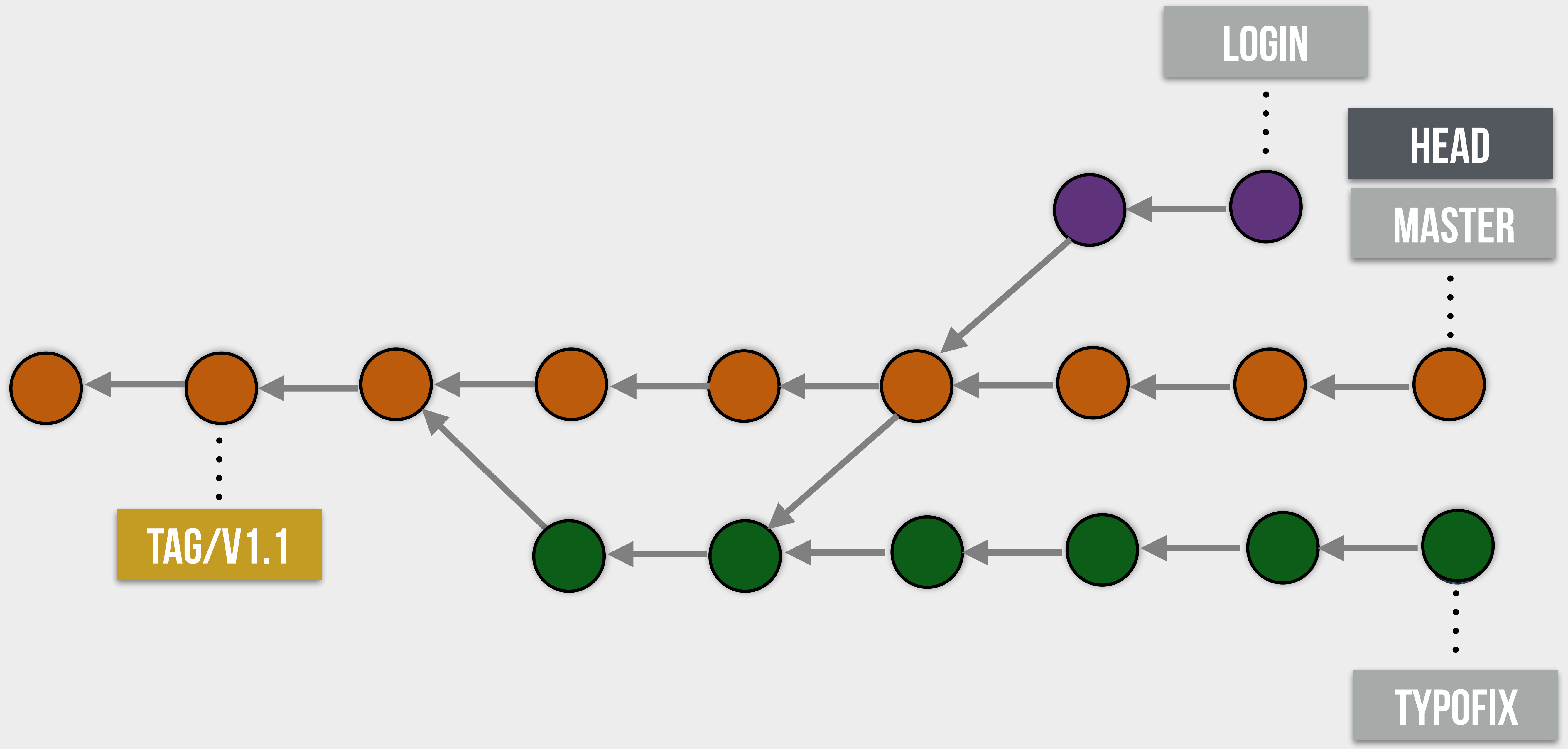
```
$ git reflog
```



```
aa67e3a2c HEAD@{0}: rebase finished: returning to refs/heads/fix/java-sql-Date-violates-LSR
aa67e3a2c HEAD@{1}: rebase: fixes UnsupportedOperationException while calling toIstant() method of java.sql.Date
a45f3c4e5 HEAD@{2}: rebase: checkout develop
630ddad6e HEAD@{3}: checkout: moving from develop to fix/java-sql-Date-violates-LSR
b26cf7a1a HEAD@{4}: rebase: checkout develop
630ddad6e HEAD@{5}: checkout: moving from develop to fix/java-sql-Date-violates-LSR
b26cf7a1a HEAD@{6}: pull: Fast-forward
8b59f8f50 HEAD@{7}: checkout: moving from fix/java-sql-Date-violates-LSR to develop
630ddad6e HEAD@{8}: rebase: updating HEAD
```



```
$ git branch typofix 630ddad6e
```



```
$ git branch typofix 630ddad6e
```

KEEP CALM, NOTHING WILL BE LOST

ANTIPATTERN DANGER

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thank you all!

Feedback: bit.ly/lemiorhan