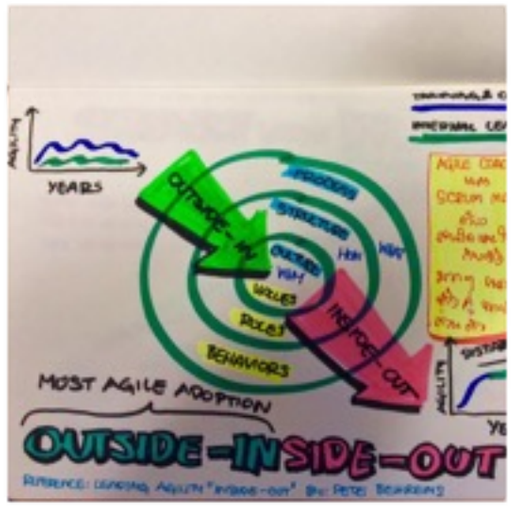
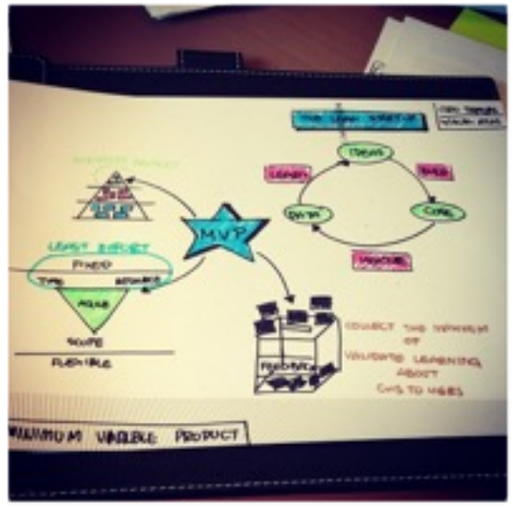
การบริหารจัดการ Source Code ด้วย

บริษัท สยามชำนาญกิจ จำกัด

พุทธศักราช ๒๕๕๖

การพัฒนา Software มันต้องสร้างด้วยแบบนี้ และมีความสุข

ทั้งผู้จ้าง ผู้สร้าง แลพะผู้ใช้

Training	Enabling	Coaching	Developing
			

Agile for Software Development + Engineering Practices

Software Quality + Software Testing + IT Service Management (ITIL v3)

สมเกียรติ ปุ๋ยสูงเนิน (ปุ๋ย)

Developer + Agile Coach + Technical Coach

Agile Practitioner

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Owner + Blogger @ somkiat.cc

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twitter: @somkiat

facebook: facebook.com/somkiatspns

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Developer + Agile Coach + Technical Coach

Agile Practitioner

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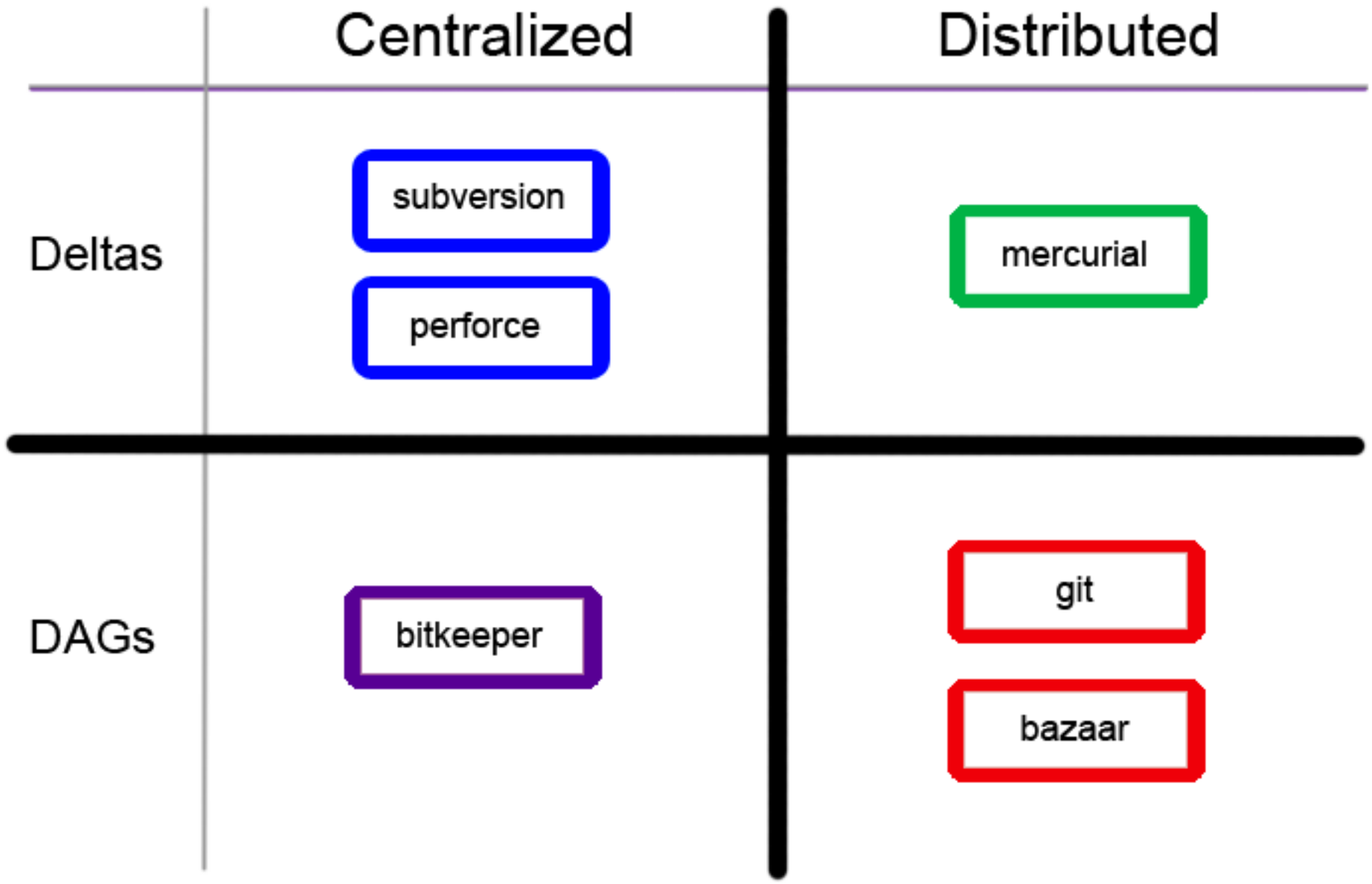
twitter: @boyone

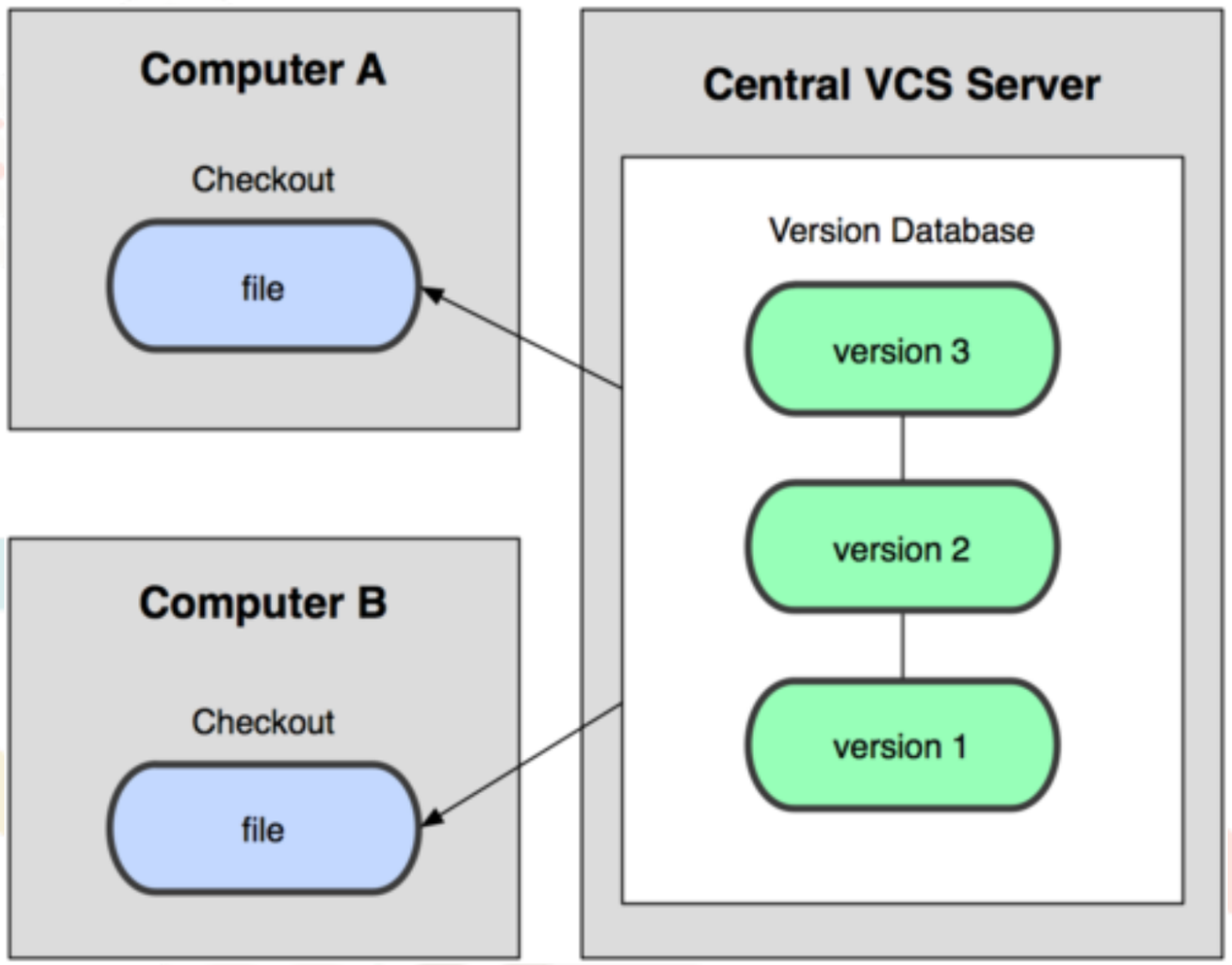
facebook: facebook.com/boyone


KEEP
CALM
AND
GIT PUSH
ORIGIN MASTER

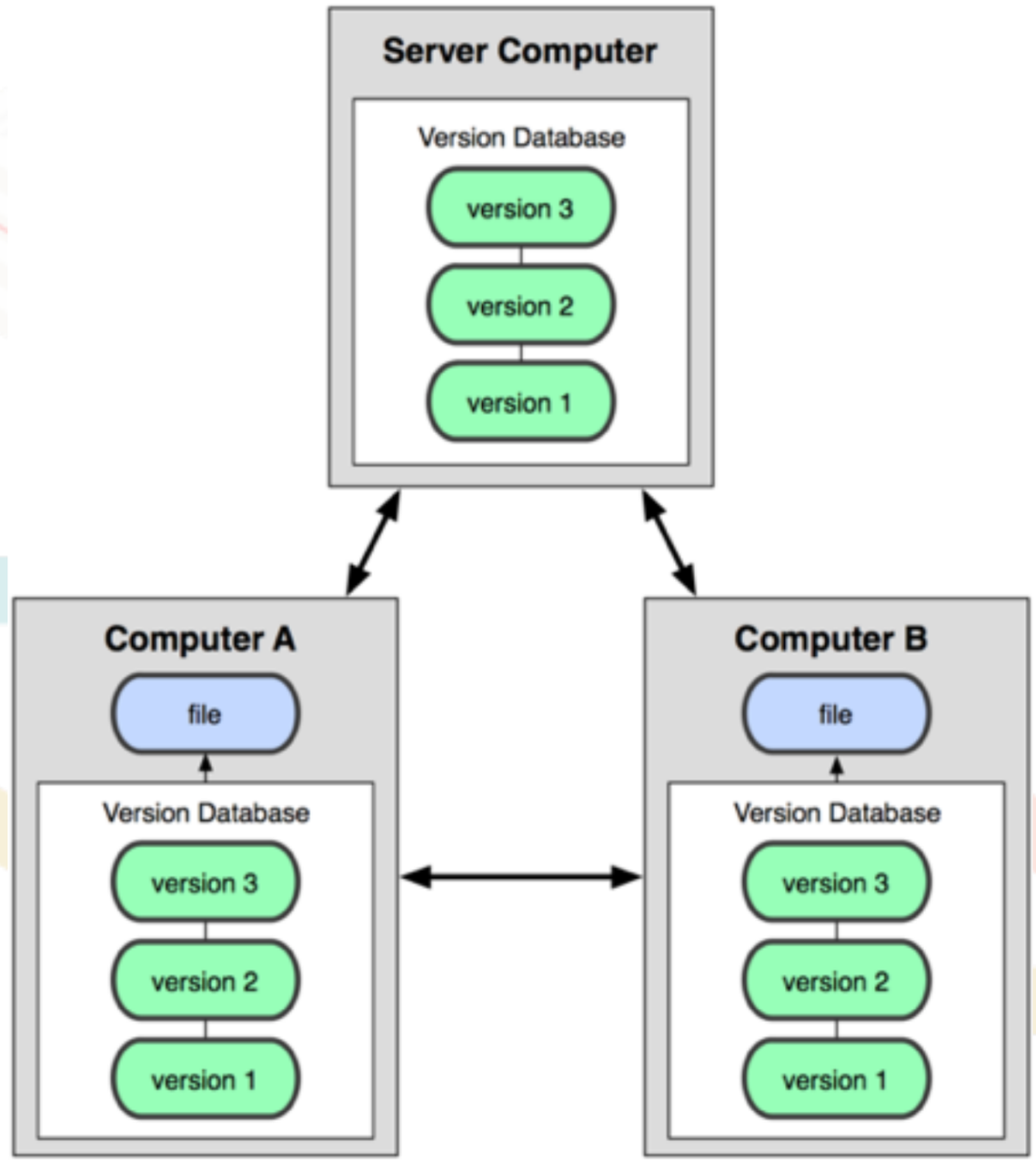
Version Control



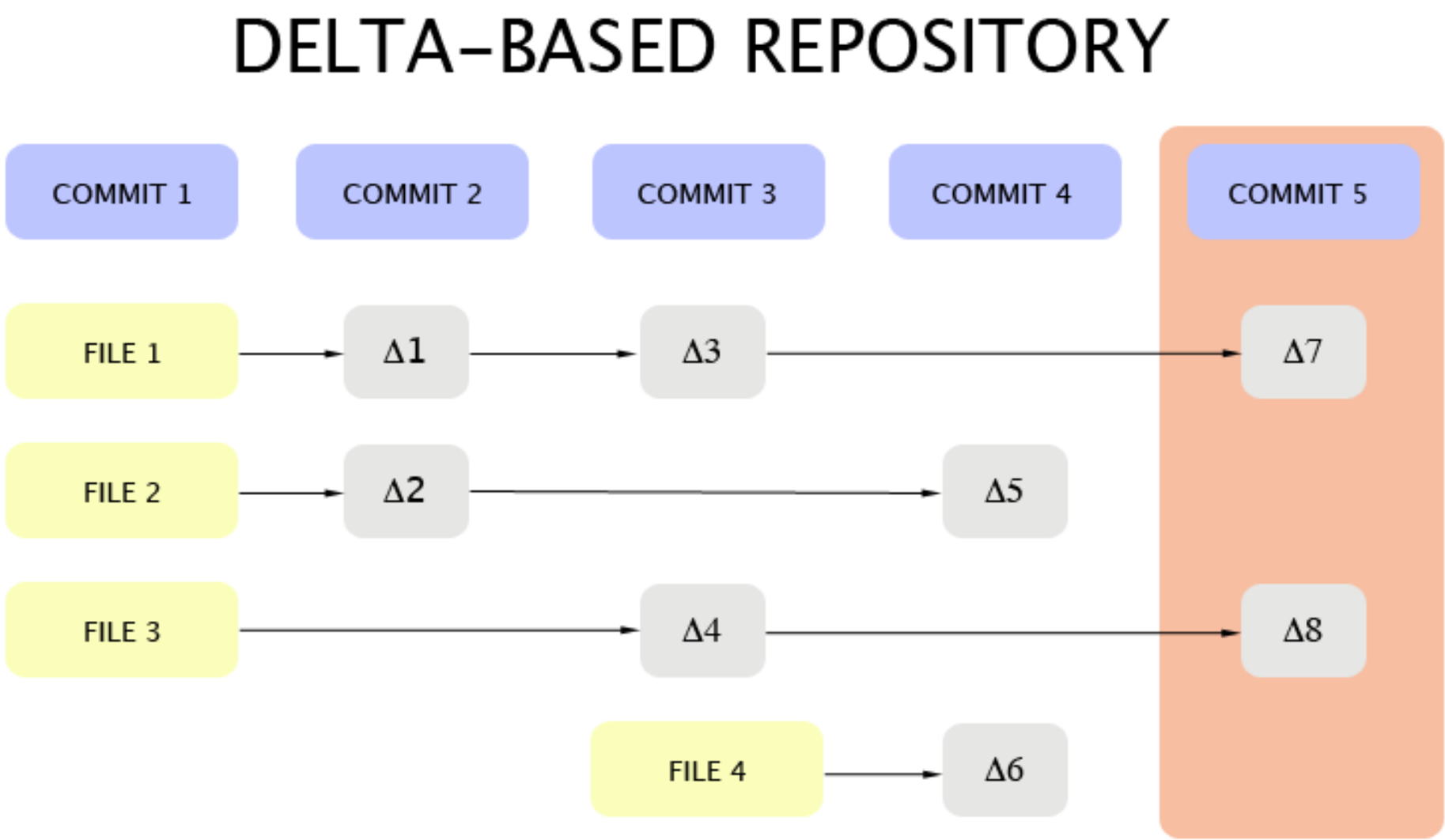
Centralized Version Control



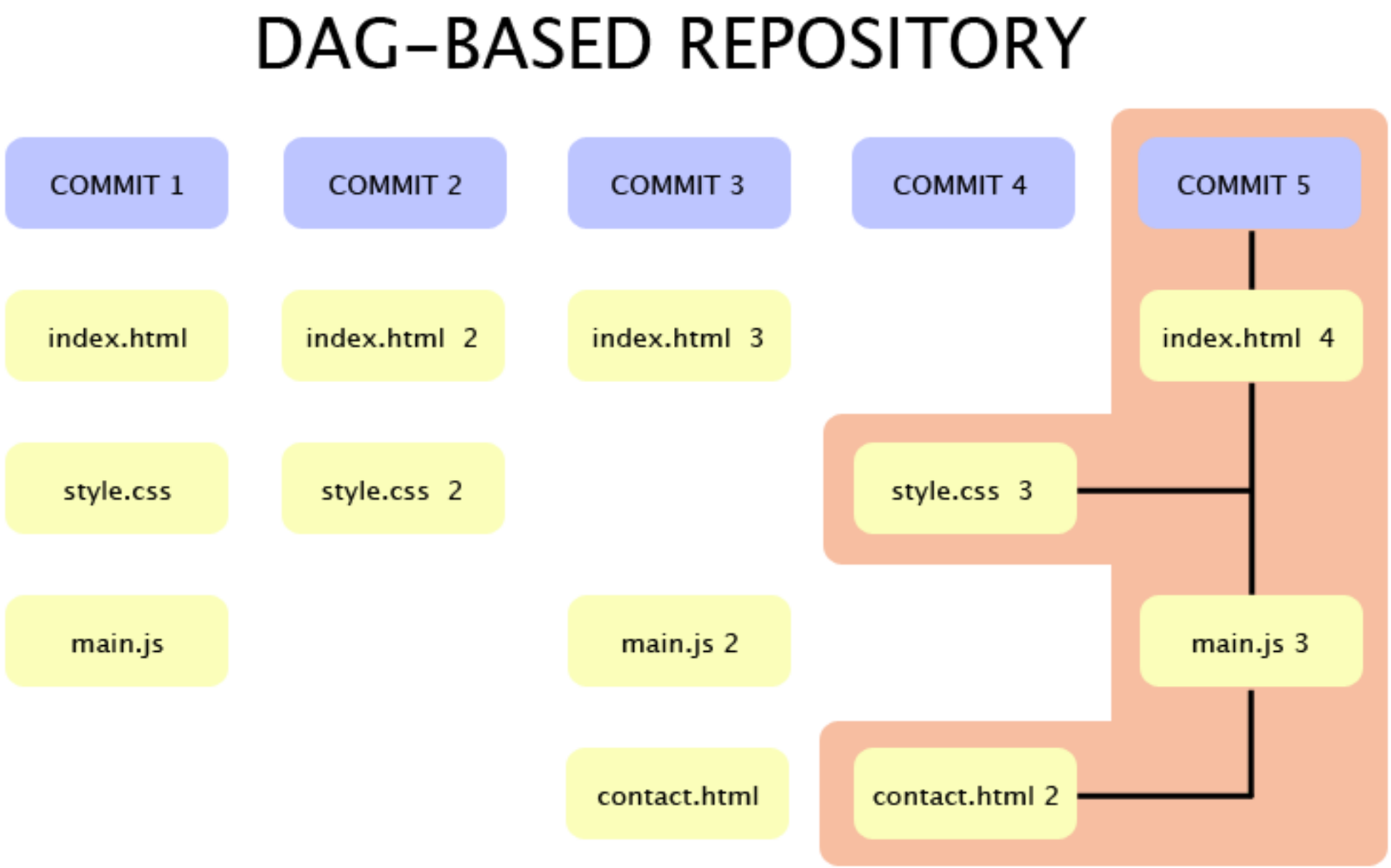
Distributed Version Control



Delta Repository



DAG Repository



เป้าหมายของการออกแบบ Git

Speed

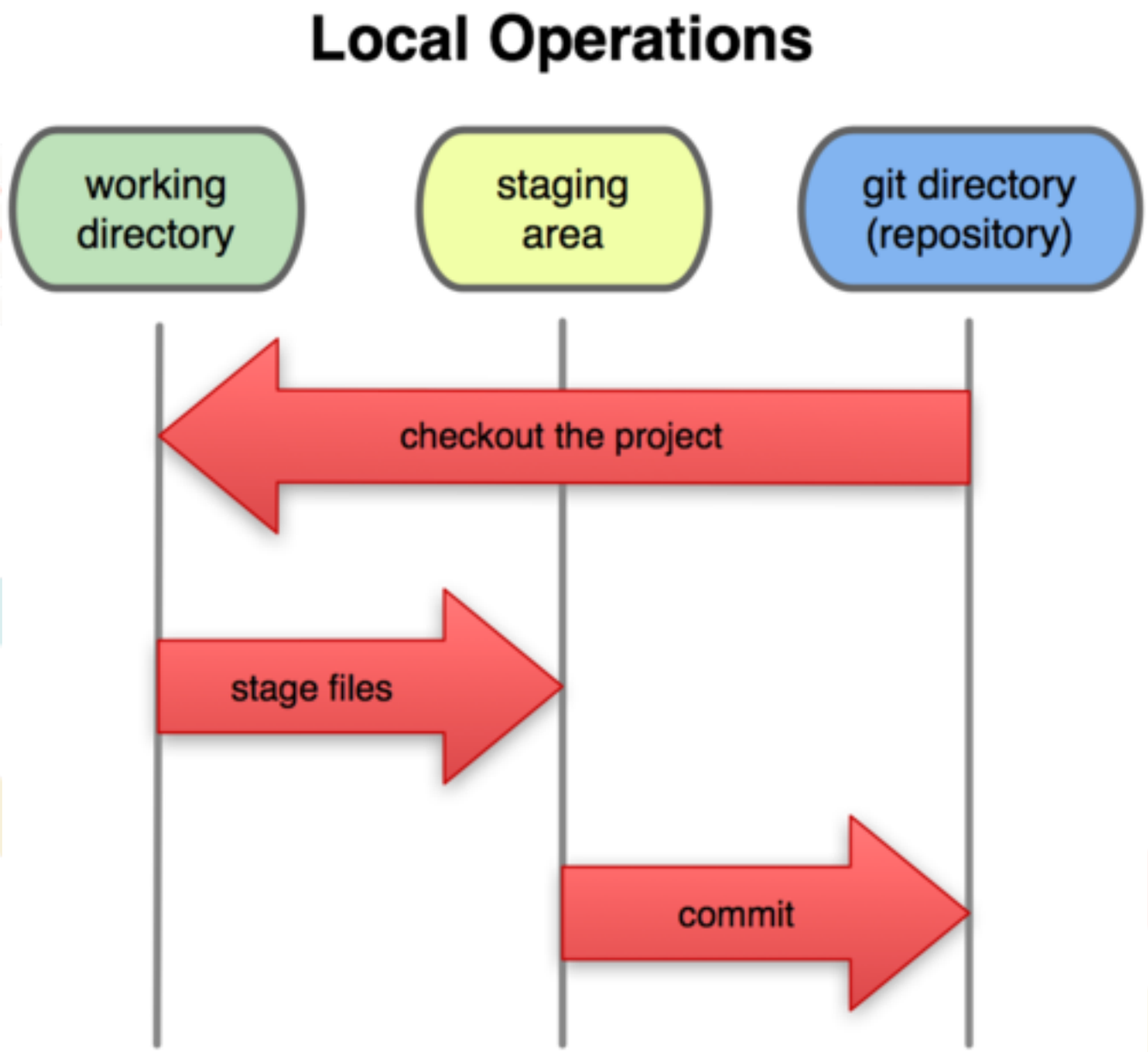
Simple design

Support for many parallel branches

Fully distributed

To handle large project like Linux kernel

Git Workflow



Who use Git

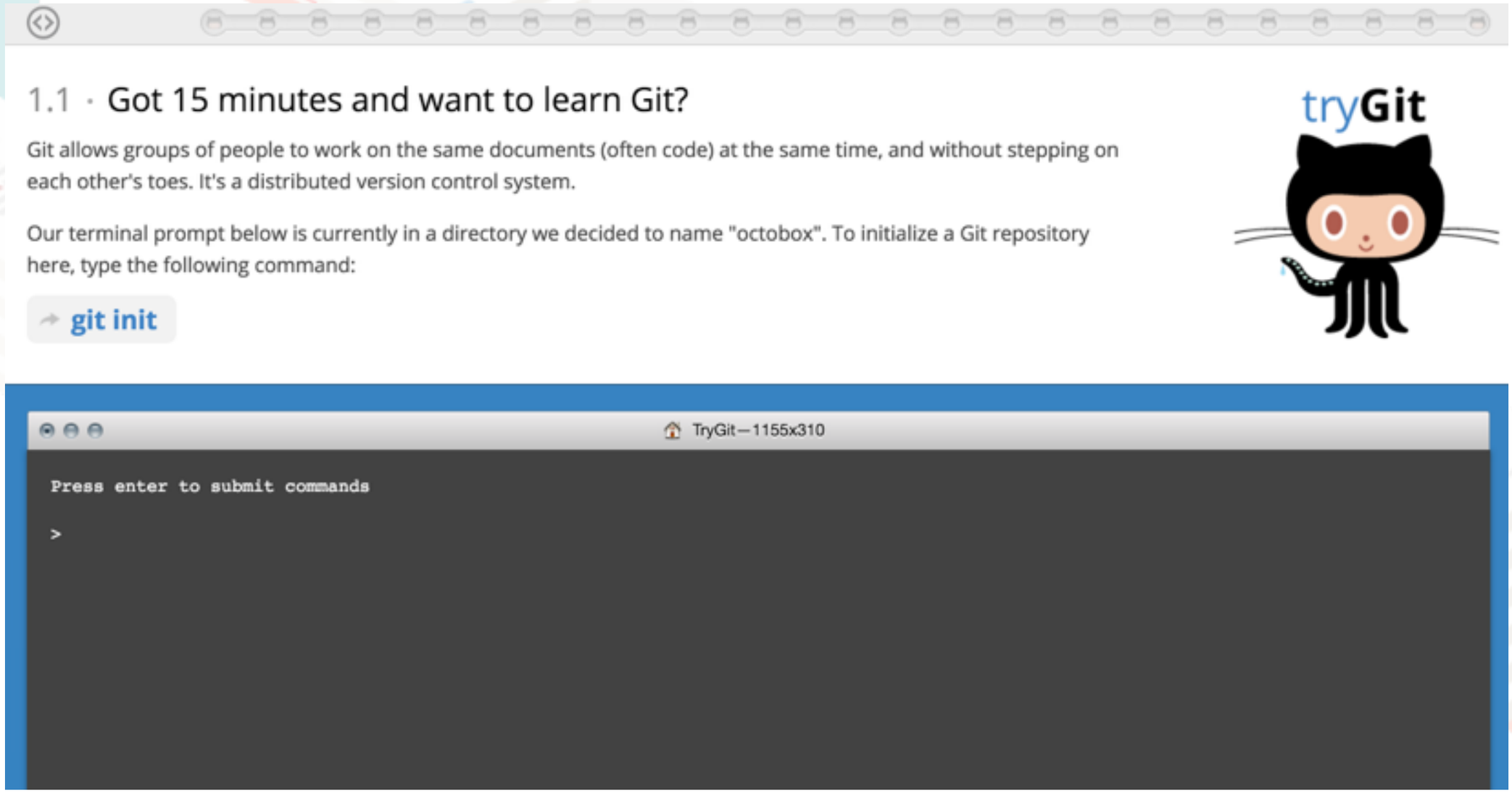
Companies & Projects Using Git

Google facebook Microsoft twitter LinkedIn NETFLIX  PostgreSQL

Practice Git on Browser

https://try.github.io



Install Git

http://git-scm.com/

Configuration Git on Local Machine

$git **config** --global user.name “*your name*”

$git **config** --global user.email “*your email*”

$git **config** -l

Create a repository

Windows	Mac or Linux
Select git bash	Open Terminal

$mkdir ***workspace***

$git **init**

Repository structure

$git **init**

```
.git
├── HEAD
├── branches
├── config
├── description
├── hooks
│   ├── applypatch-msg.sample
│   ├── commit-msg.sample
│   ├── post-update.sample
│   ├── pre-applypatch.sample
│   ├── pre-commit.sample
│   ├── pre-push.sample
│   ├── pre-rebase.sample
│   ├── prepare-commit-msg.sample
│   └── update.sample
├── info
│   └── exclude
├── objects
│   ├── info
│   └── pack
└── refs
    ├── heads
    └── tags
```

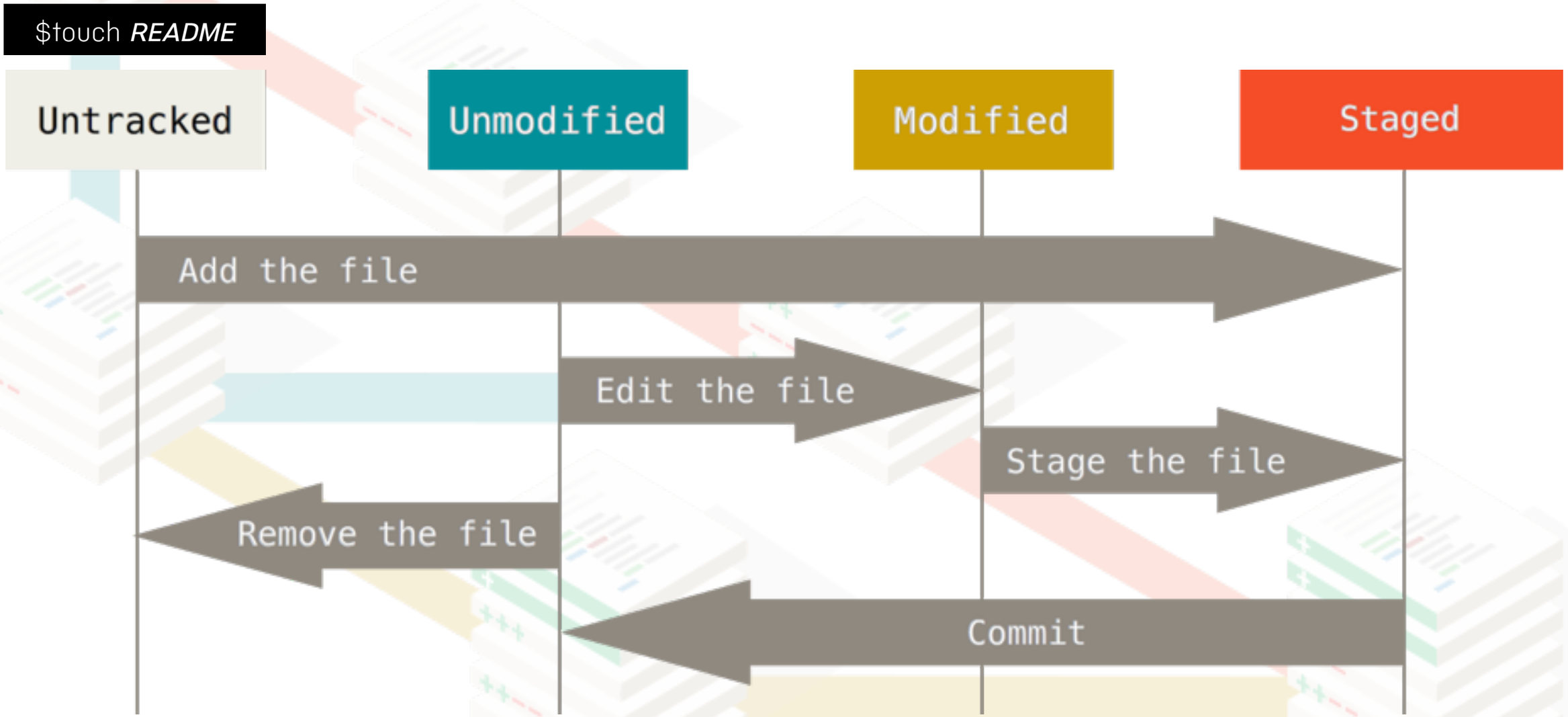
Checking the status

$touch *README*

$git **status**

```
On branch master

Initial commit

Untracked files:
  (use "git add <file>..." to include in what will be committed)

        README

nothing added to commit but untracked files present (use "git add" to track)
```

Lift Cycle of File Status



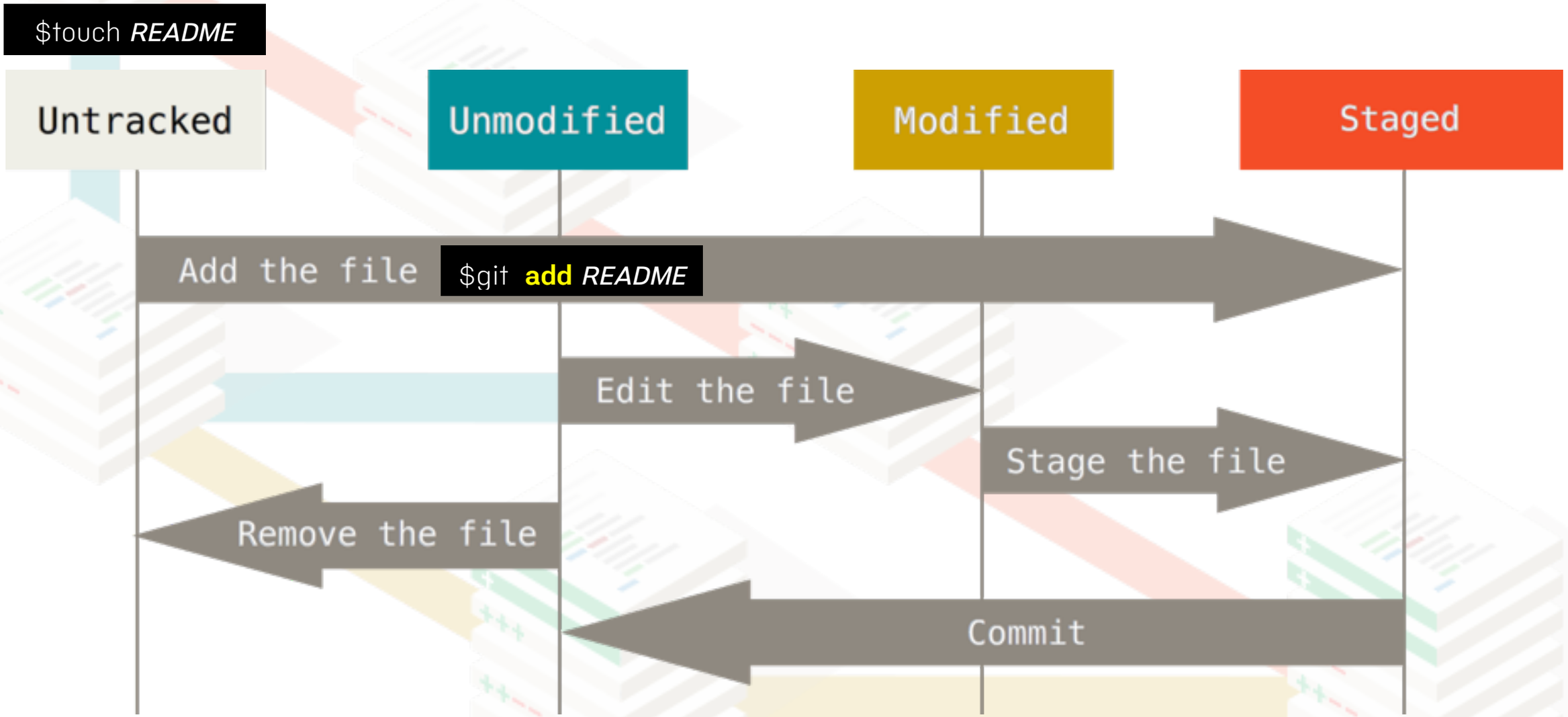
Checking the status

$git **add** *README*

$git **status**

```
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:   README
```

Lift Cycle of File Status



Ignore files and folders

$touch *.gitignore*

$vi *.gitignore*

$git **add** *.gitignore*

$git **status**

View staged and unstage change

$echo “test” > README

$git **status**

```
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

        new file:   .gitignore
        new file:   README

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   README
```

See difference of file

$git **diff**

```
diff --git a/README b/README
index e69de29..9daeafb 100644
--- a/README
+++ b/README
@@ -0,0 +1 @@
+test
```

See difference of file with history

$git **diff** --cached

$git **diff** --staged

```
diff --git a/.gitignore b/.gitignore
new file mode 100644
index 0000000..e69de29
diff --git a/README b/README
new file mode 100644
index 0000000..e69de29
```

Commit your changes

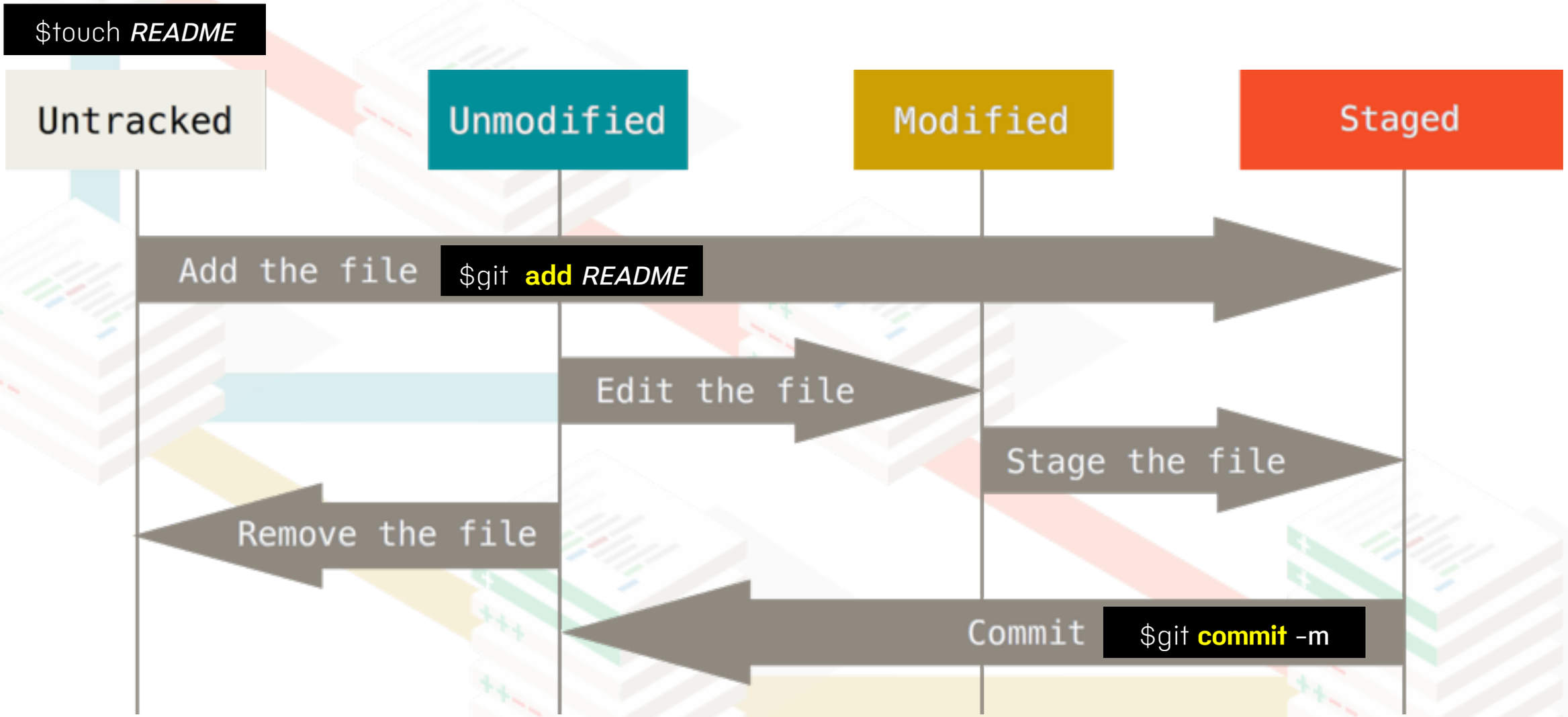
$git **commit** -m “*Message for this change*”

```
[master (root-commit) aed0048] Your message
 2 files changed, 1 insertion(+)
 create mode 100644 .gitignore
 create mode 100644 README
```

Tips

$git **commit** -a -m “*Message for this change*”

Lift Cycle of File Status



Remove your files

$rm *README*

$git **status**

```
On branch master
Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        deleted:    README

no changes added to commit (use "git add" and/or "git commit -a")
```

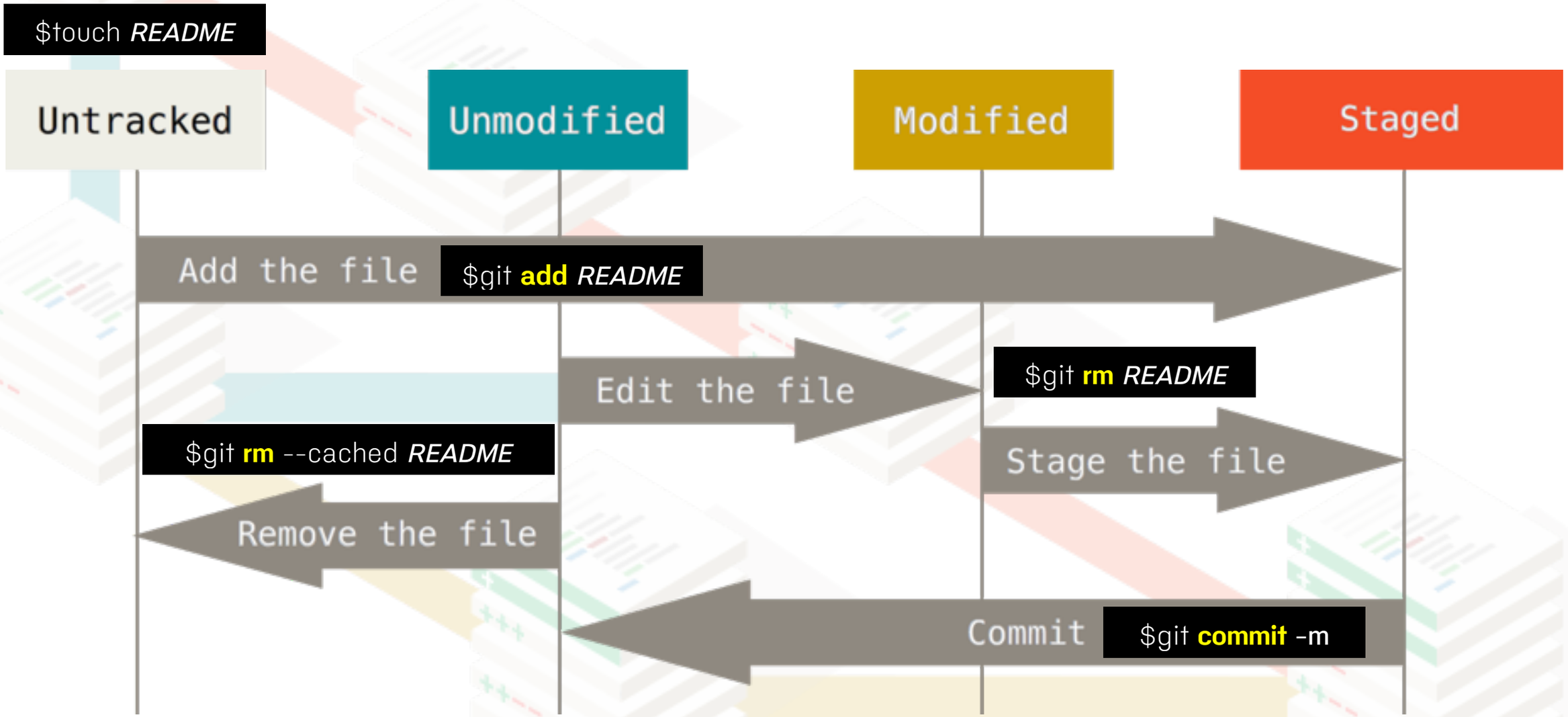
Remove your files

$git **rm** *README*

$git **status**

```
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        deleted:    README
```

Lift Cycle of File Status



Try to reset README file

$git **WHAT COMMAND?**

$git **help**

$git

$git **status**

```
On branch master
nothing to commit, working directory clean
```

Move your files

$git **mv** *README README.MD*

$git **status**

```
On branch master
Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        renamed:    README -> README.md
```

Move your files

$git **mv** *README README.MD*

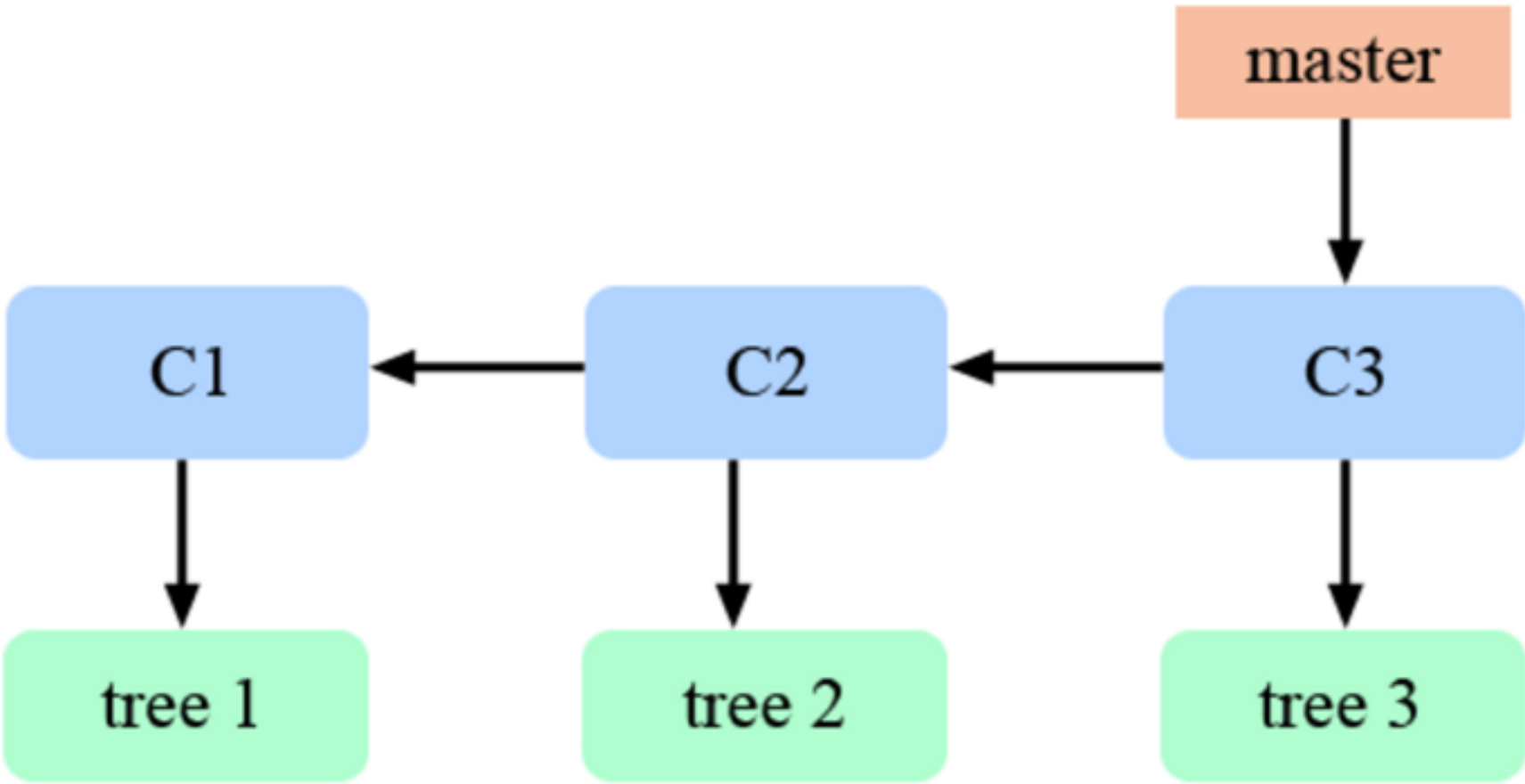
$mv README README.MD

$git rm README

$git add README.md

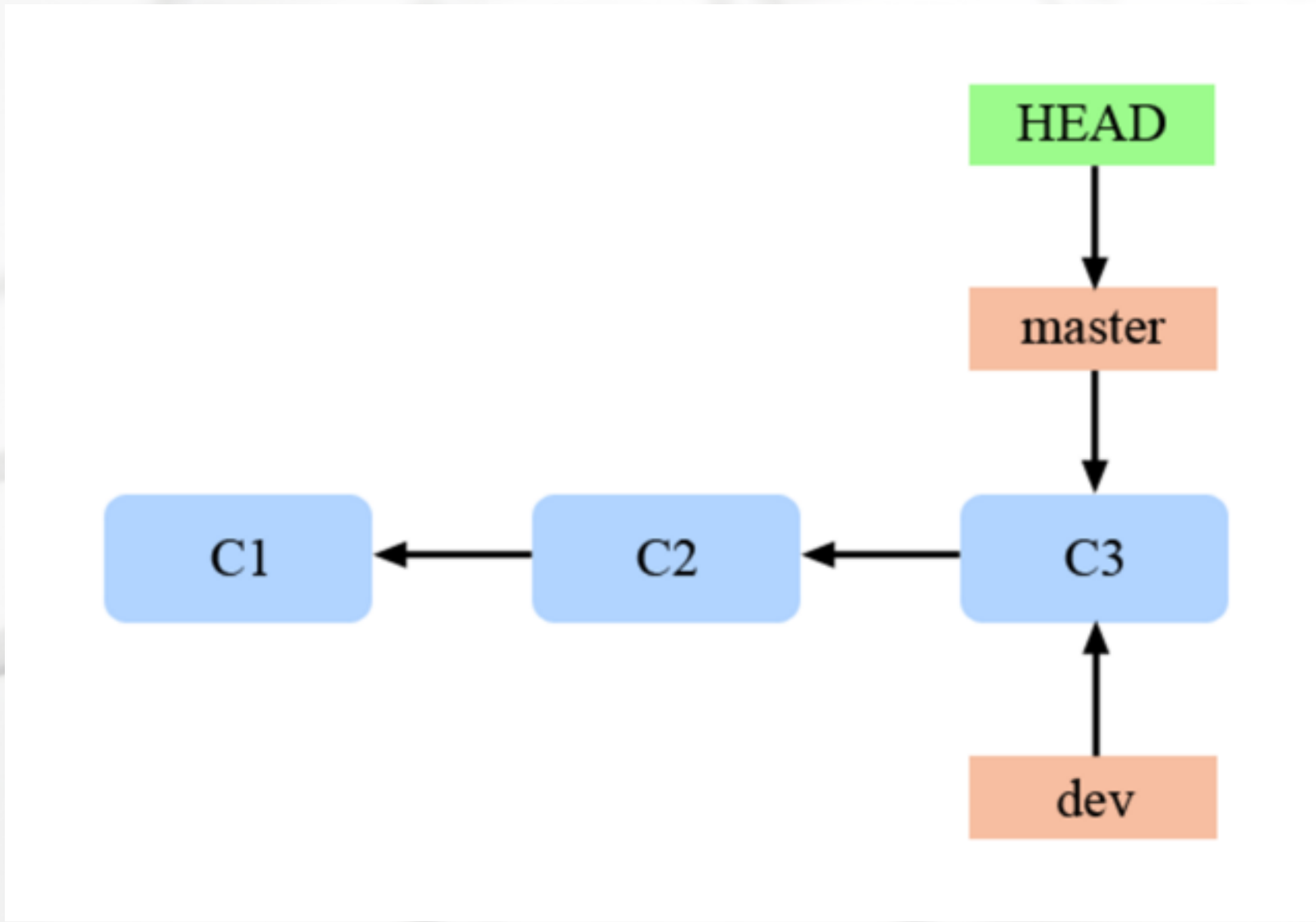
Working with Branch

Each branch points to a commit



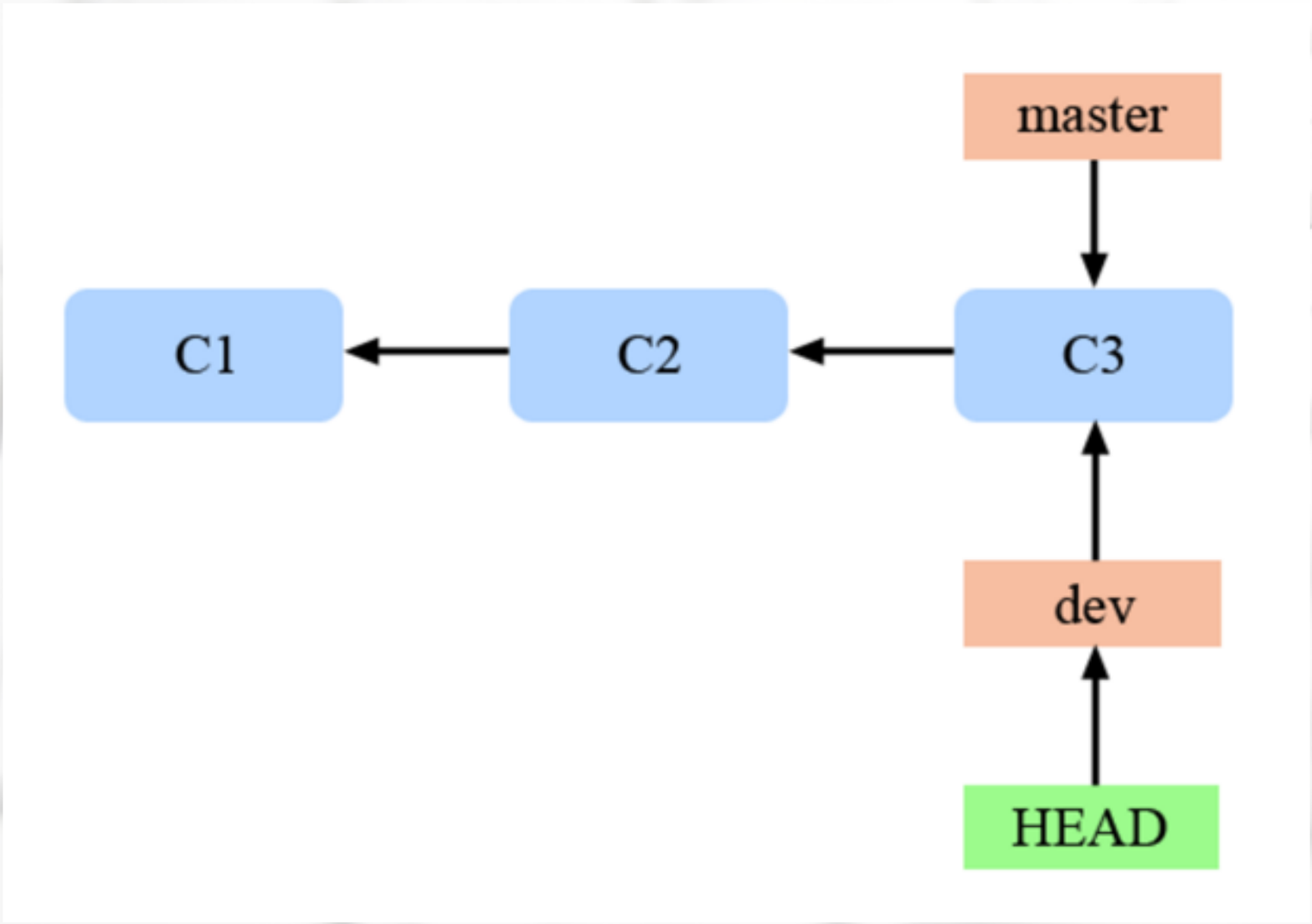
Create new branch

$git **branch** *BRANCH NAME*



Switch branch

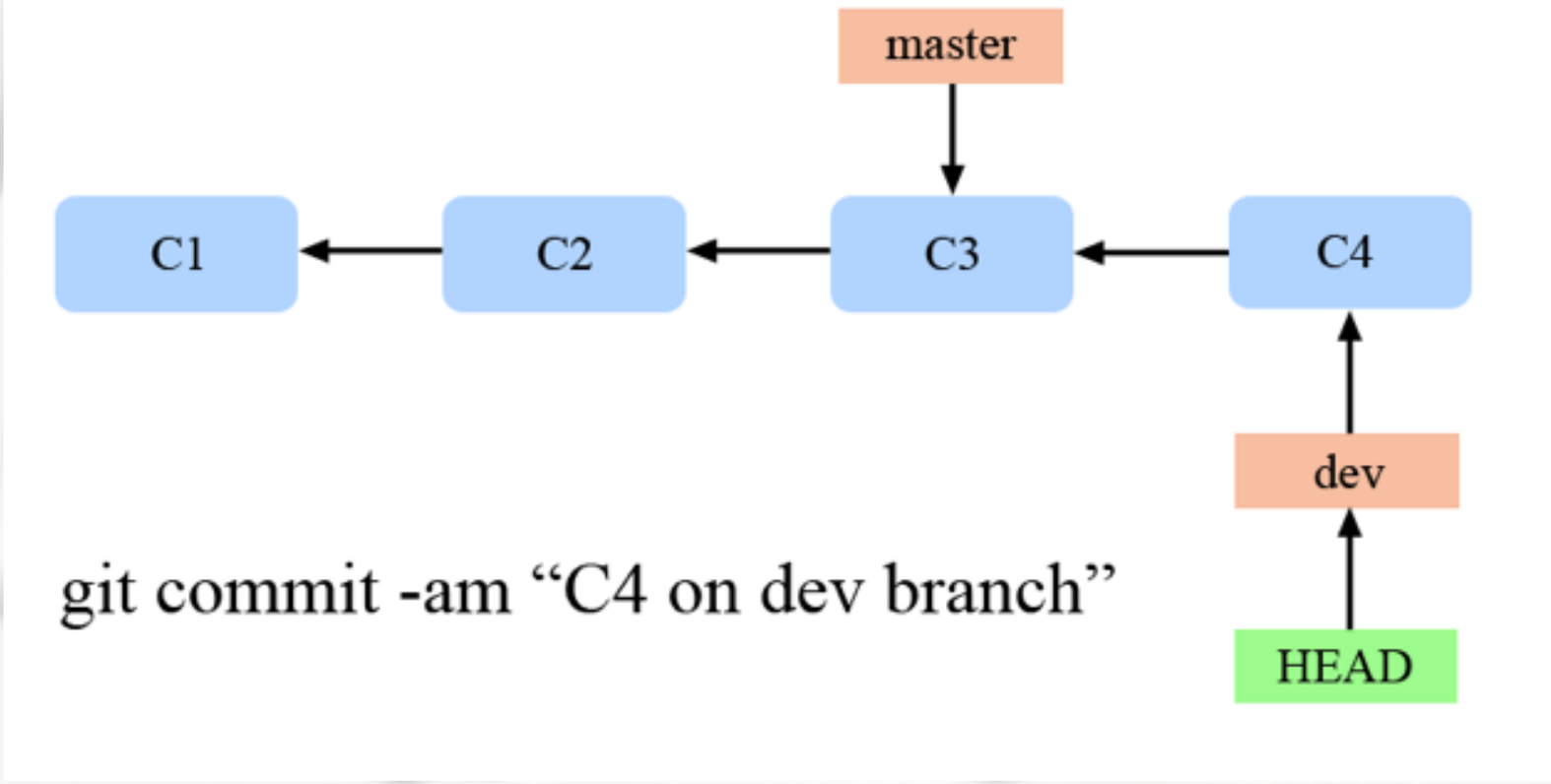
$git **checkout** *BRANCH NAME*



Modified and commit on branch

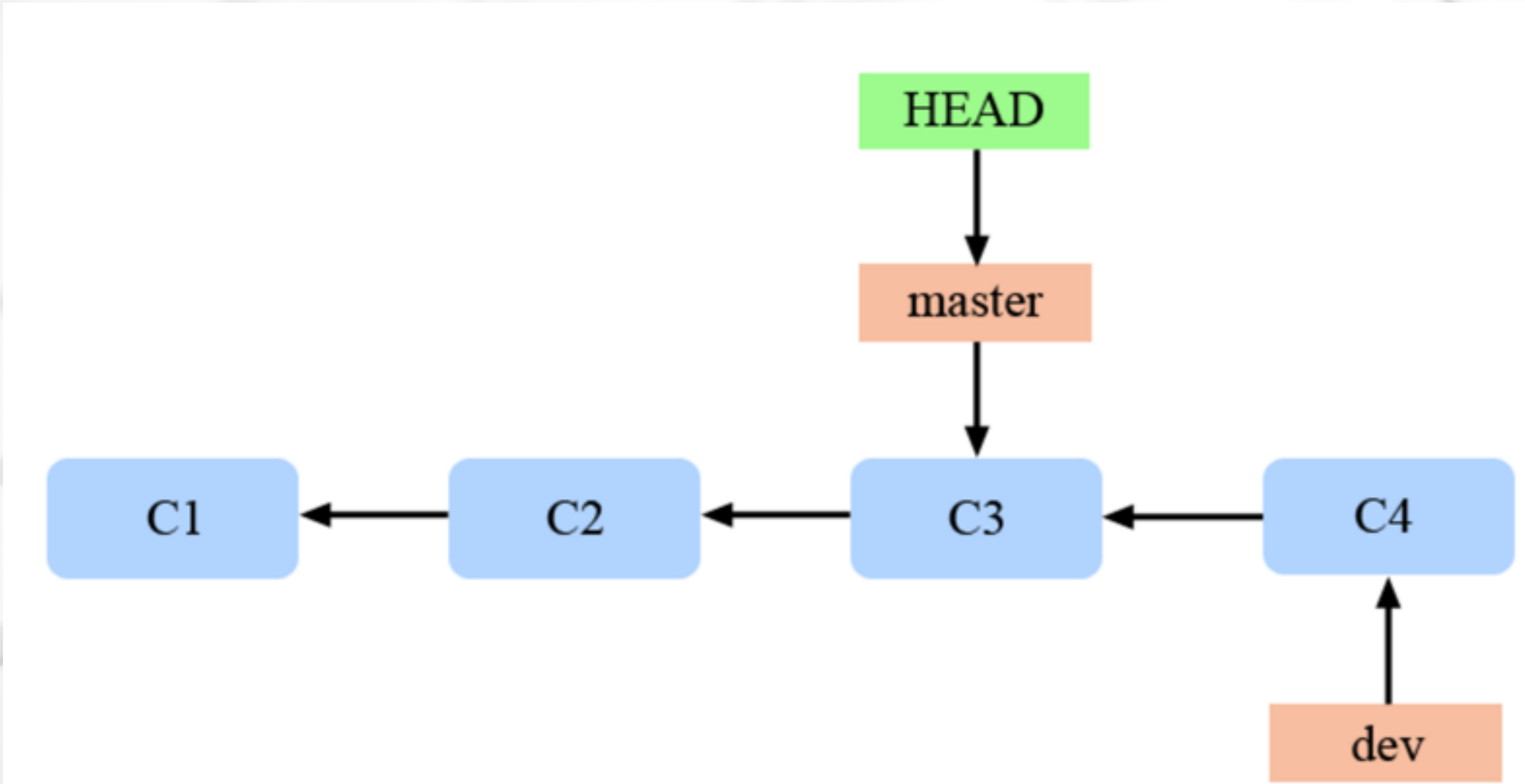
$echo “On Branch” > *README*

$git **commit** -am “C4 on dev”



Switch to master branch

$git **checkout** *master*



Create and **Switch** branch

$git **checkout** -b *BRANCH NAME*

$git branch BRANCH NAME

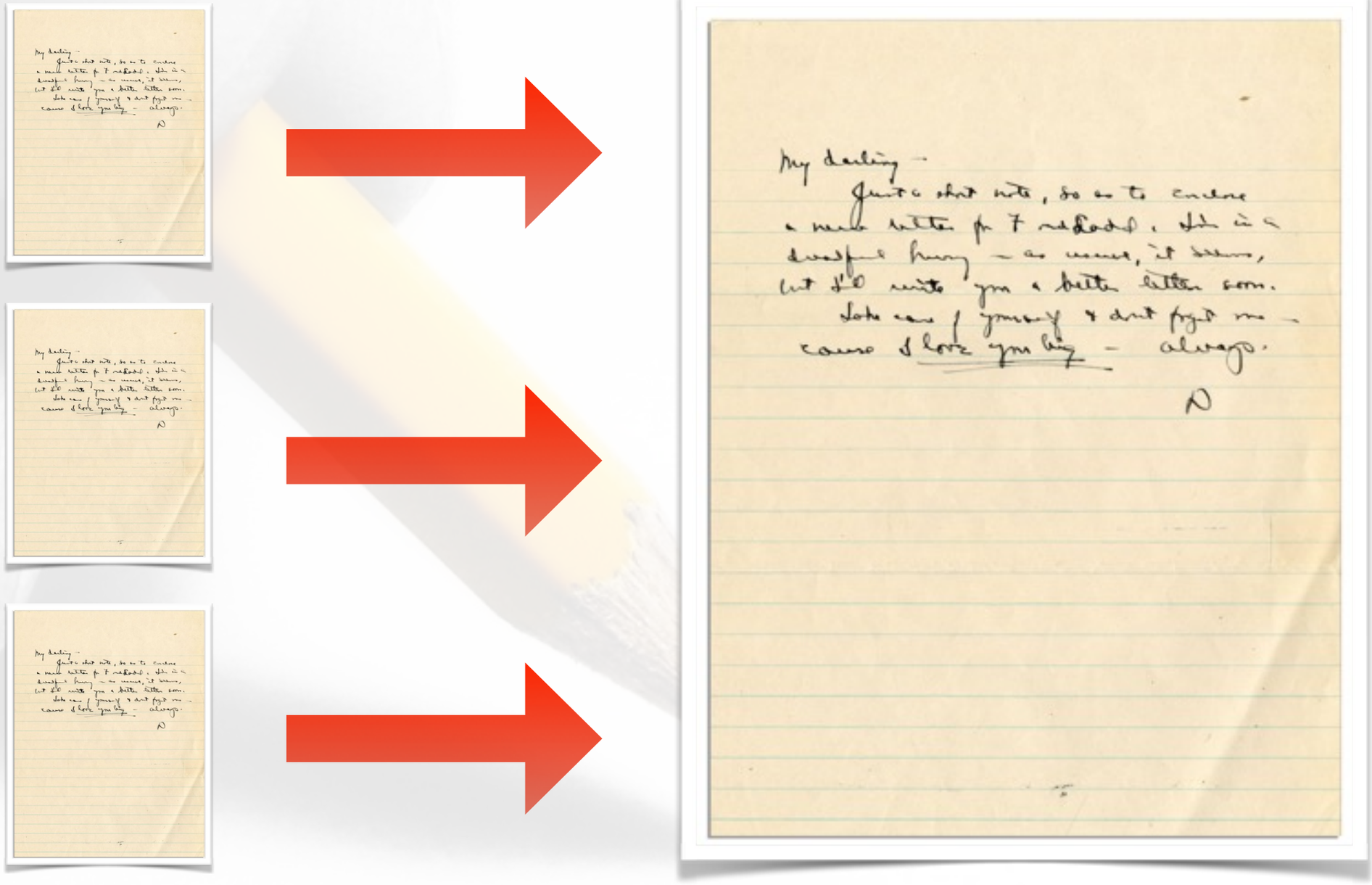
$git checkout BRANCH NAME

Delete and Show all branch

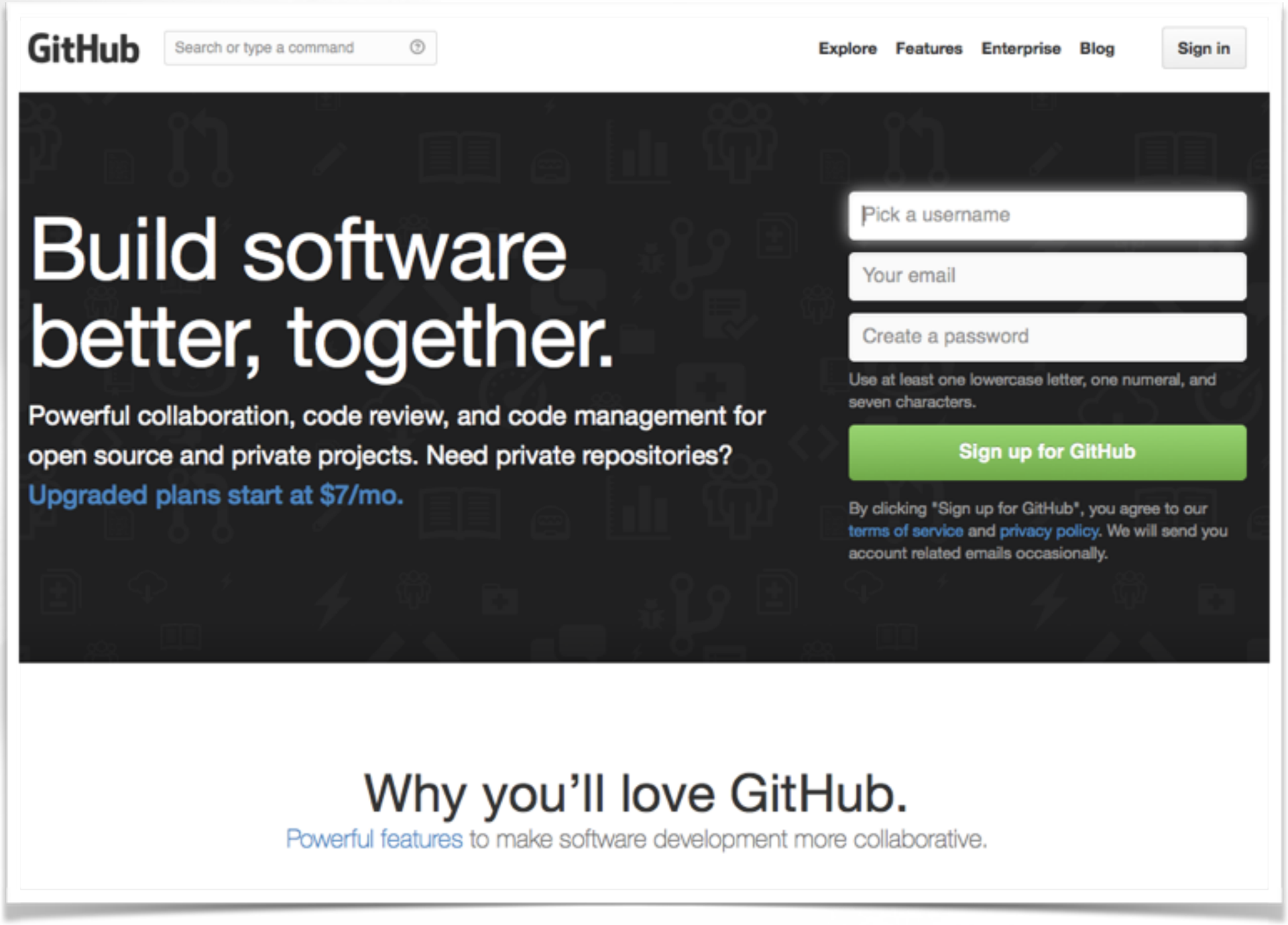
$git **branch** -d *BRANCH NAME*

$git **branch**

All become One



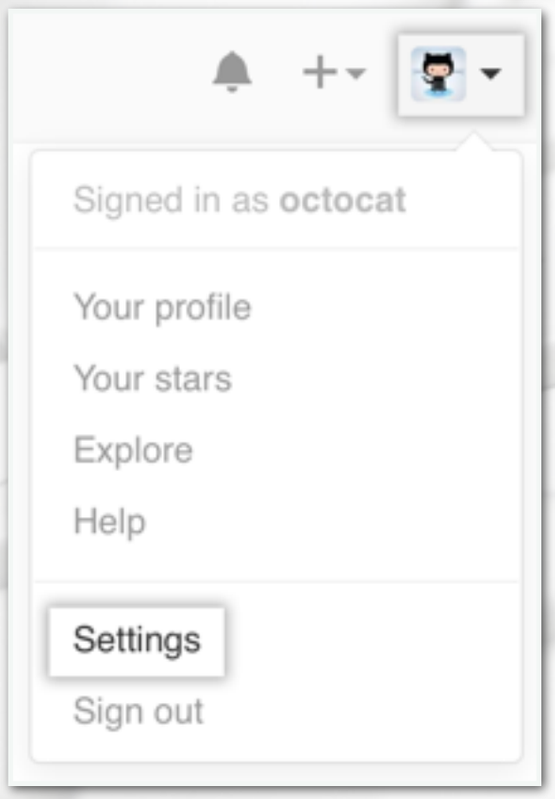
Working on GitHub

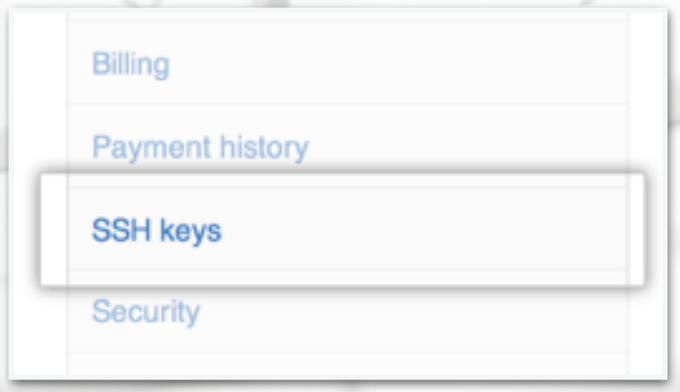


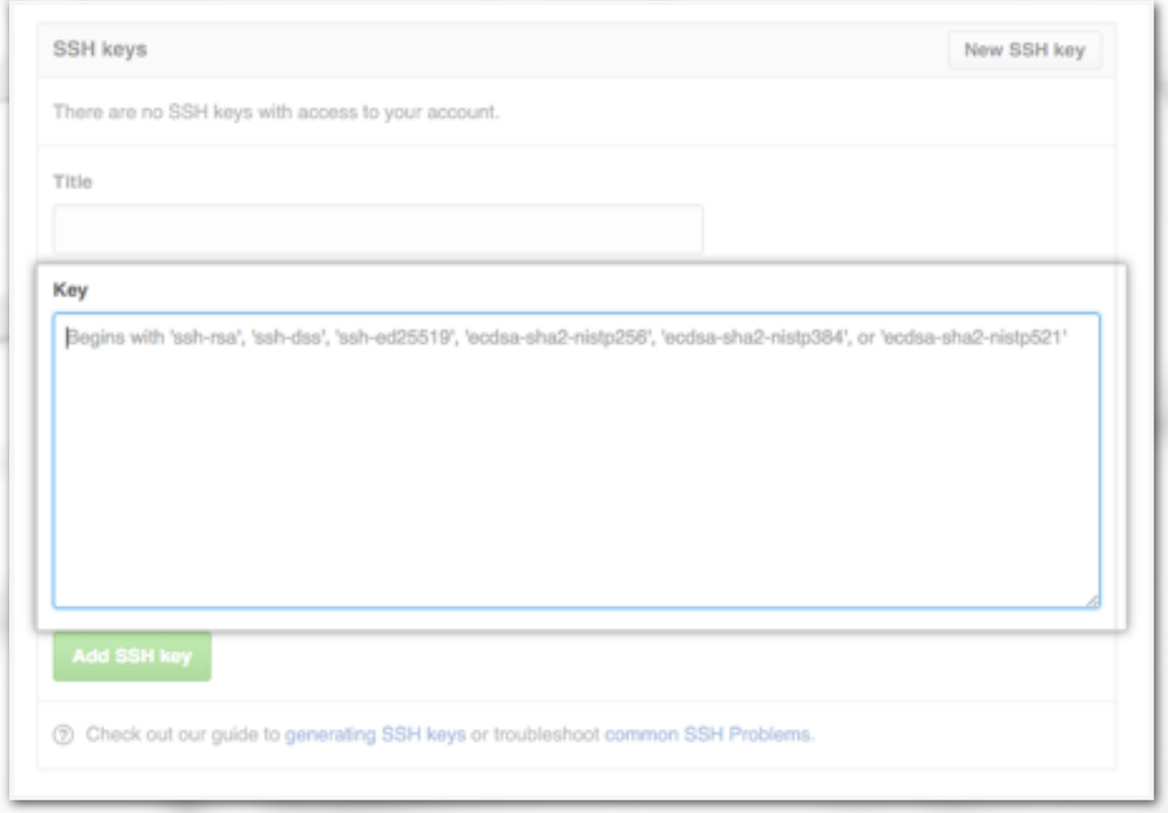
Generate ssh key and add to Github

```
$ssh-keygen
```

```
$pbcopy < ~/.ssh/id_rsa.pub
```







Testing your SSH connection

$ssh -T git@github.com

```
The authenticity of host 'github.com (192.30.252.1)' can't be established.
RSA key fingerprint is 16:27:ac:a5:76:28:2d:36:63:1b:56:4d:eb:df:a6:48.
Are you sure you want to continue connecting (yes/no)?
```

```
The authenticity of host 'github.com (192.30.252.1)' can't be established.
RSA key fingerprint is nThbg6kXUpJWGl7E1IGOCspRomTxdCARLviKw6E5SY8.
Are you sure you want to continue connecting (yes/no)?
```

```
Hi username! You've successfully authenticated, but GitHub does not
provide shell access.
```

Add and Rename remote

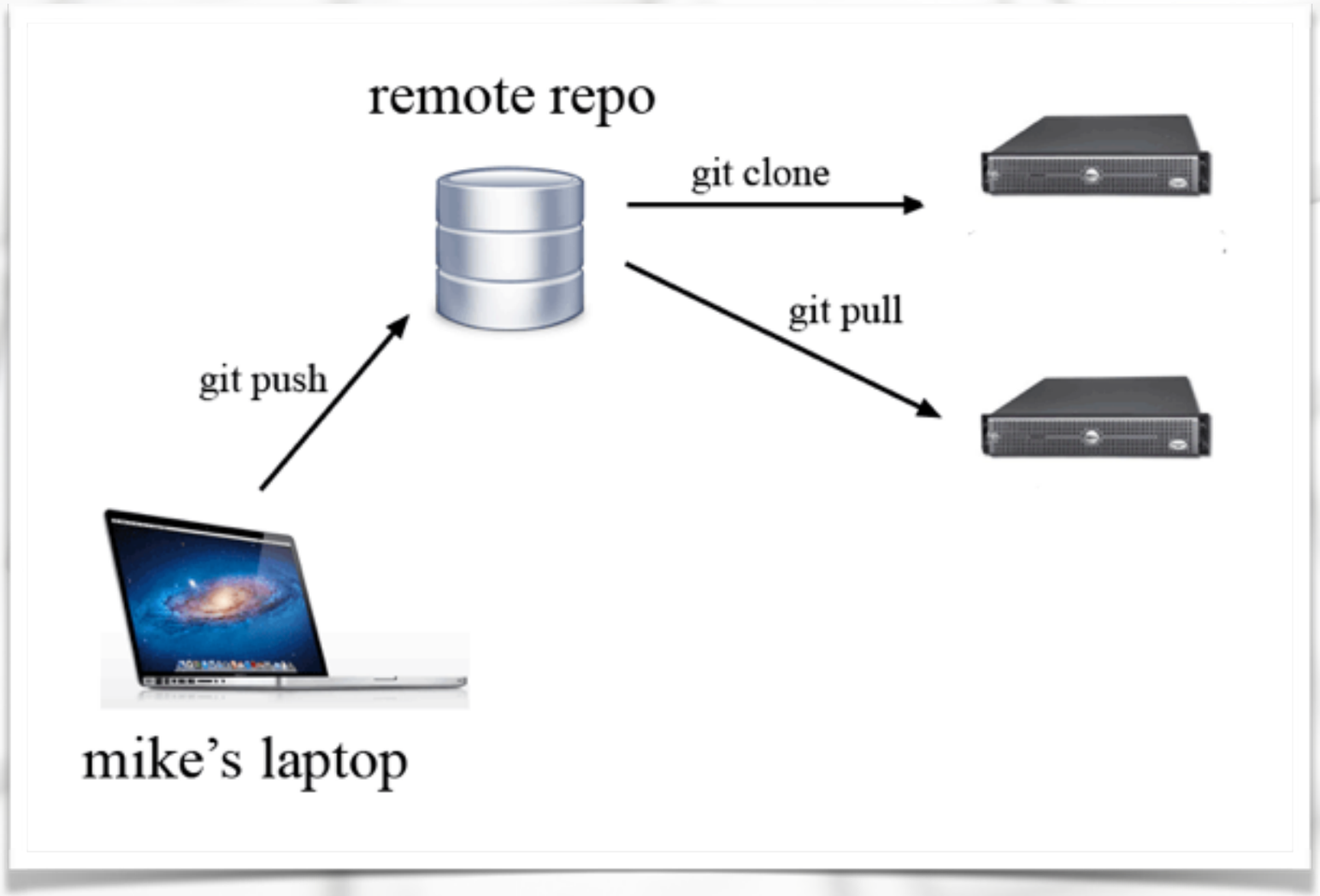
$git **remote add** [*NICKNAME] [REMOTE URL]*

$git **remote rm** [*NICKNAME]*

$git **remote rm** *[OLD NICKNAME] [NEW NICKNAME]*

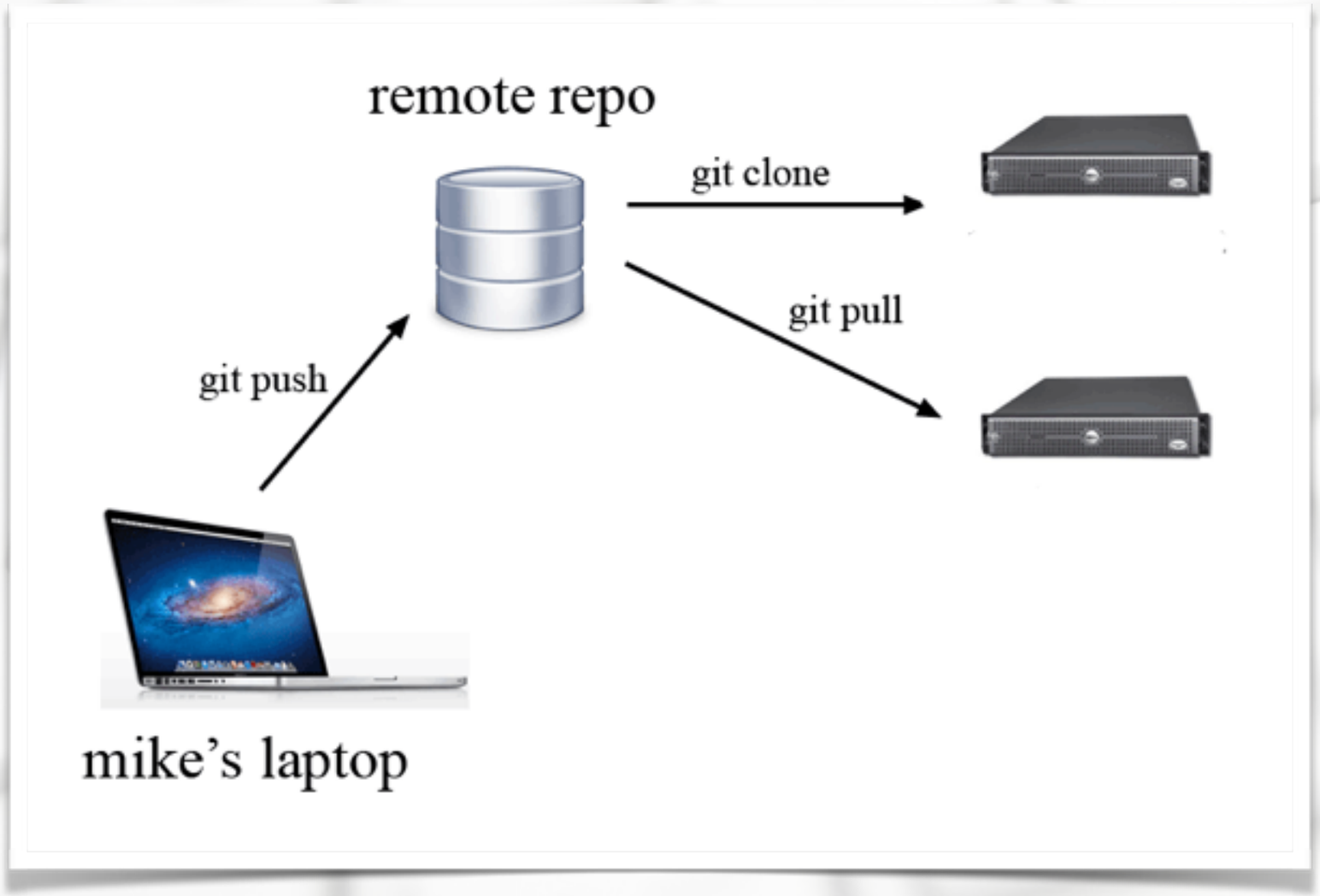
Push to remote

$git **push** *[NICKNAME] [BRANCH]*



Fetch and Merge

$git **pull** *[NICKNAME] [BRANCH]*



Fetch and Merge

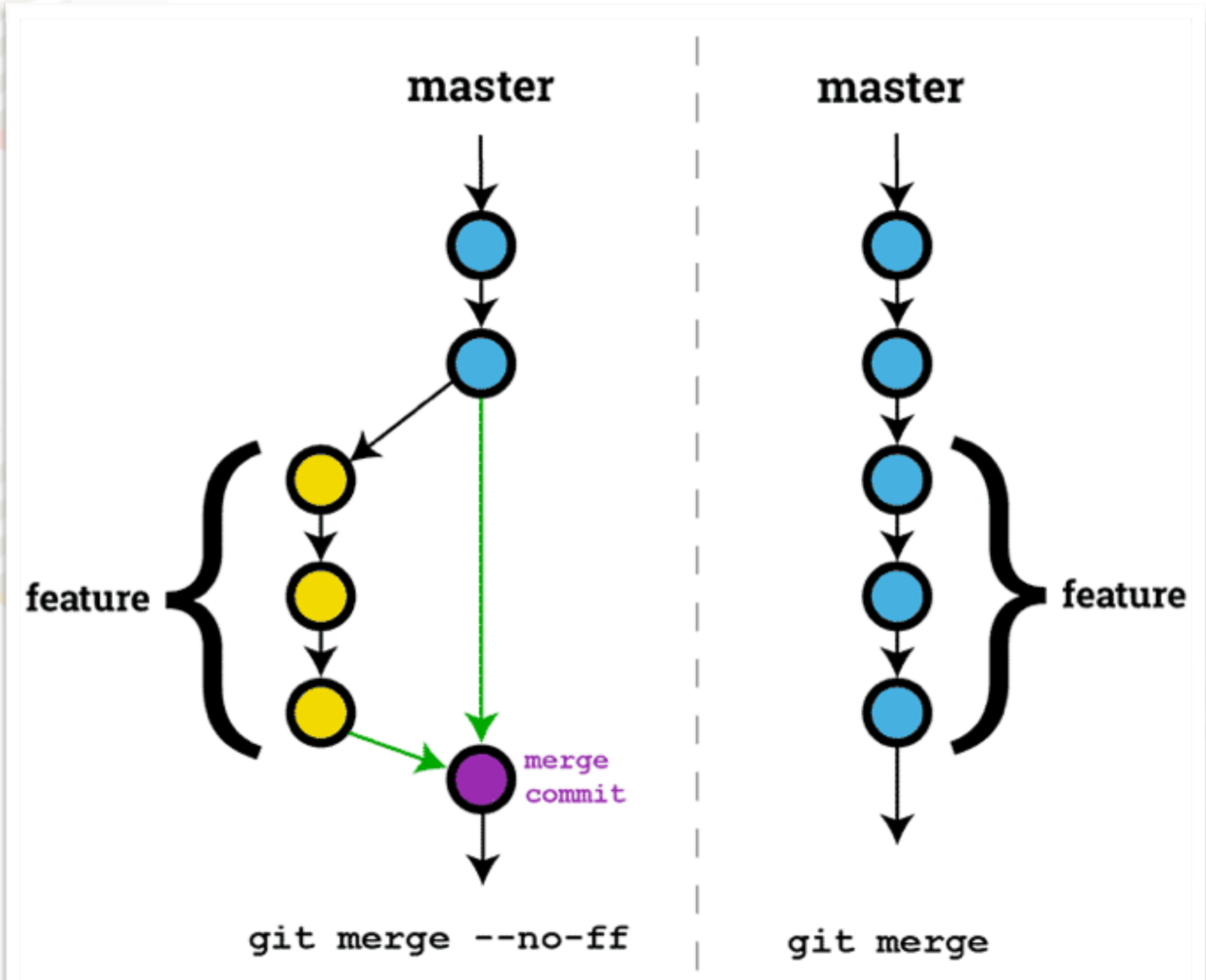
$git **pull** *[NICKNAME] [BRANCH]*

$git fetch [NICKNAME]

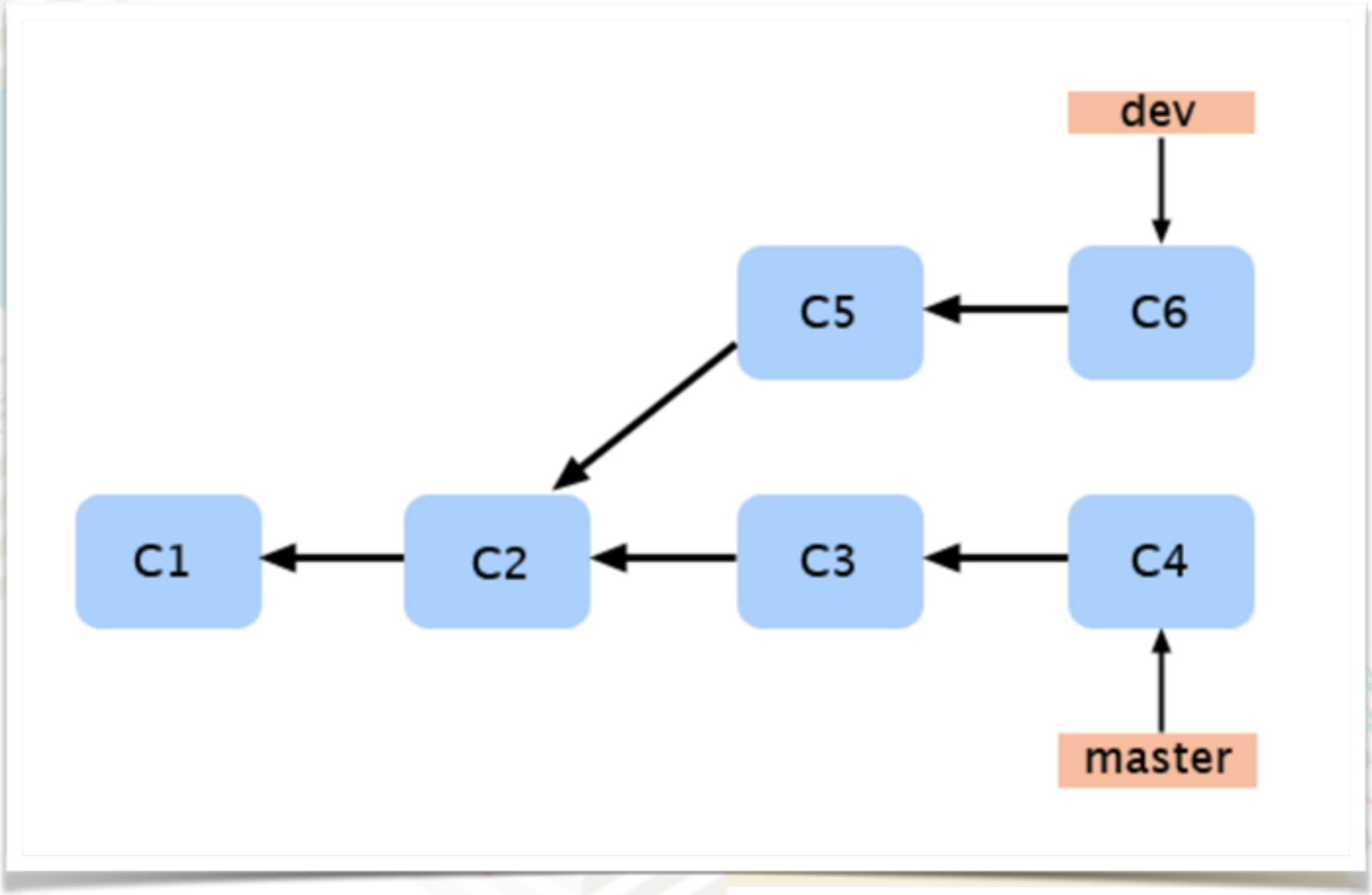
$git merge [BRANCH]


BRANCHED FROM MASTER 3 WEEKS AGO
MERGED BACK WITHOUT ANY CONFLICTS

Merge and Rebase

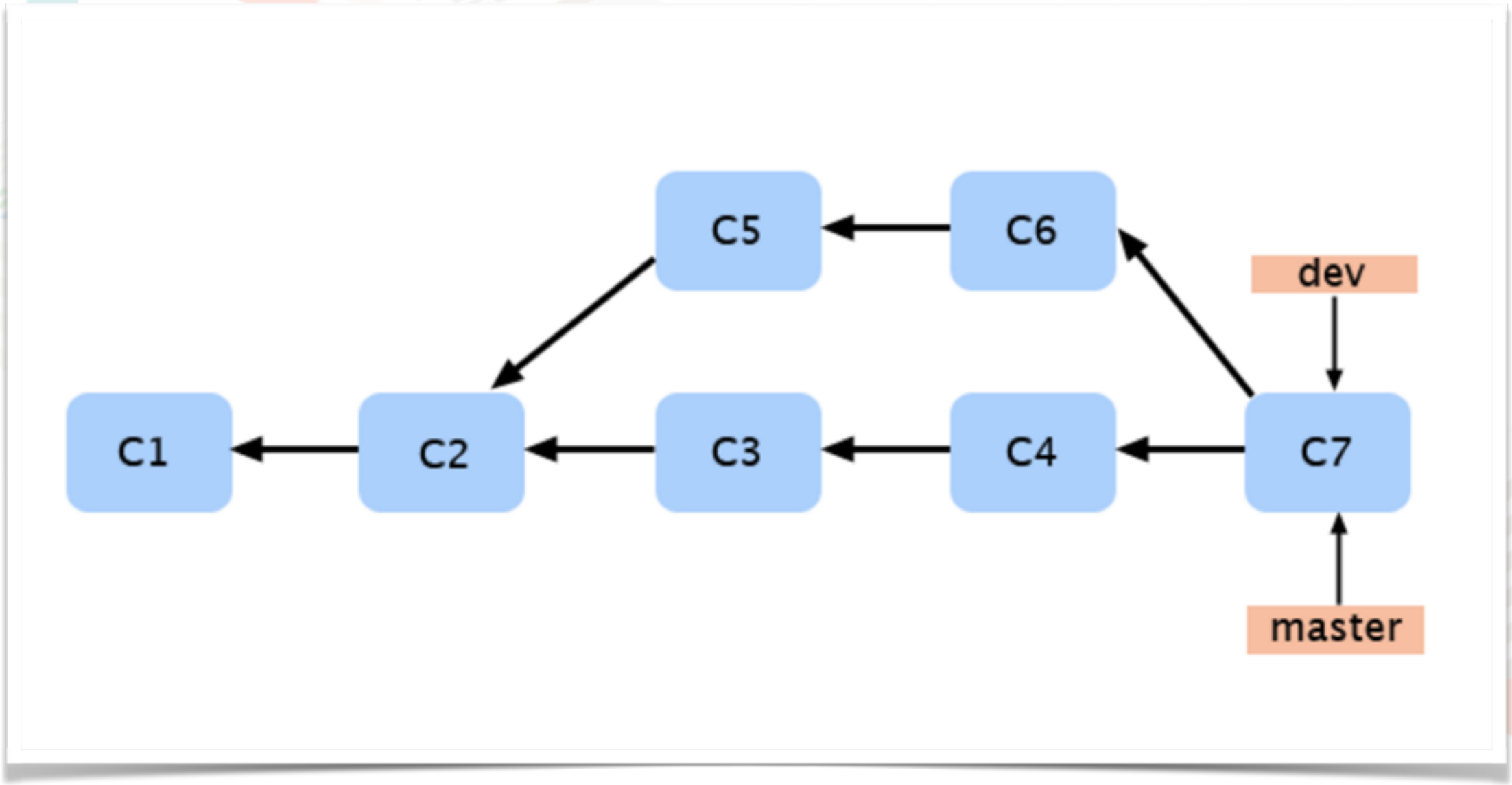


Start before **Merge**



After Merge

$git **merge**



Avoid Merge Conflict

Small change and commit

Early merge

Single Responsibility Principle

Communication is a Key

Mob programming

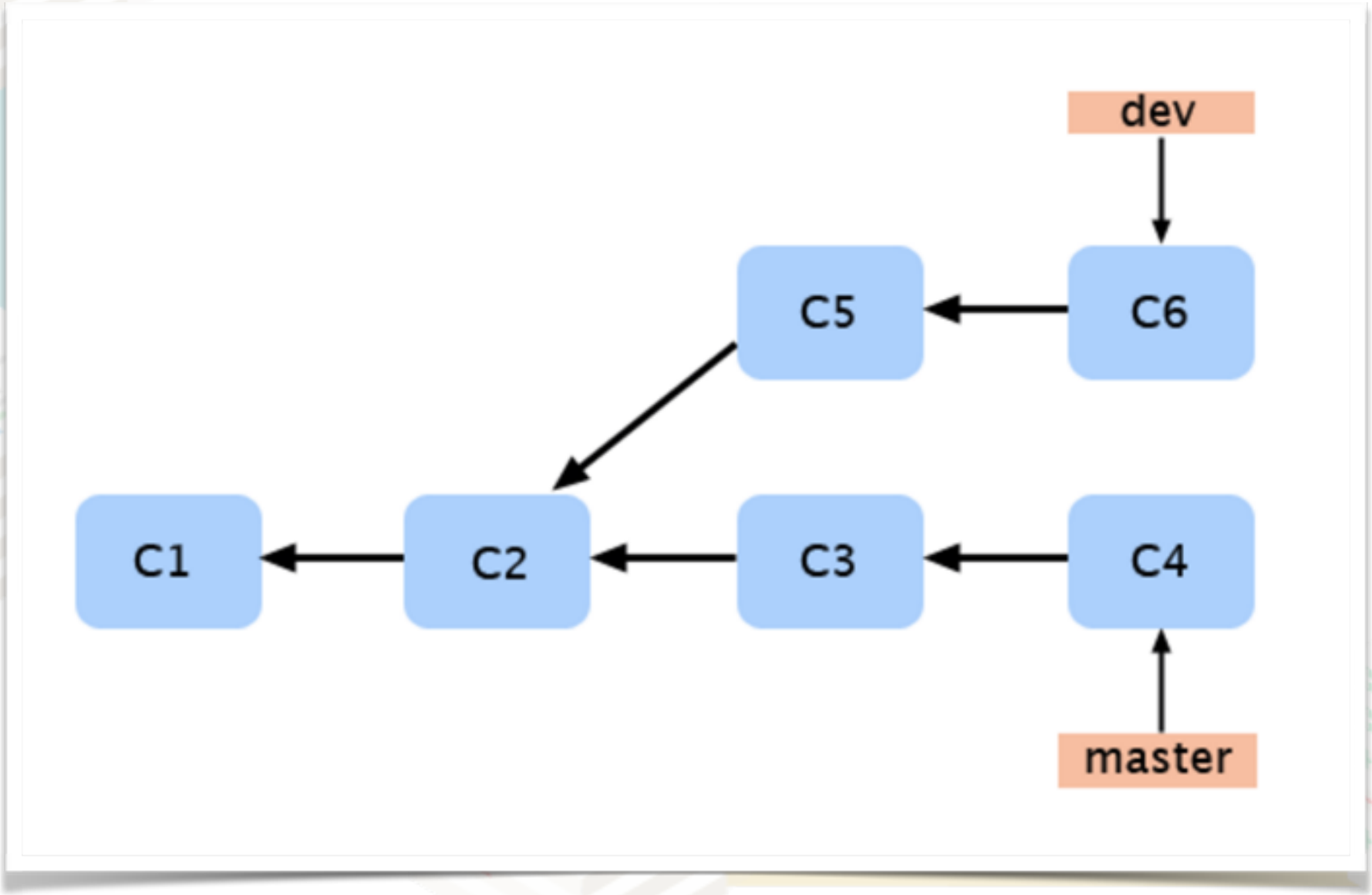
Rebase

Allows you to write history differently

Cleaner history

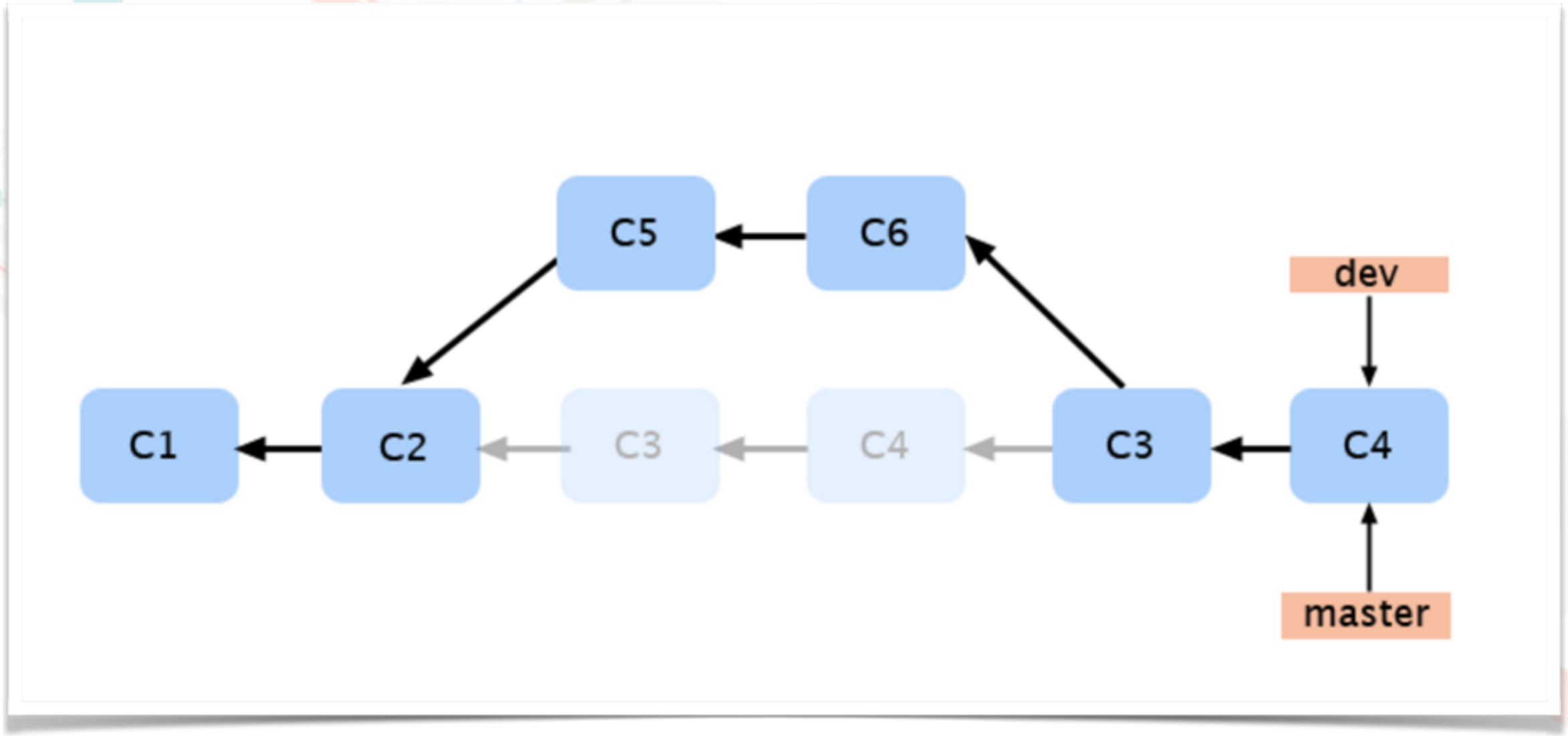
rebase -i (interactive)

Start before **Rebase**

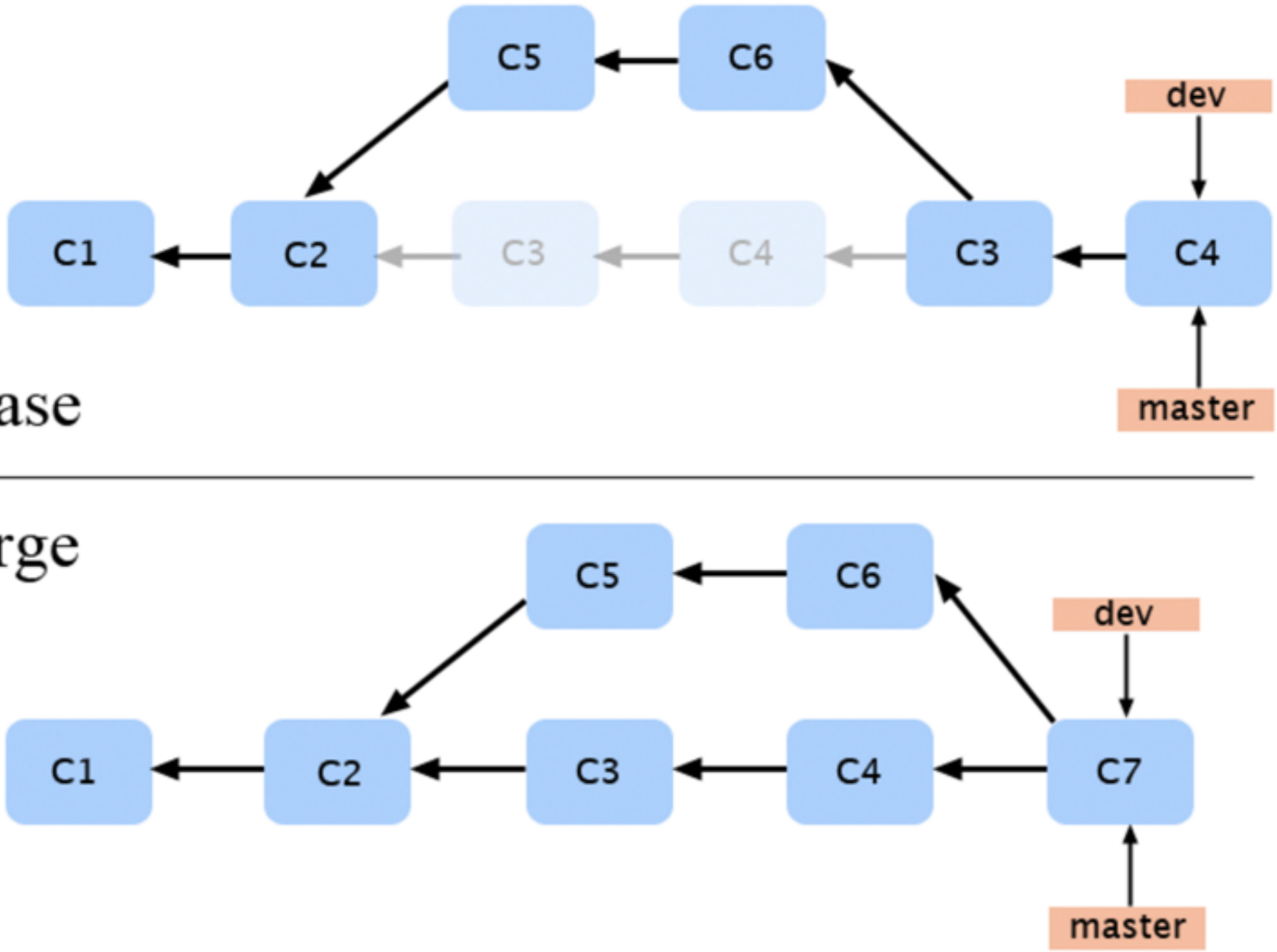


After Rebase

$git **rebase** *[BRANCH NAME]*



Merge vs Rebase




TIPS

Tips Working on Branch

1. Create your branch
2. Checkout branch
2. Make changes and save file
3. Use diff to see all changes
4. Add and commit on your branch
5. Merge and rebase or discard !!

Tips Learn More

$git **tag**
$git **log**
$git **stash**
git hooks

Tips Workflow

1. initial repository
2. Pull (fetch and merge)
3. Branching in your local repository (optional)
4. Modify and improve your code
5. Commit to local repository
6. push to your branch on remote repository
7. **Diff file => Review code**

Tips Learn More

Professional review code to find out **ERRORS**

List of tools for code review

From Wikipedia, the free encyclopedia

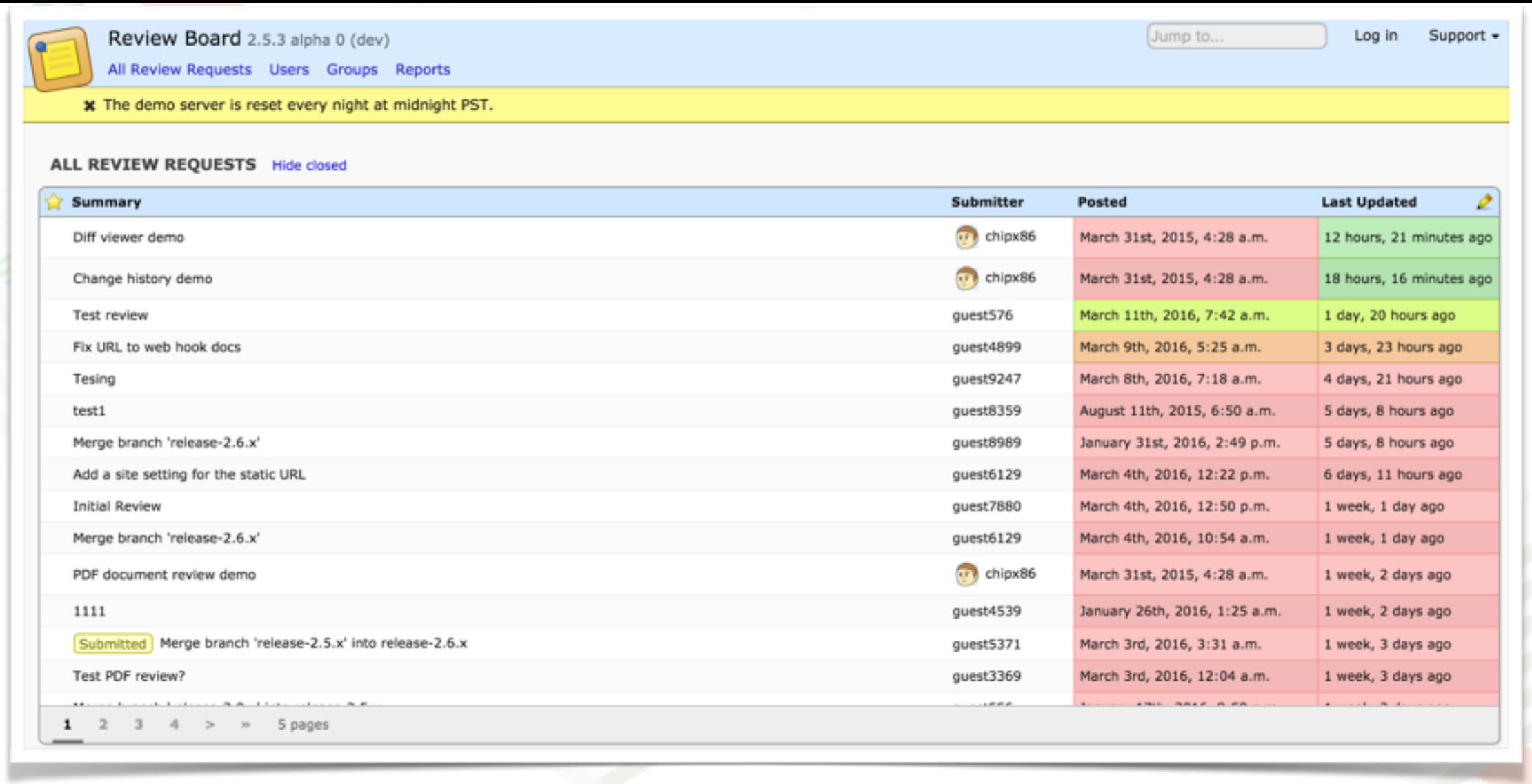
This is a list of software that helps software developers conduct and manage code reviews.

Software	Maintainer	Development status	License	VCS supported	Platforms supported	Workflow
Swascan	Swascan	actively developed	Proprietary	Any	Java, PHP, csharp, css, erlang, flex, groovy, javascript, python, scmgit, scmsvn, web, xml	pre- and post-commit
Crucible	Atlassian	actively developed	Proprietary	CVS, Subversion, Git, Mercurial, Perforce	Java	pre- and post-commit
Gerrit	Shawn Pearce	actively developed	Apache v2	Git	Java EE	pre-commit
Upsource	JetBrains	actively developed	Proprietary	Git, Subversion, Mercurial, Perforce	Java	post-commit
GitLab	GitLab Inc.	actively developed	MIT	Git	Ruby on Rails	pre- and post-commit
Kallithea	kallithea-scm.org	actively developed	GPL v3	Git, Mercurial	Python	post-commit
Phabricator	Phacility	actively developed	Apache	Git, Subversion, Mercurial	PHP	pre- and post-commit
Review Board	reviewboard.org	actively developed	MIT	CVS, Subversion, Git, Mercurial, Bazaar, Perforce, ClearCase, Plastic SCM	Python, Java	mainly pre-commit
Rietveld	Guido van Rossum	actively developed	Apache v2	Git, Subversion, Mercurial, Perforce, CVS	Python	pre-commit
Understand	SciTools	actively developed	Proprietary	Any	Windows, Mac OSX, Linux	pre- and post-commit

https://en.wikipedia.org/wiki/List_of_tools_for_code_review

Tips Learn More

Professional review code to find out **ERRORS**



https://www.reviewboard.org/

Git Good

Git Status

Commit Message

...

TODO

asdasfdgafg

stuff

fixed bug

add feature

“Added a user object to the database. currently only has a name and email. no authentication yet ”

“Fixed the bug that would add something to everything. Turn to not add something to everything”

GitHub issue tracker integration

https://guides.github.com/features/issues/

bug 01 #1

Closed **up1** opened this issue 5 minutes ago · 0 comments

up1 commented 5 minutes ago — Owner

No description provided.

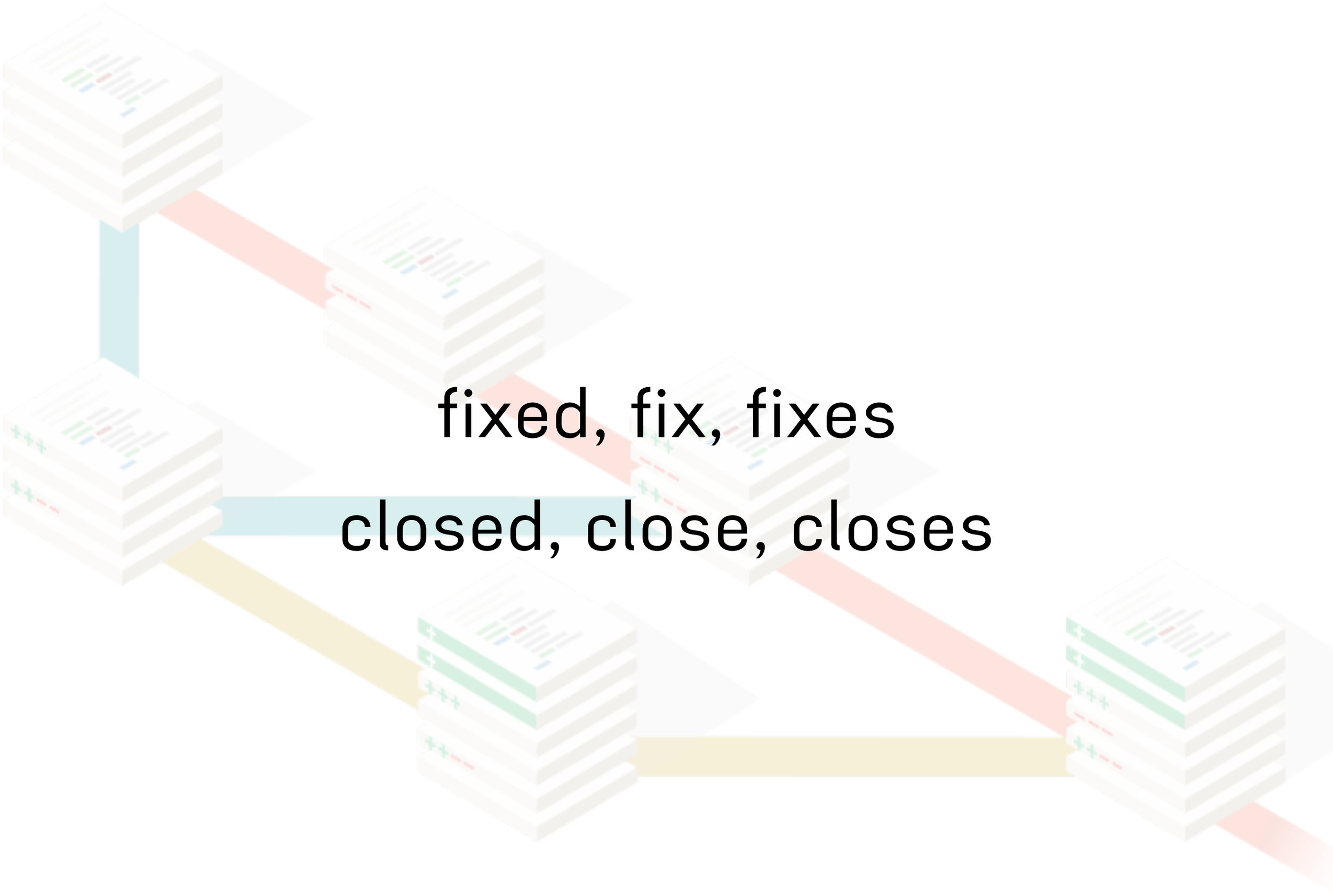
up1 closed this issue from a commit 4 minutes ago

`Fixed #1 to remove aomething` `90db52f`

up1 closed this in `90db52f` 4 minutes ago

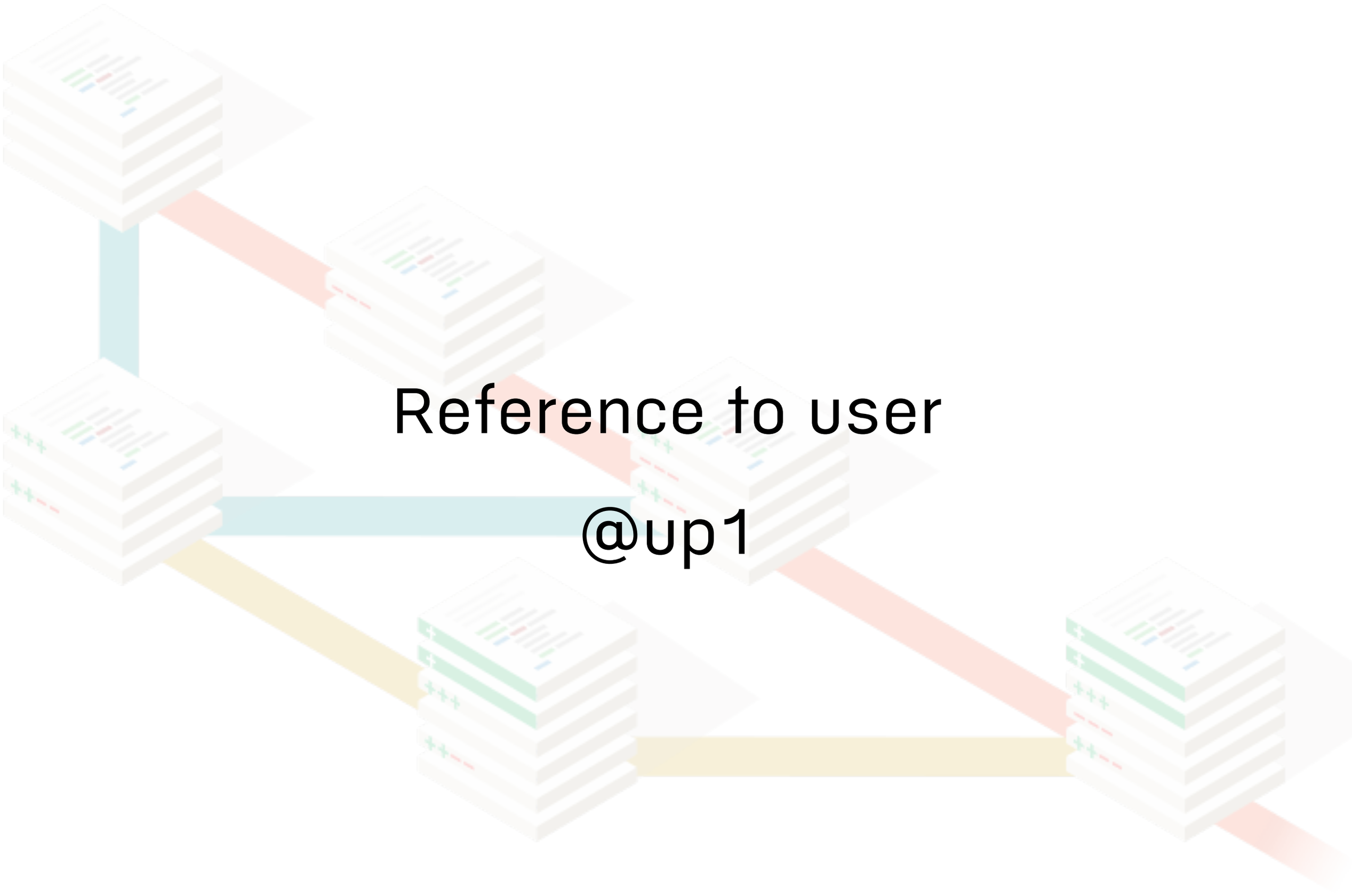
“**fixed** #1234”

close issue 1234



fixed, fix, fixes

closed, close, closes



Reference to user

@up1

Git Log

Log in one line

$git log --oneline

Log in pretty mode

$git log --oneline --decorate

Log in graph mode

```
$git log --graph --oneline --decorate
```

See diff from log

$git log --stat

$git log -p

Log by user

```
$git log  --author=up1
```

By message

$git log --grep=“message”

By content

$git log -S“content”

By content with regular expression

$git log -G“content”

Log in date range

```
$git log  --after="2015-9-1"
          --before="2015-9-12"
```

Log in date range

```
$git log  --since=2.months.ago
          --until=1.day.ago
```

Filter merge commit

$git log --no-merges

$git log --merges

Git shortlog

Git help

Git branch

http://nvie.com/posts/a-successful-git-branching-model/

master

keep master running

Need to fix bug ?

$git checkout **feature**

feature

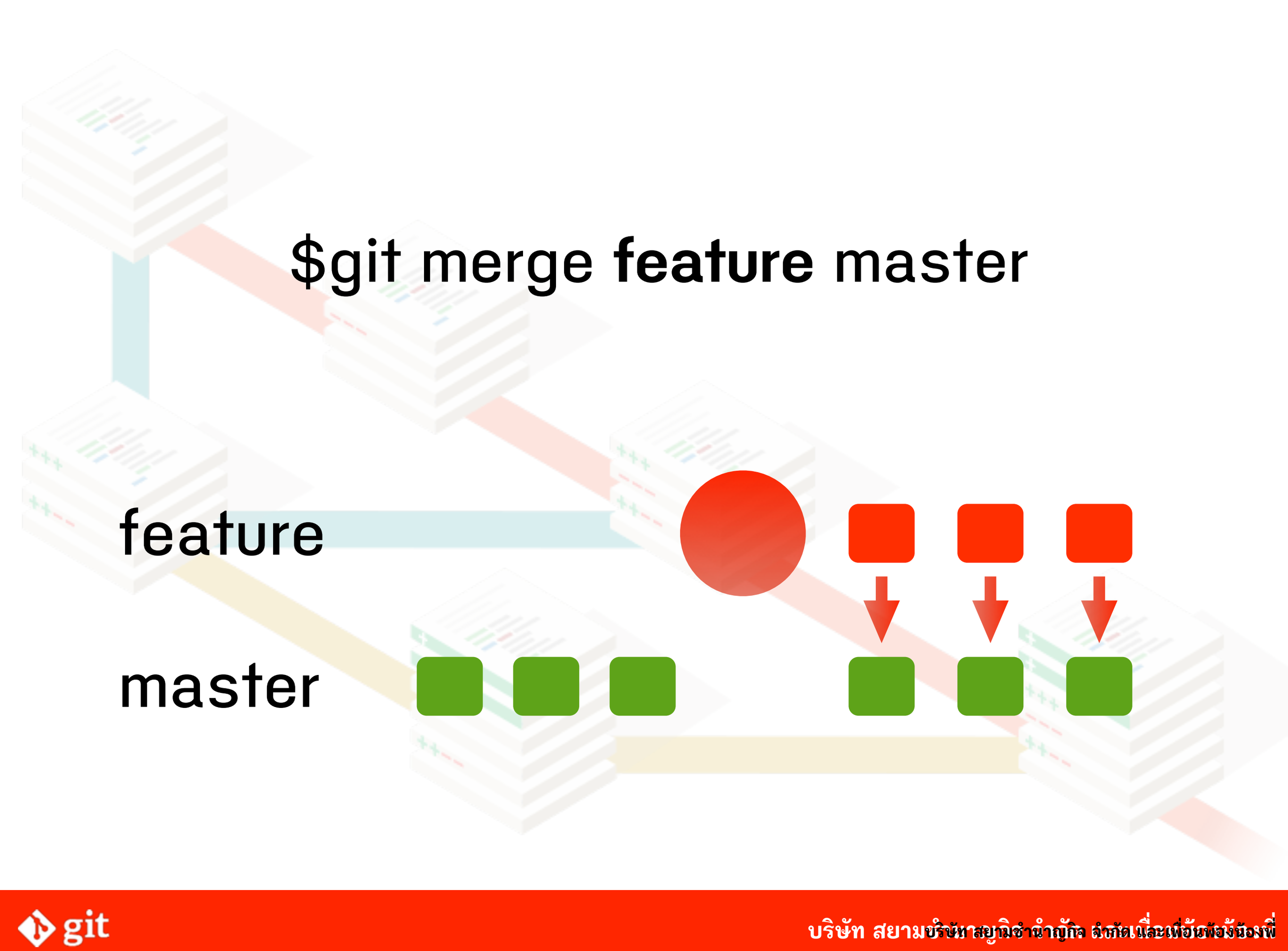
master

Git checkout -b **feature**

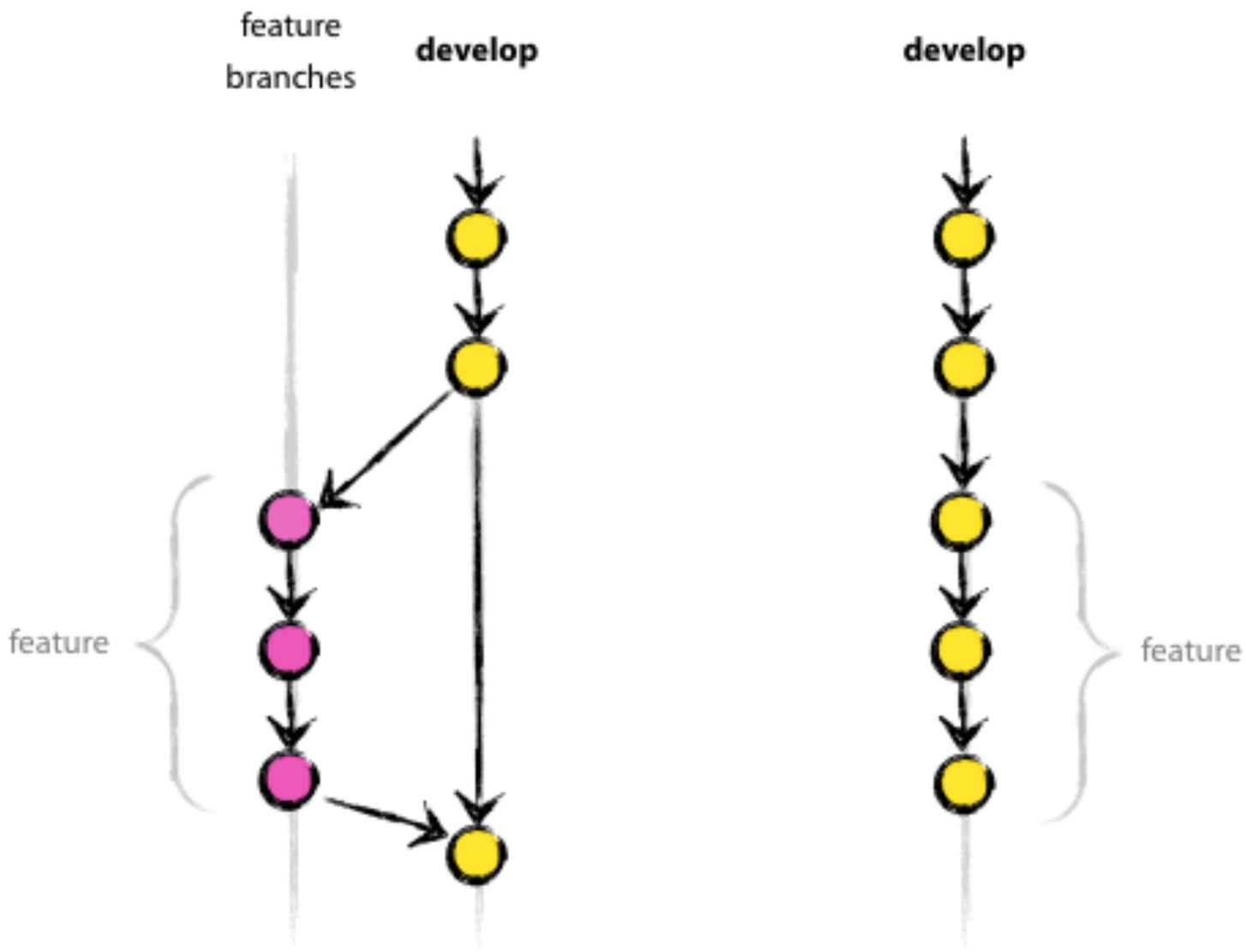
When ready to merge into master

How ?

$git merge **feature** master



$git merge --no-ff



branching is cheap

painless development

delete branch **if it’s not work**

delete branch **if it’s not use**

Branching Strategy

Maintainable Git

CODE is KING

Developer cost

$$$$$$$$$$

Branching cost

(~40 bytes)

$

Developer cost

$$$$$$$$$$

Poor branching strategy

$$$$$$$$$$$$$$$$$$$$

Branching strategies

Last good state ?

Mistake break everyone !!

Lead to big commits !!

What is deployed ?

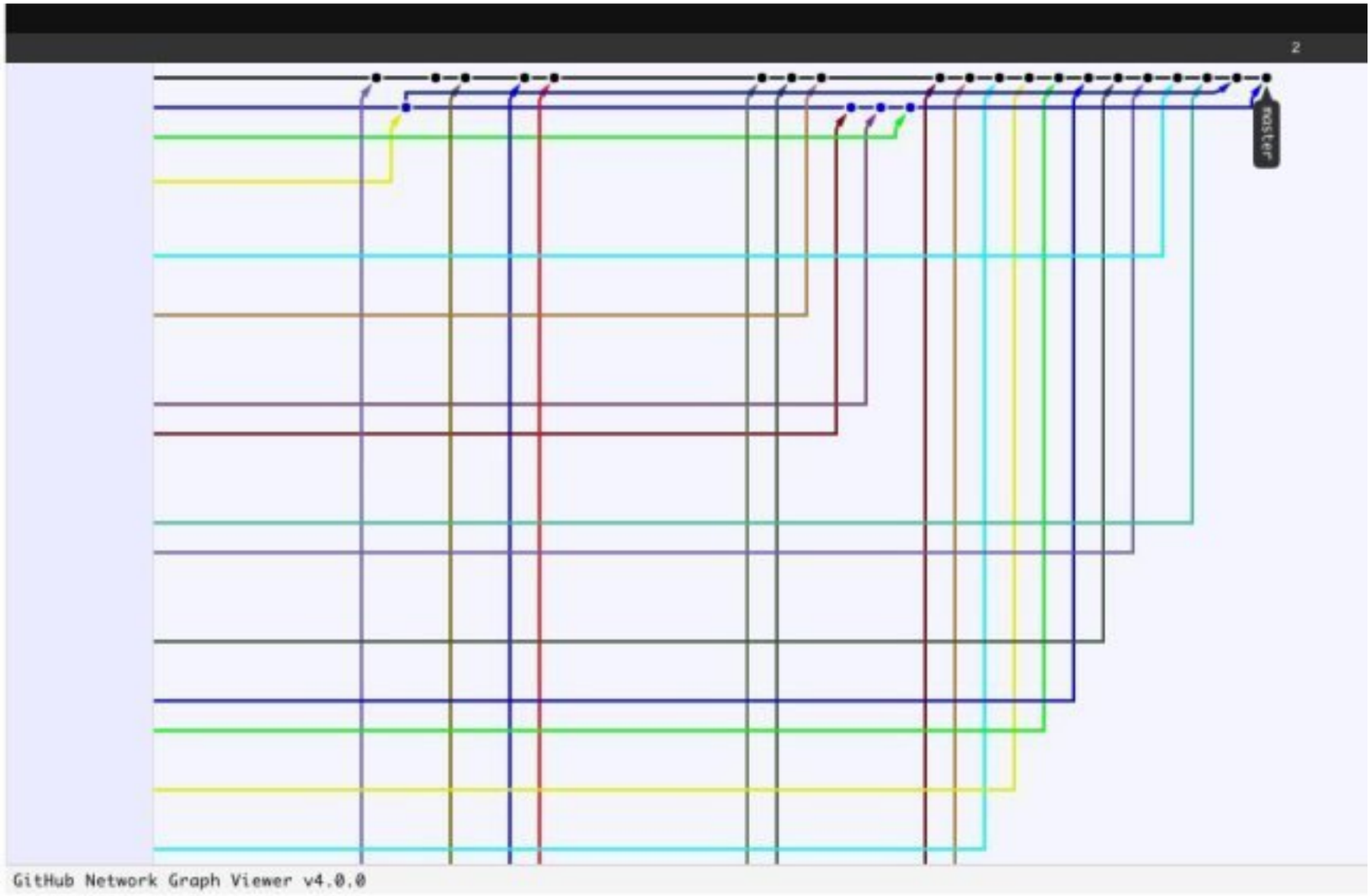
Where do fixed ?


BRANCHES
BRANCHES EVERYWHERE
zipmeme

What is being worked on ?

How do you switch tasks ?

When do you integrated ?


2
master
GitHub Network Graph Viewer v4.0.0

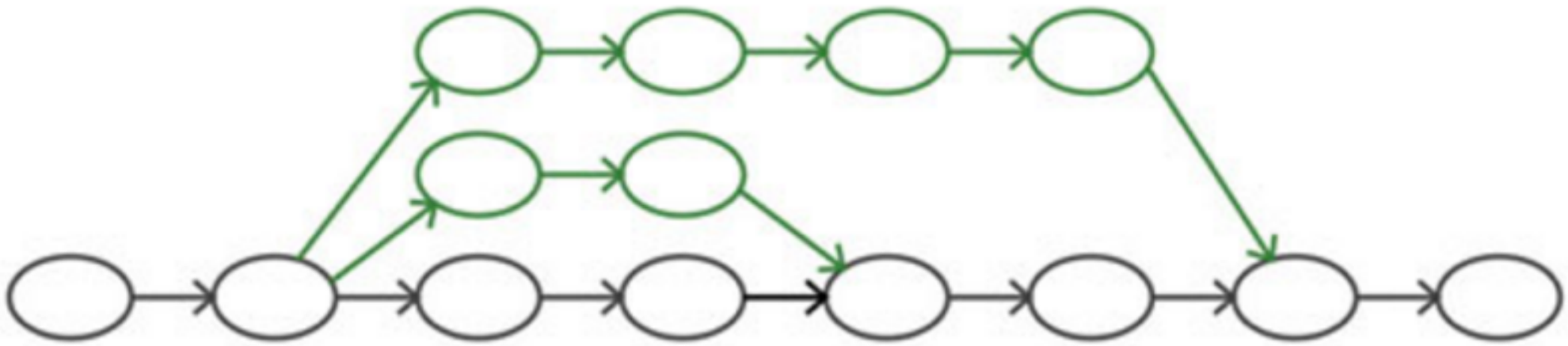
ทำอย่างไรดี ?

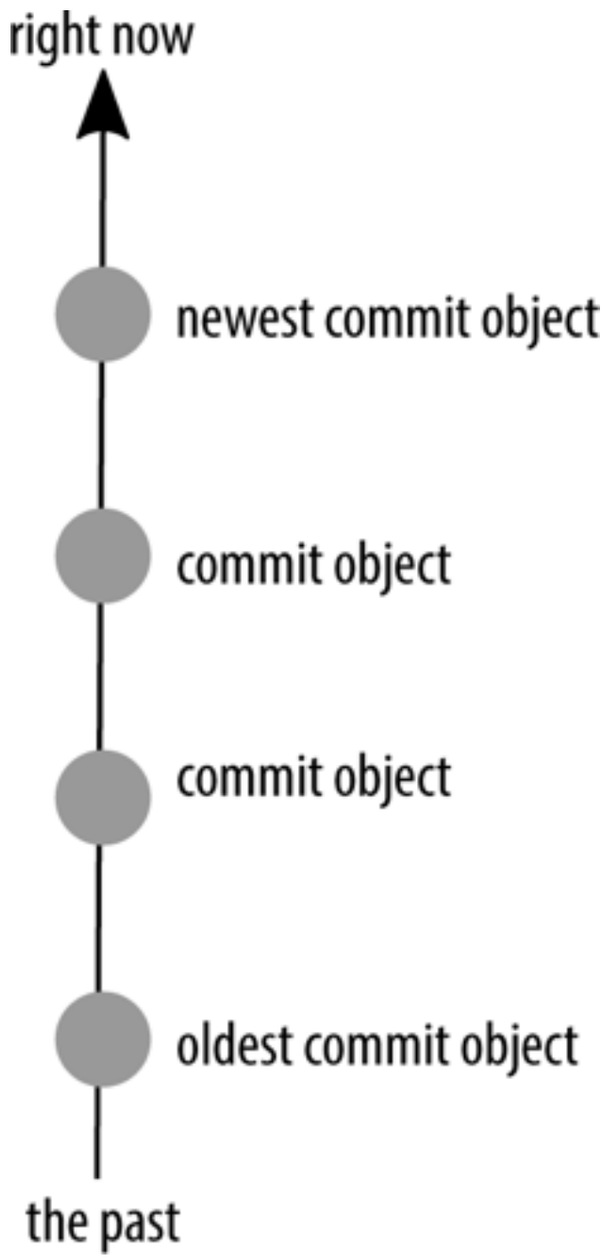
Release Process ?

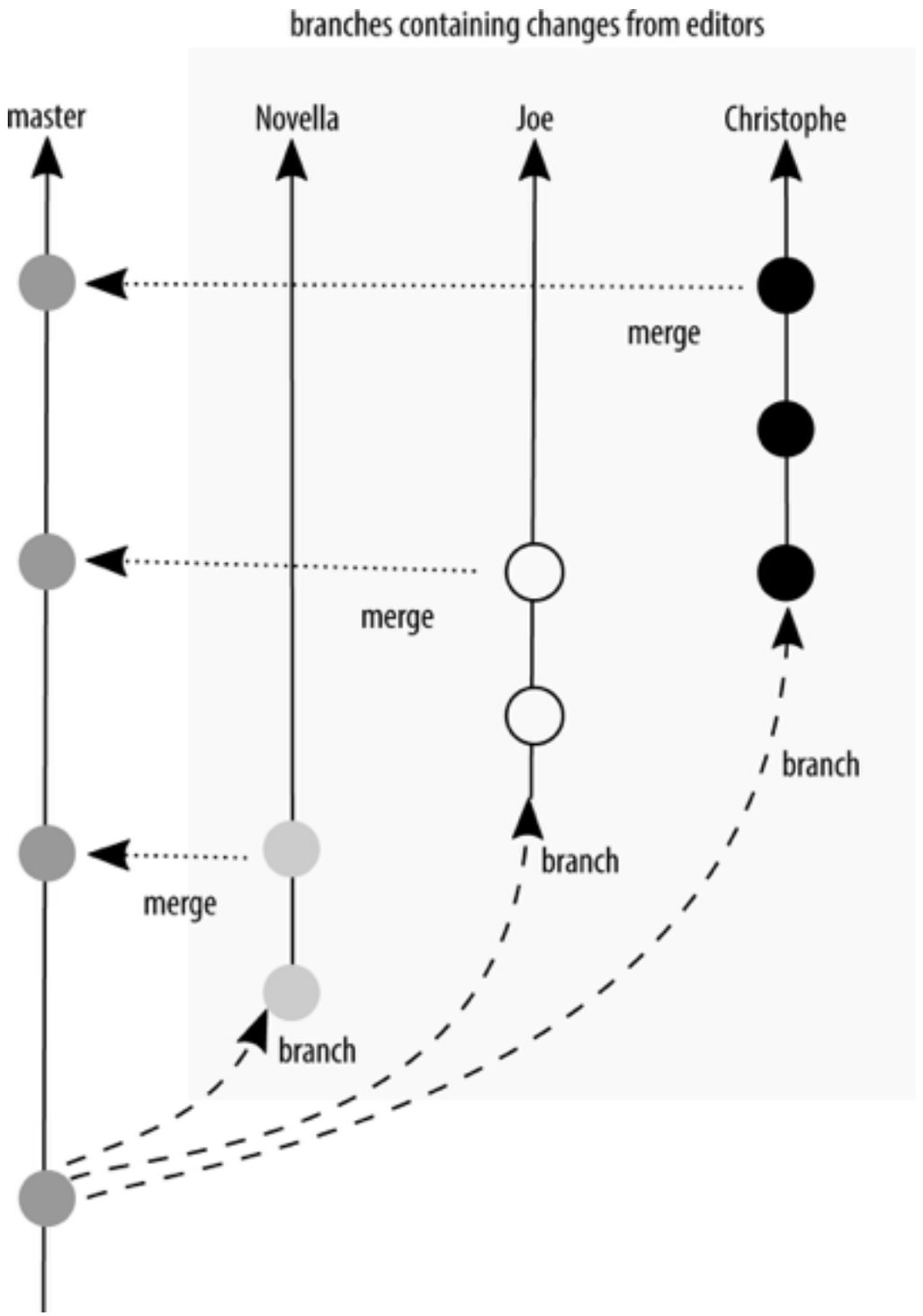
Create a new branch

when working on any feature, issue or bug

Merged back when it is finished

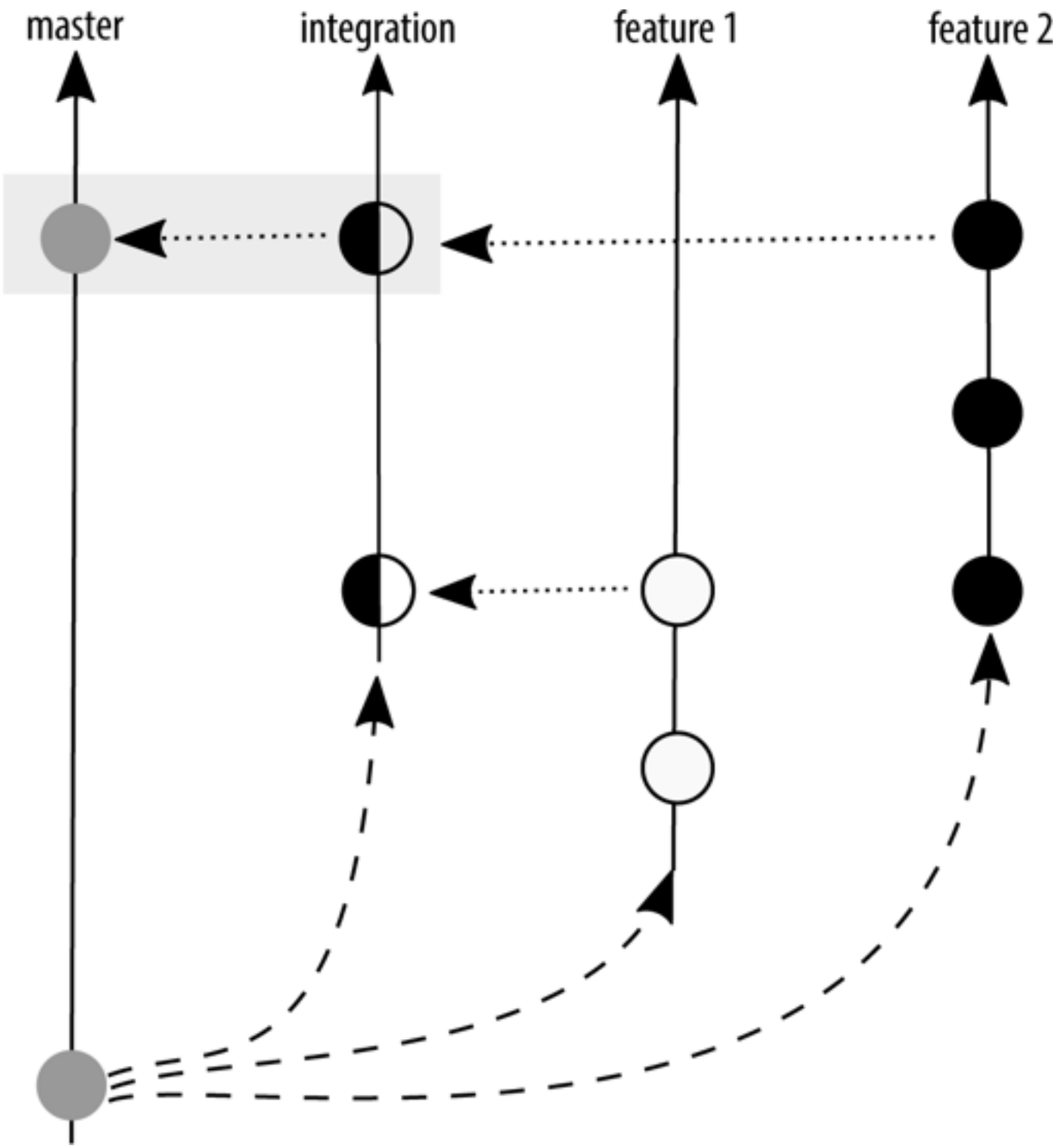


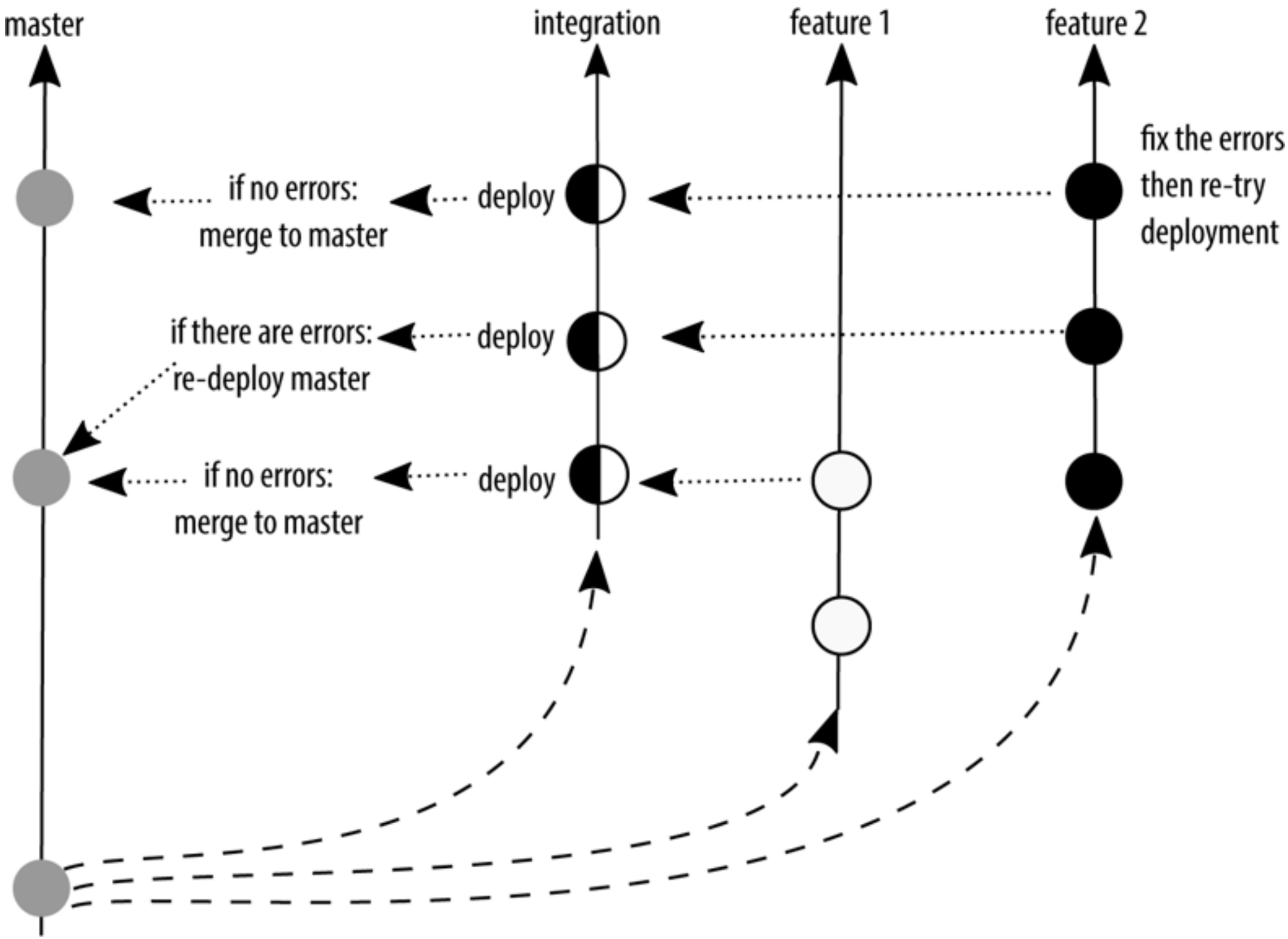

right now
newest commit object
commit object
oldest commit object
the past


branches containing changes from editors
master
Novella
Joe
Christophe
merge
merge
branch
branch
merge
branch

Let’s discuss with Your team

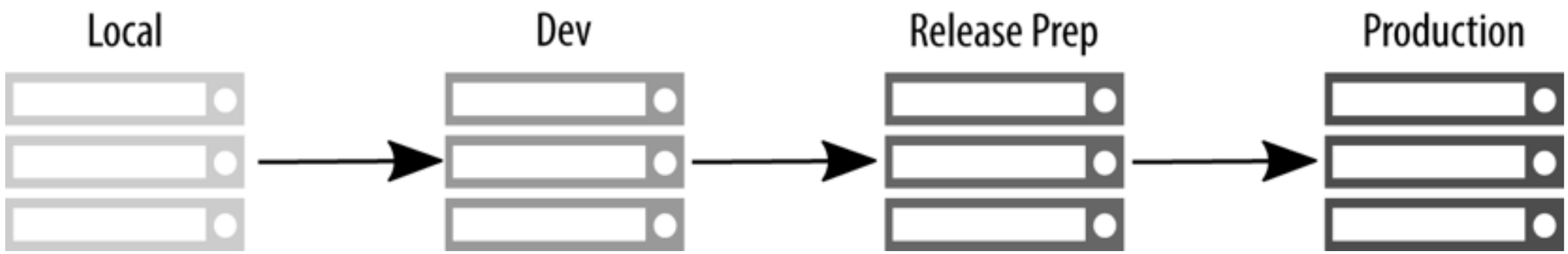
Assuming feature 1 and feature 2 integrate well: merge the combined changes in the integrration branch into the master branch.

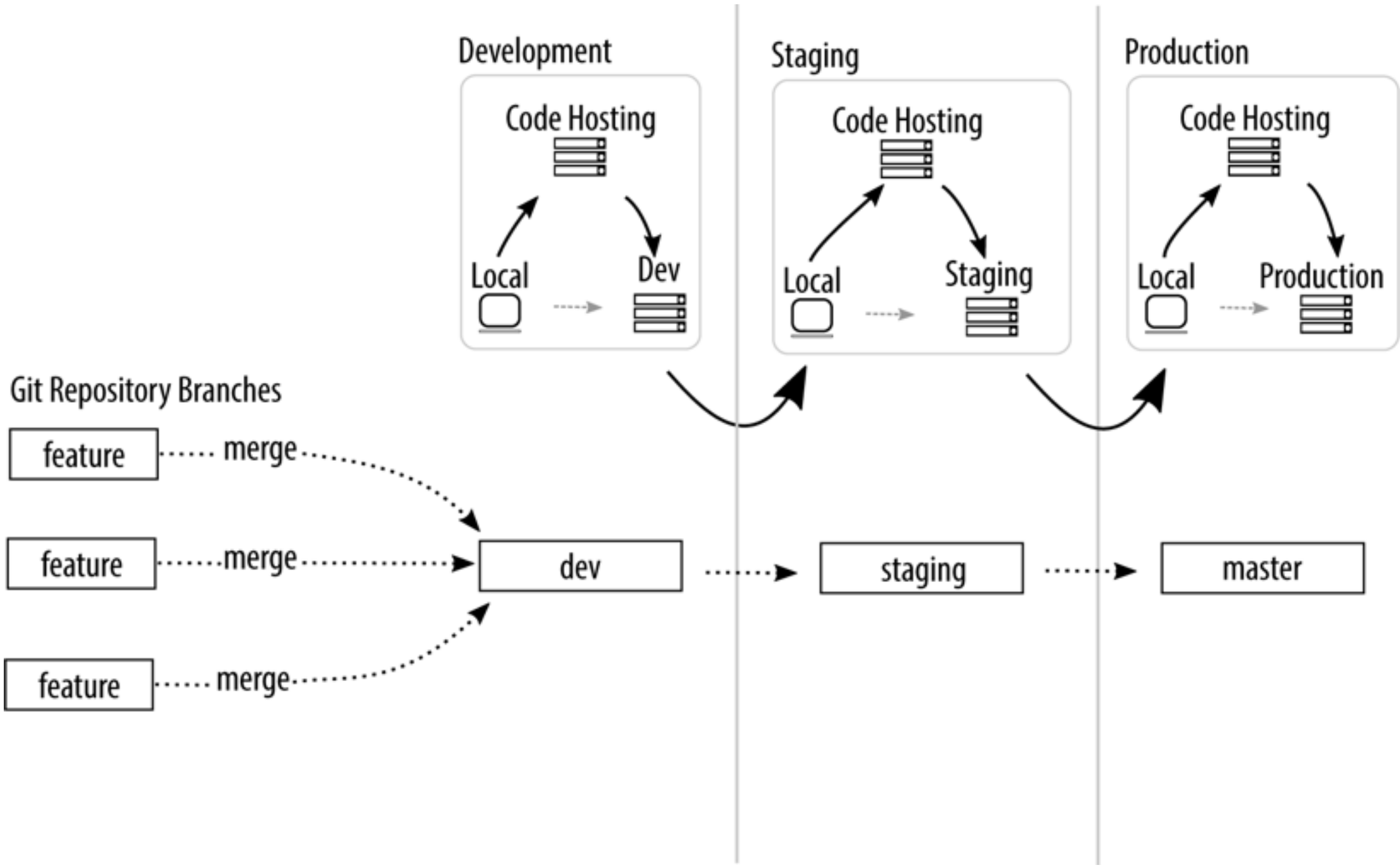



master
integration
feature 1
feature 2
fix the errors
then re-try
deployment
if no errors:
merge to master
deploy
if there are errors:
re-deploy master
deploy
if no errors:
merge to master
deploy

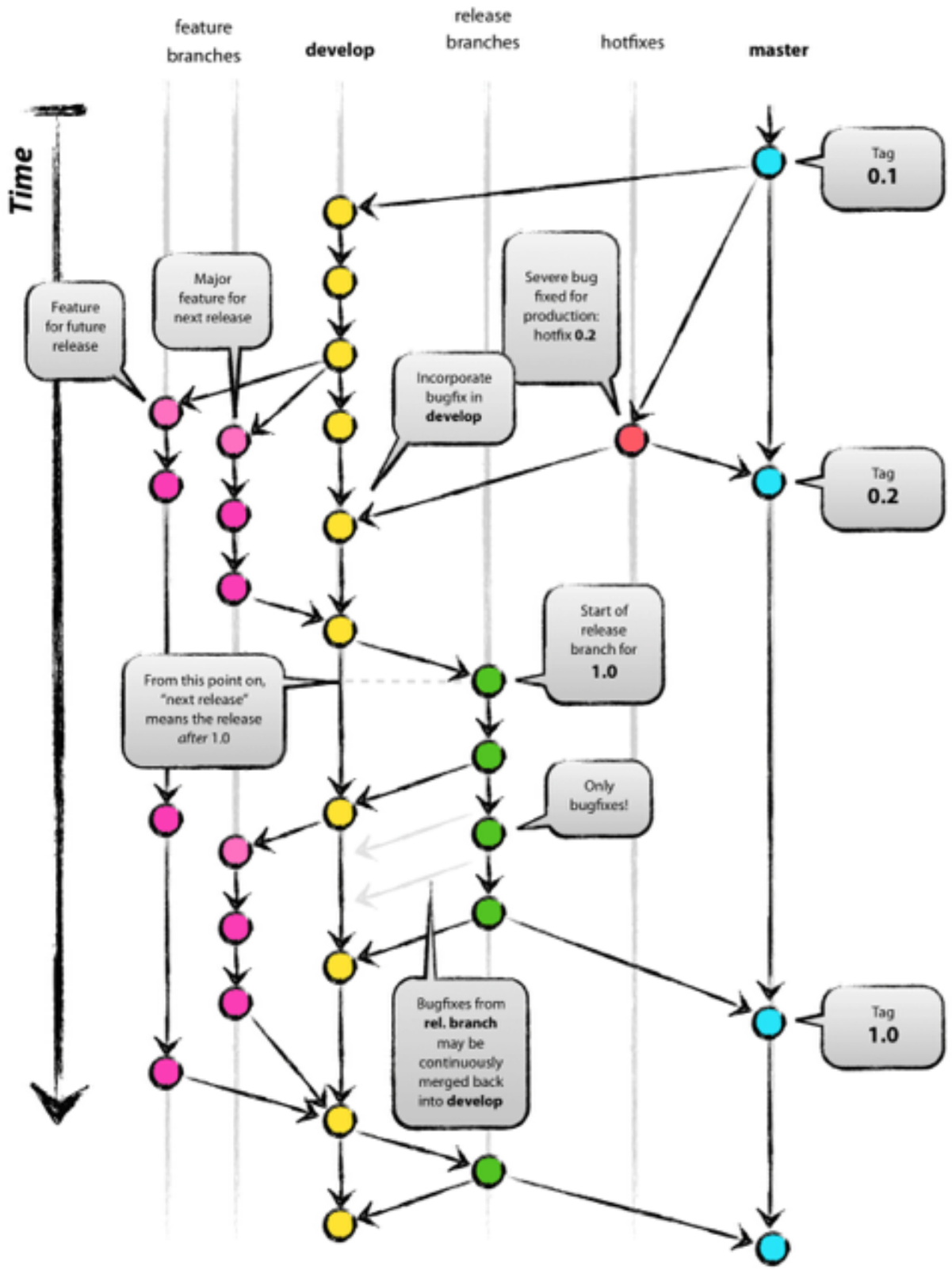
Let’s discuss with Your team

One branch per platform

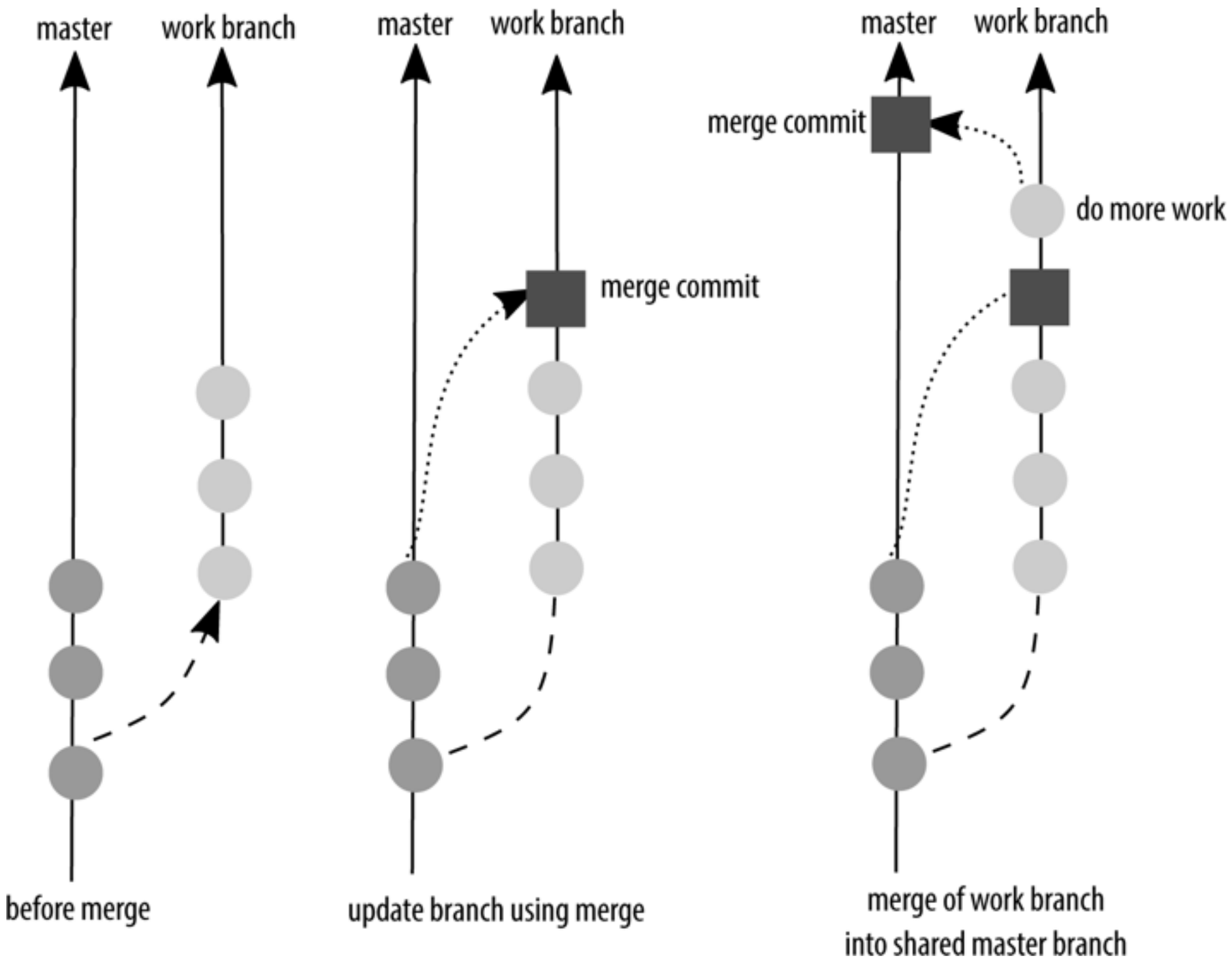



Development
Code Hosting
Local
Dev
Staging
Code Hosting
Local
Staging
Production
Code Hosting
Local
Production
Git Repository Branches
feature
merge
feature
merge
feature
merge
dev
staging
master

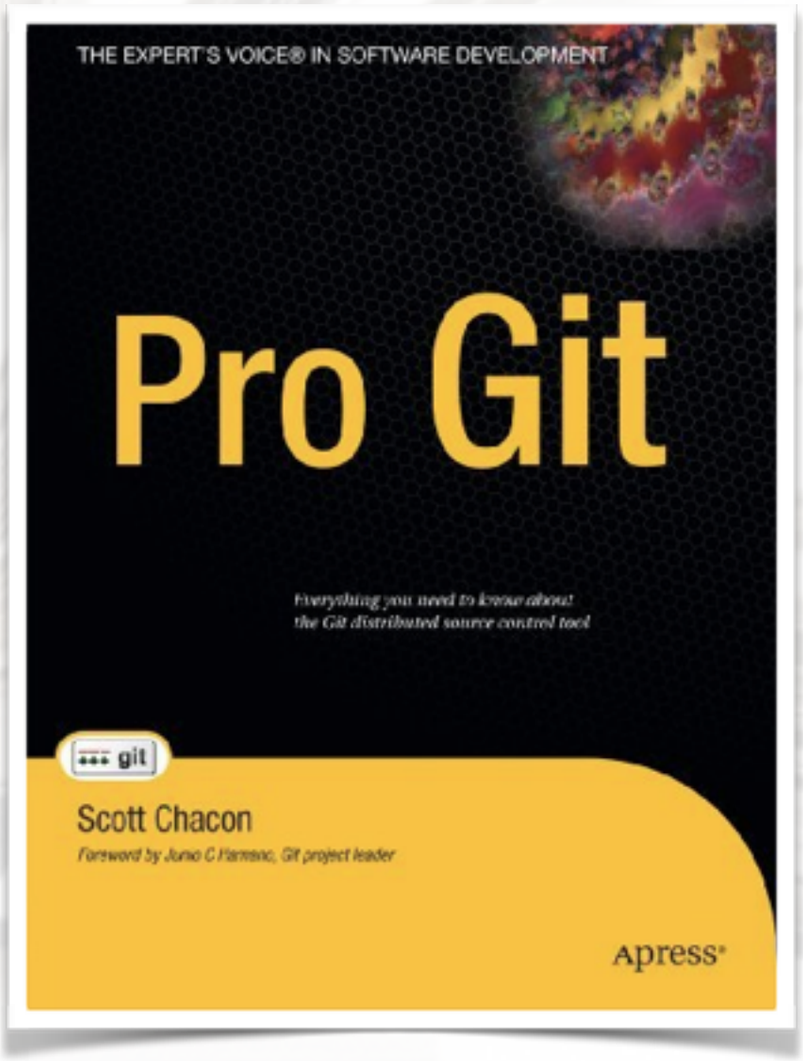
Let’s discuss with Your team


feature branches
develop
release branches
hotfixes
master
Time
Tag 0.1
Feature for future release
Major feature for next release
Severe bug fixed for production: hotfix 0.2
Incorporate bugfix in develop
Tag 0.2
Start of release branch for 1.0
From this point on, "next release" means the release after 1.0
Only bugfixes!
Bugfixes from rel. branch may be continuously merged back into develop
Tag 1.0

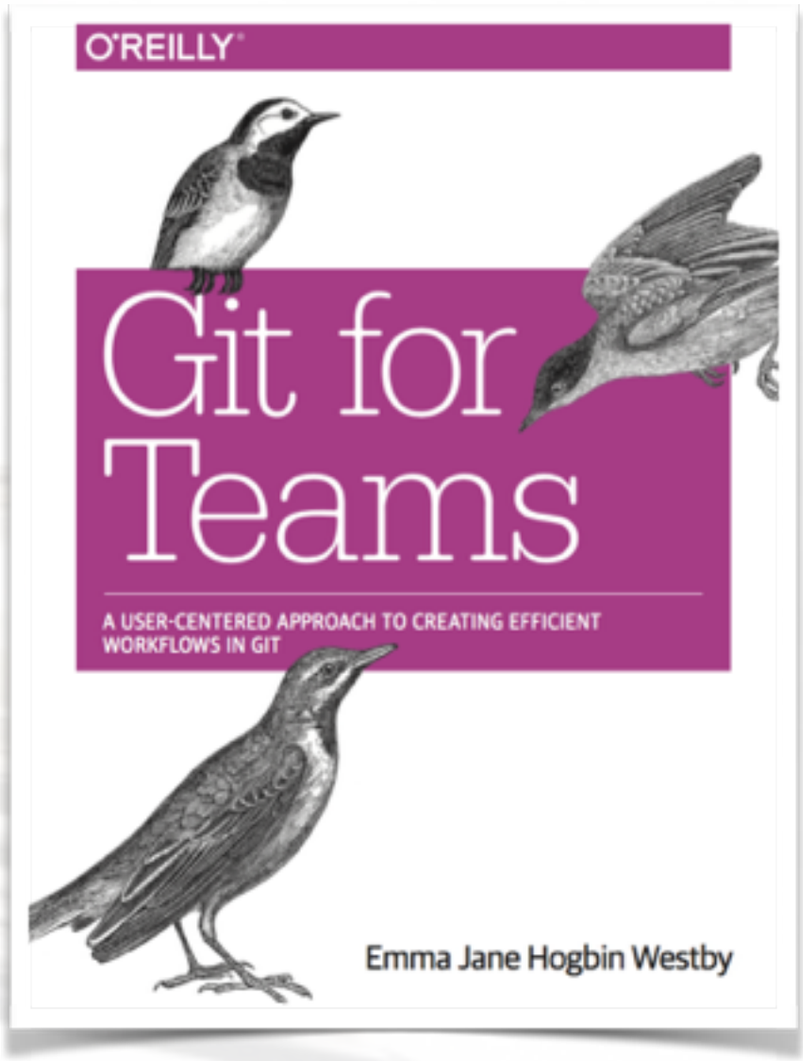
Let’s discuss with Your team


master
work branch
before merge
master
work branch
merge commit
update branch using merge
master
work branch
merge commit
do more work
merge of work branch
into shared master branch

Books to Read and Practice



http://www.git-scm.com/book/en/v2



http://shop.oreilly.com/product/0636920034520.do