Git Tutorial

http://ihower.tw/git

2013/1

Agenda

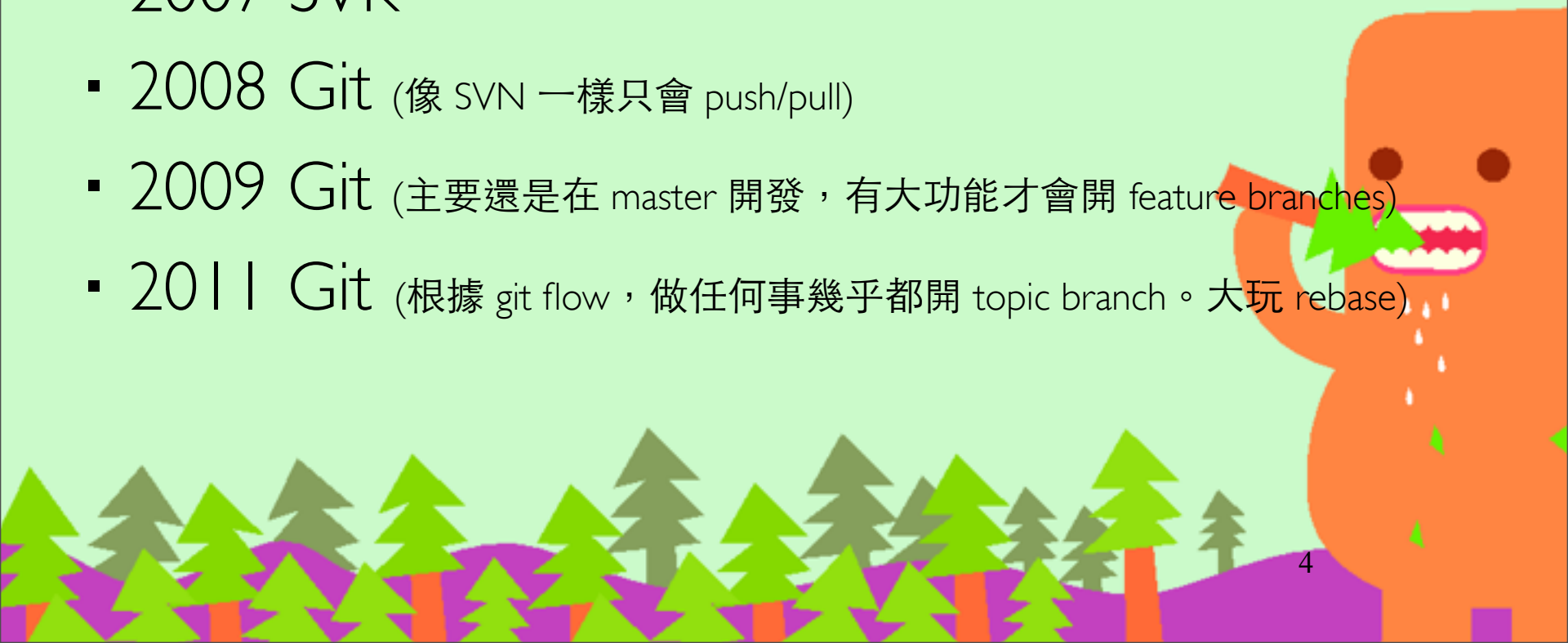
- 什麼是「版本控制系統」
- Git 簡介
- Git 內部原理
- Git 指令
- Git 開發模式及流程
- 更多 Git Tips
- GitHub 簡介

我是誰?

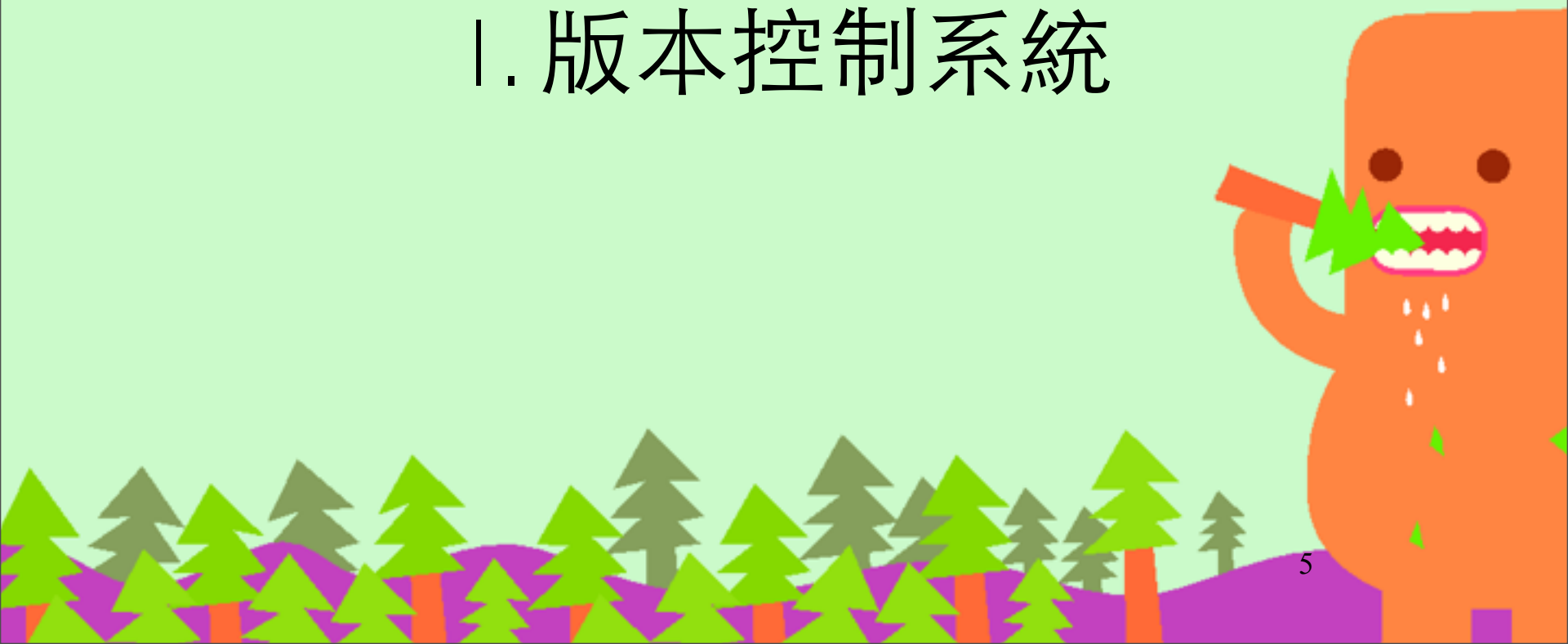
- 張文鈿 a.k.a. ihower
  - http://ihower.tw
- CTO PassionBean
- The organizer of RubyConf Taiwan
  - http://rubyconf.tw

我的版本控制之路

- 2002 目錄管理法 (定時 copy 備份一次)
- 2005 SubVersion
- 2007 SVK
- 2008 Git (像 SVN 一樣只會 push/pull)
- 2009 Git (主要還是在 master 開發，有大功能才會開 feature branches)
- 2011 Git (根據 git flow，做任何事幾乎都開 topic branch。大玩 rebase)



1. 版本控制系統

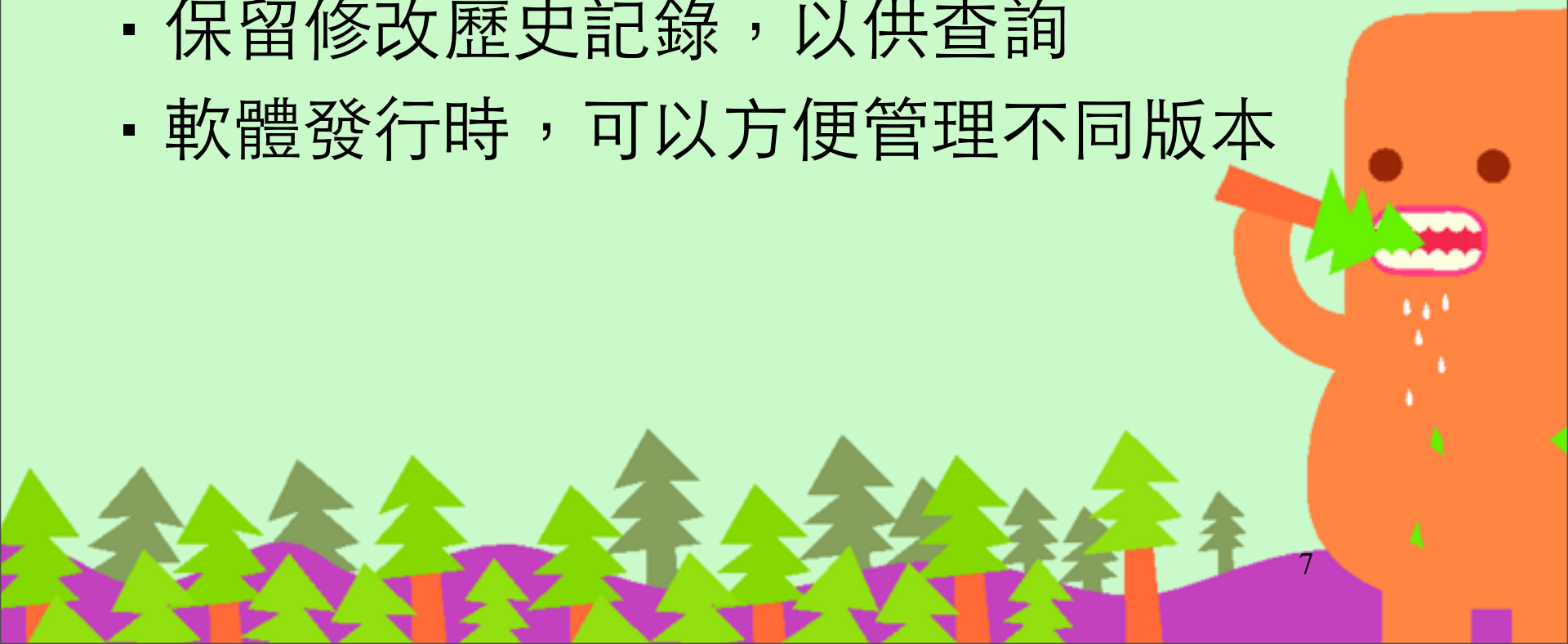


Why? 要解決的問題

- 檔案被別人或自己覆蓋，甚至遺失
- 想復原前幾天寫的版本
- 想知道跟昨天寫的差在哪裡
- 是誰改了這段程式碼，為什麼
- 軟體發行，需要分成維護版跟開發版

我們需要一種機制

- 可以隨時復原修改，回到之前的版本
- 多人協作時，不會把別人的東西蓋掉
- 保留修改歷史記錄，以供查詢
- 軟體發行時，可以方便管理不同版本



Quote

- 版本控制系統不祇可以幫助妳追蹤修訂手上的工作進度，讓妳在千鈞一髮之際還能拾回過往辛苦的結晶，甚至能夠讓妳跟其他人協同工作、合作無間。
  http://jedi.org/blog/archives/004784.html
- 那些台灣軟體產業所缺少的 – 版本控制系統
  http://blog.ez2learn.com/2011/10/20/taiwan-software-lacking-of-vcs/

Version Control System (VCS)

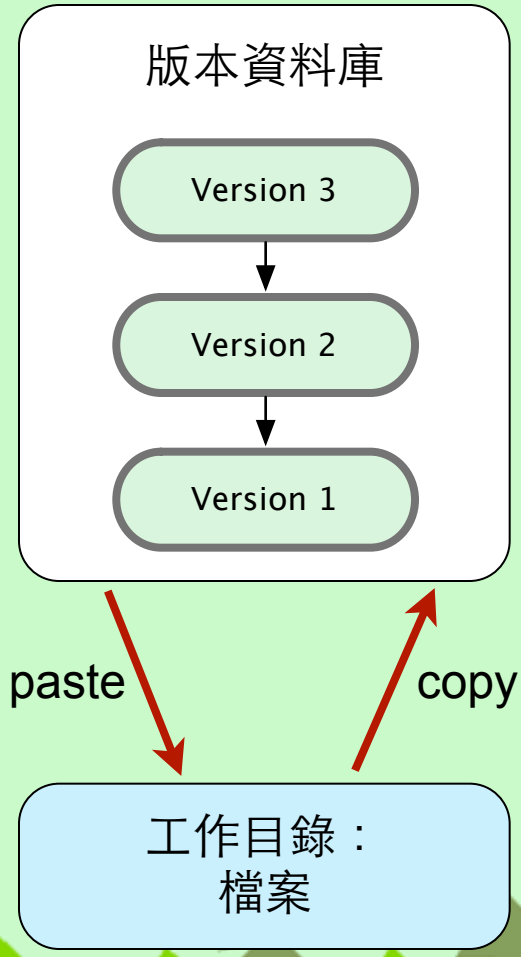
- 建立 Repository (儲存庫)，用來保存程式碼
- 方便散佈程式給團隊，有效率協同開發
- 記錄誰改變什麼、在什麼時候、因為什麼原因
- Branch(分支)，可因不同情境分開開發
- Tag(標籤) 重要里程碑，以便參照

Repository 存什麼?

- 所有跑起來這個專案需要的東西
  - 所有原始碼、範例設計檔、文件等等
  - 暫存檔、log 檔案、build files 等編譯後的產物則不需要存進 Repository

Local VCS

copy paste 資料夾管理, rcs



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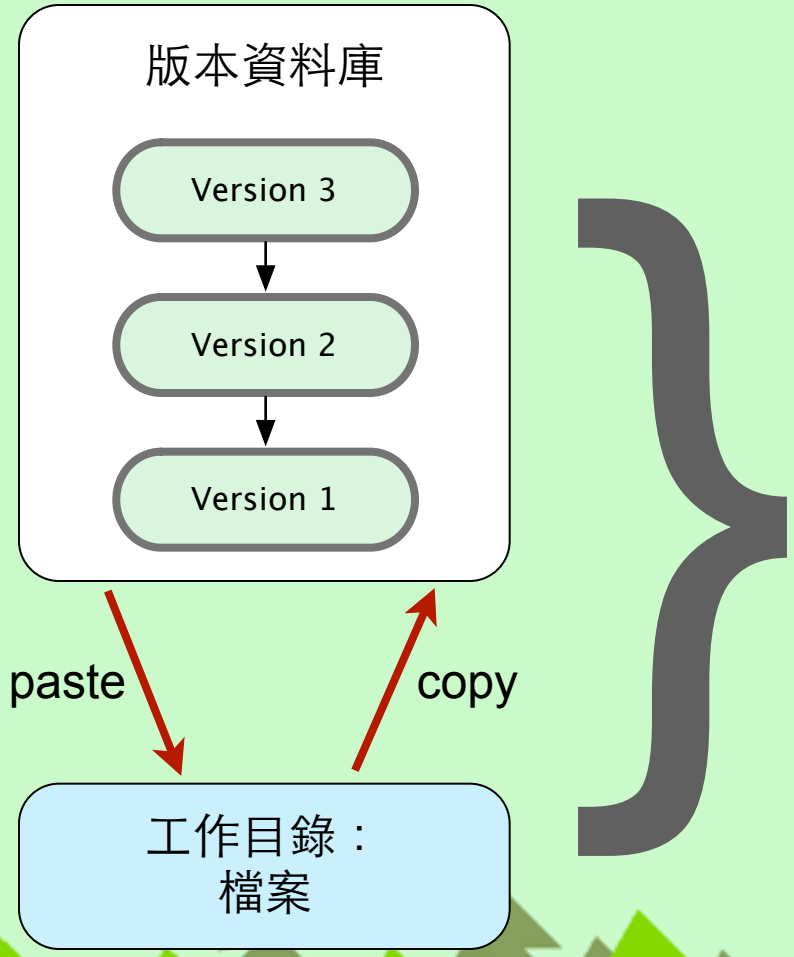

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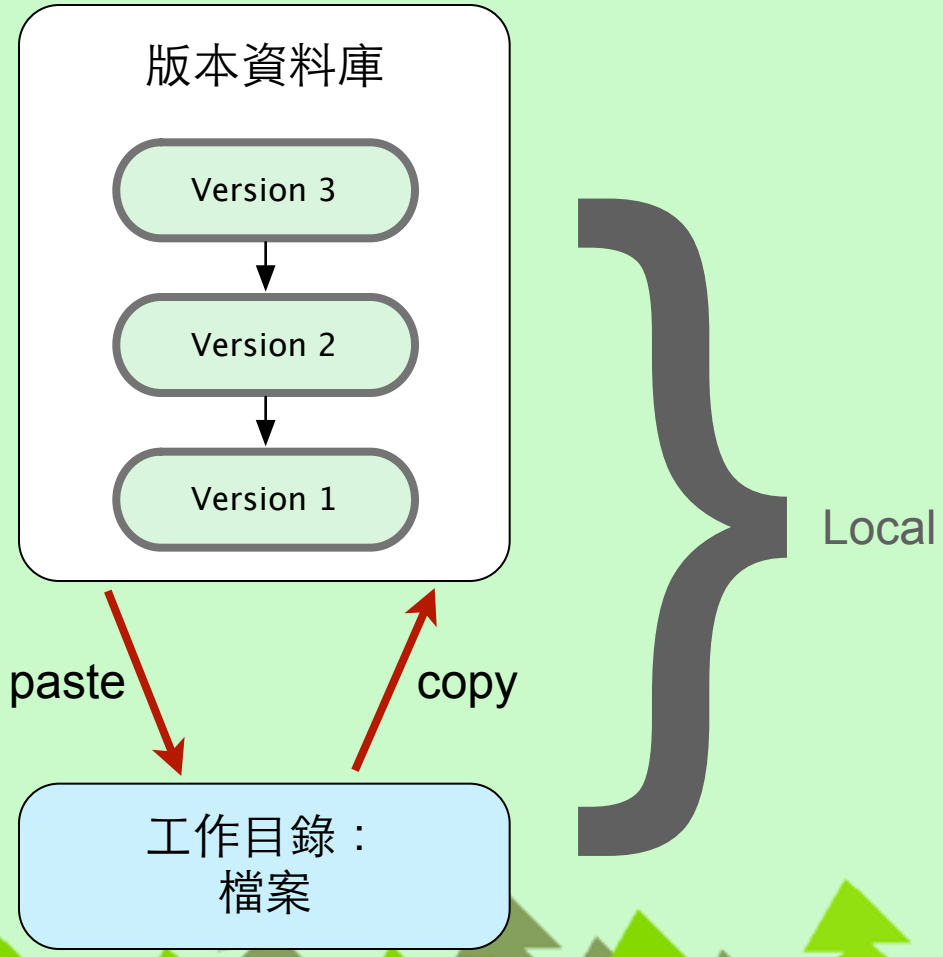

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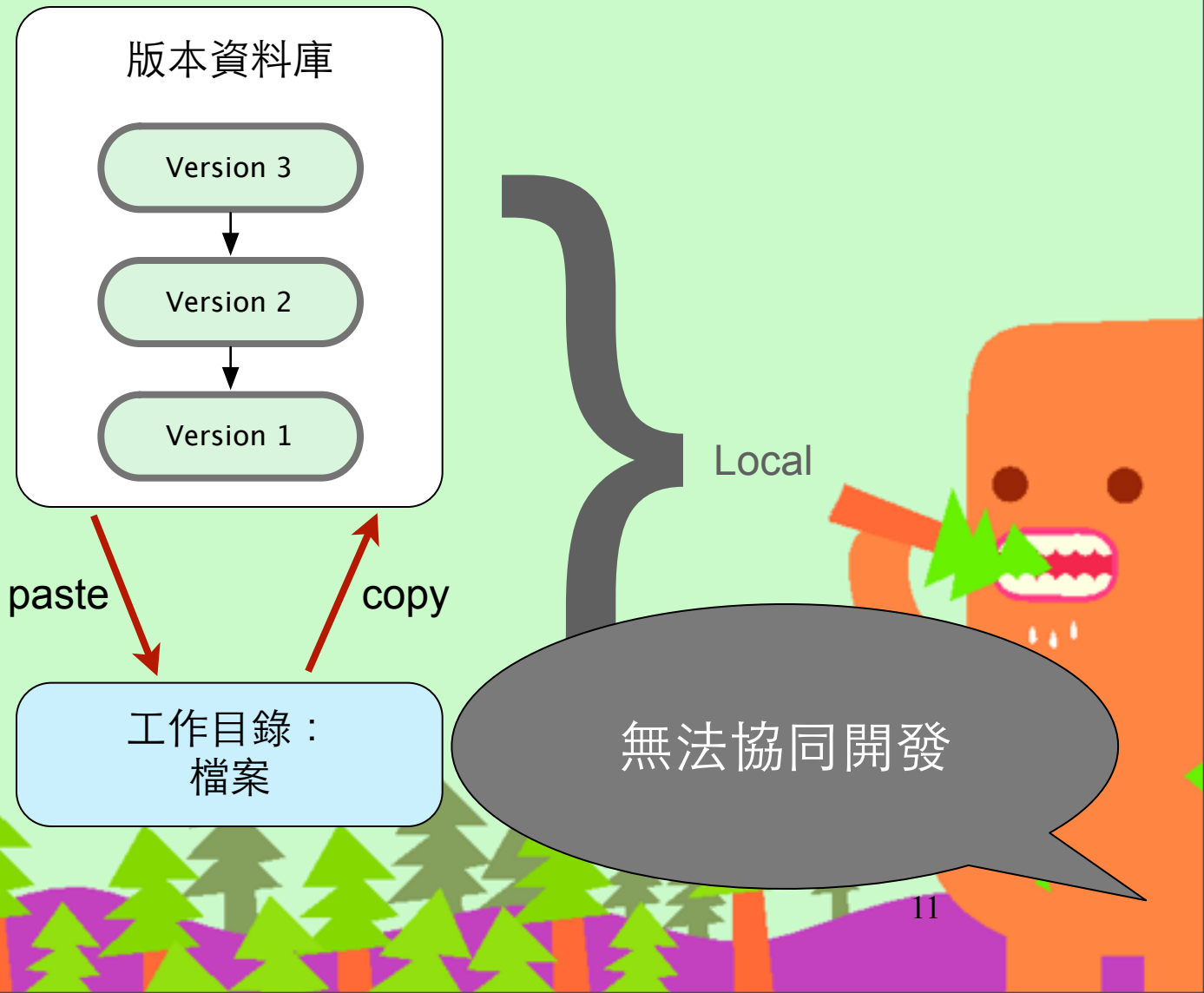
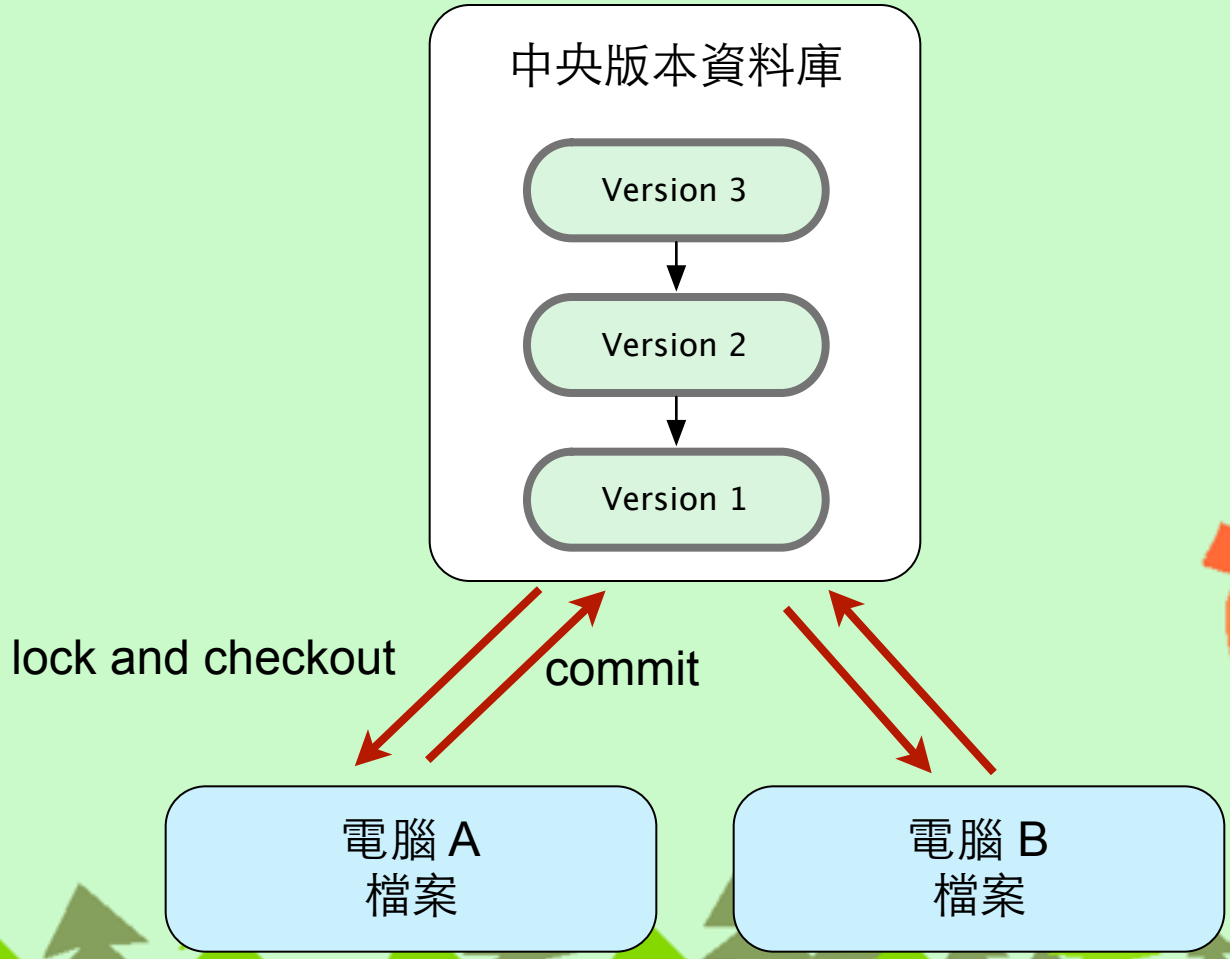


Centralized VCS (Lock型，悲觀鎖定)



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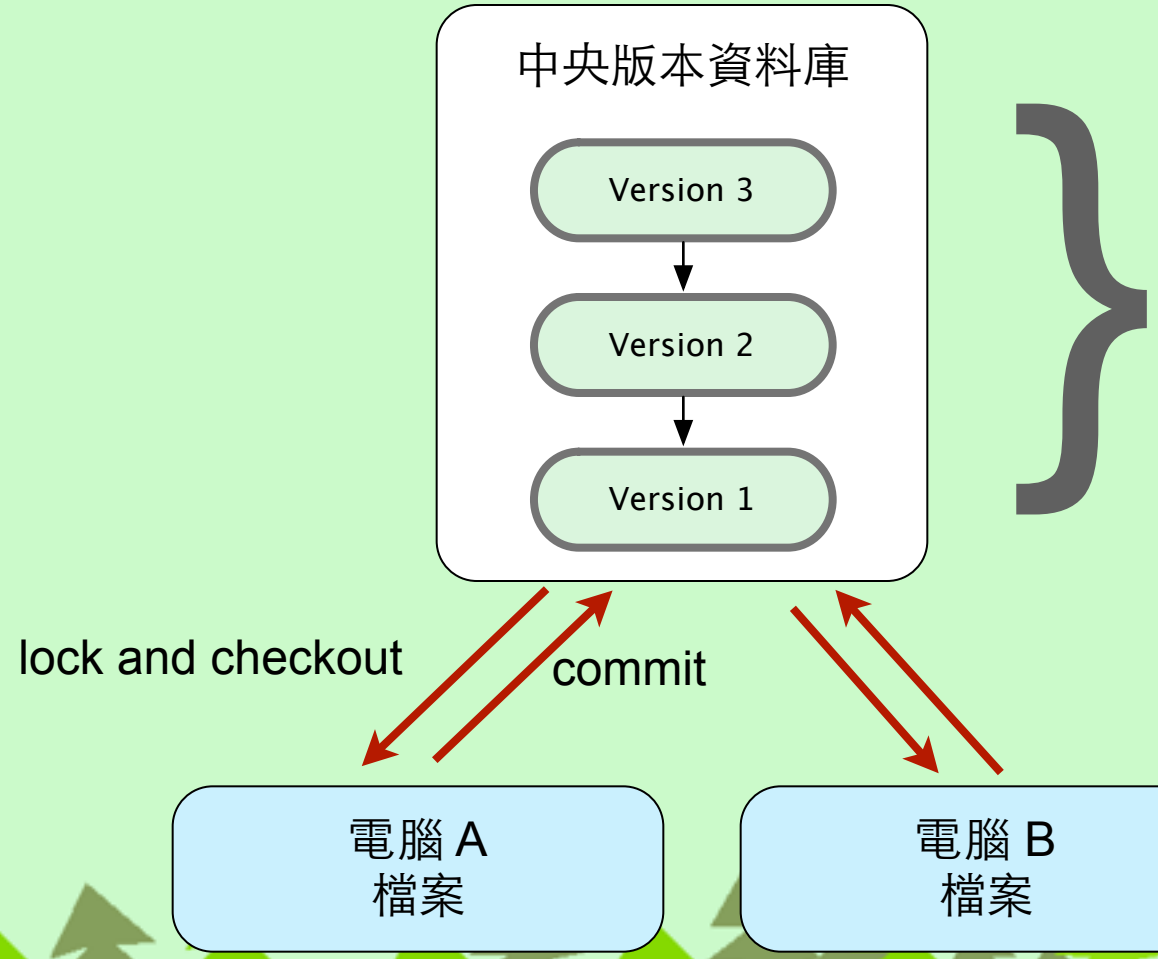

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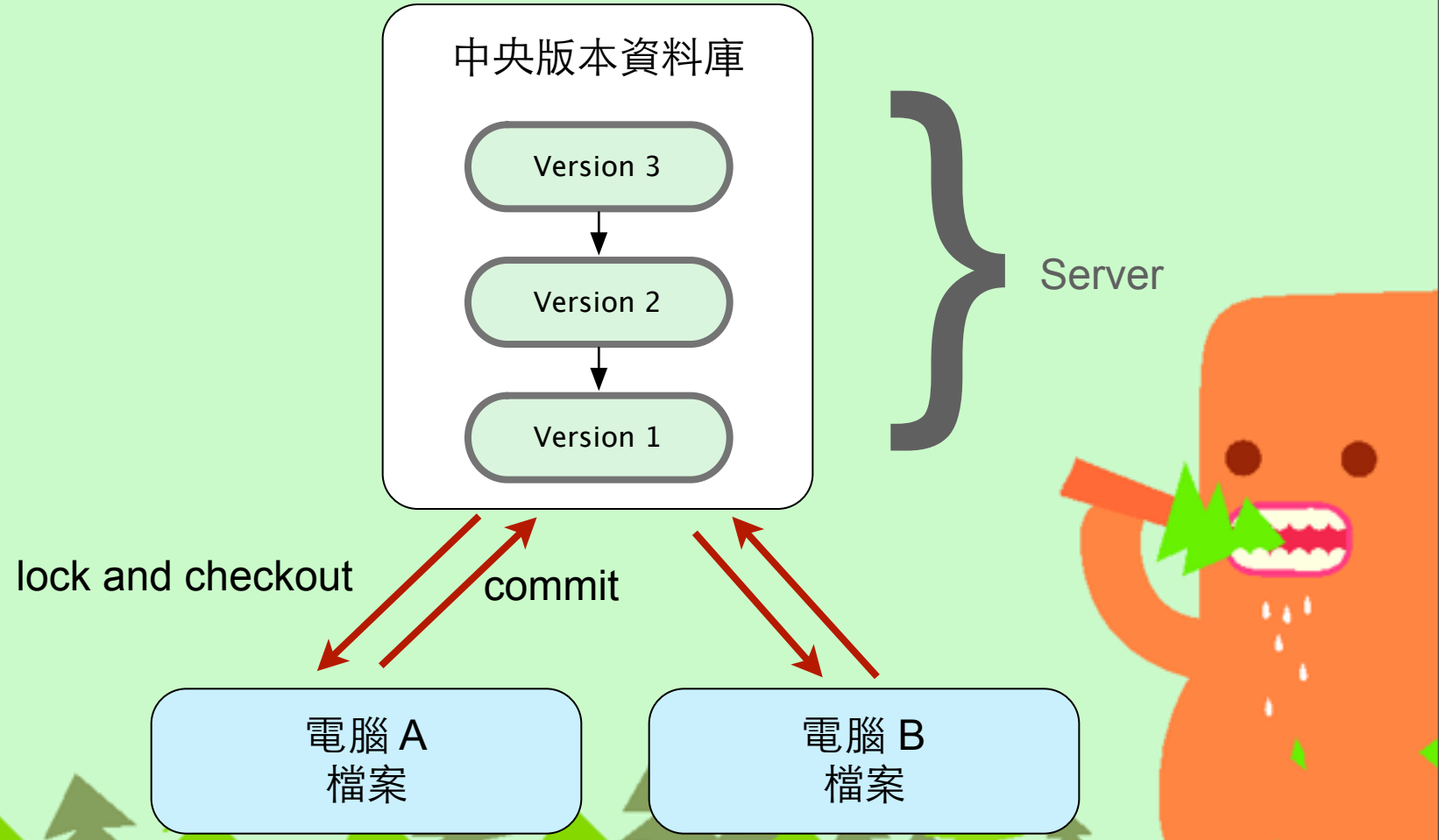

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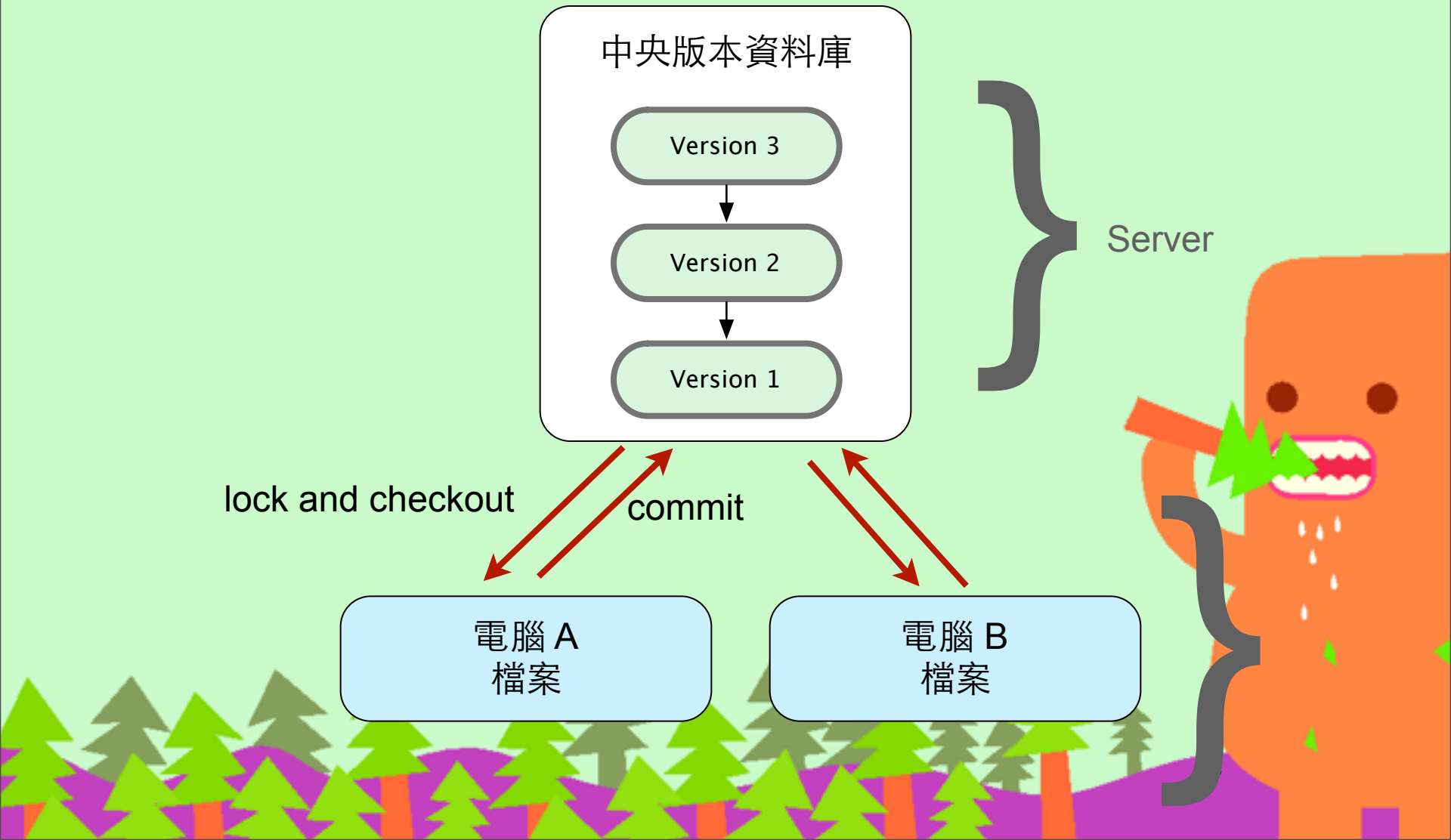

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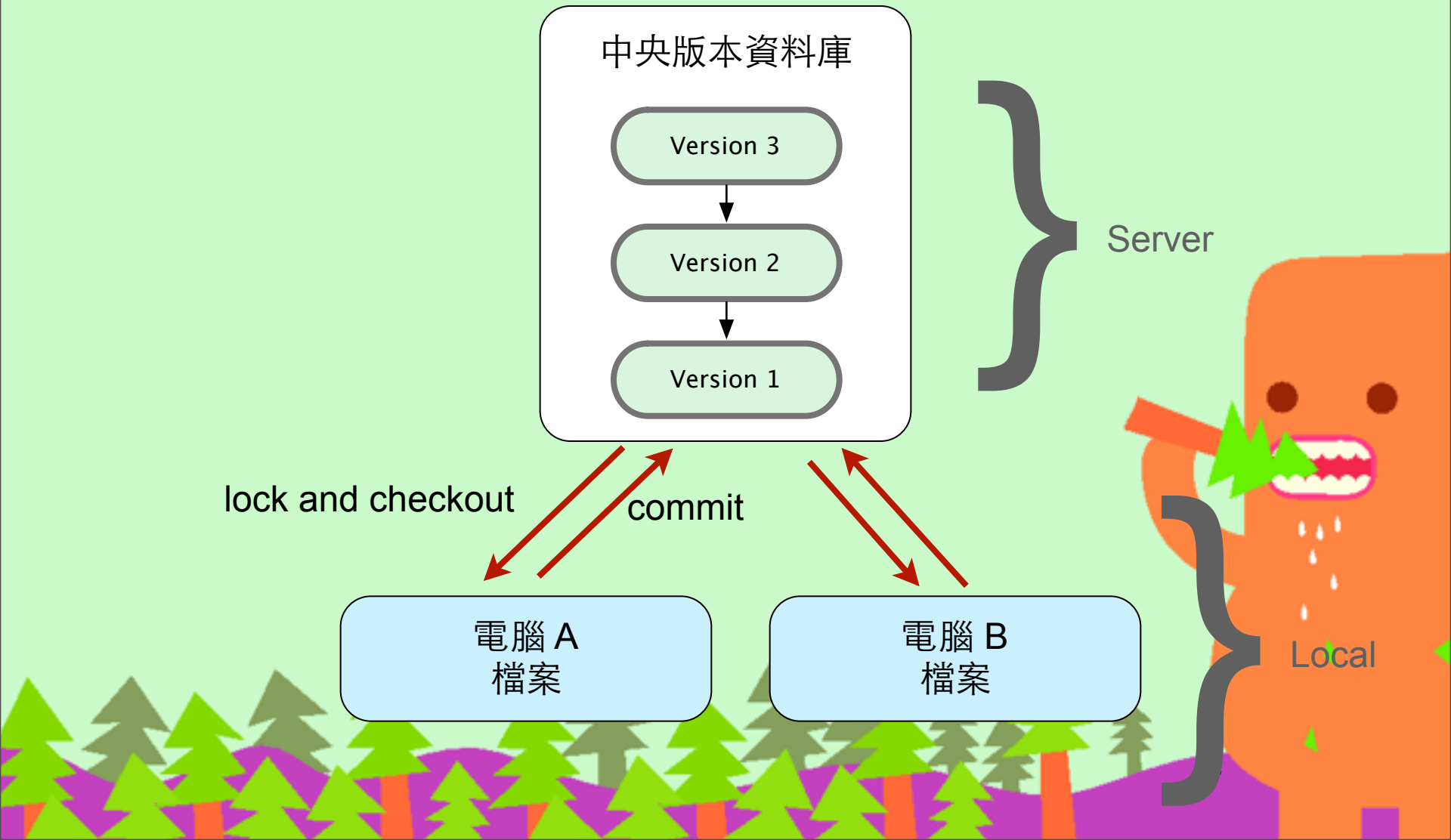

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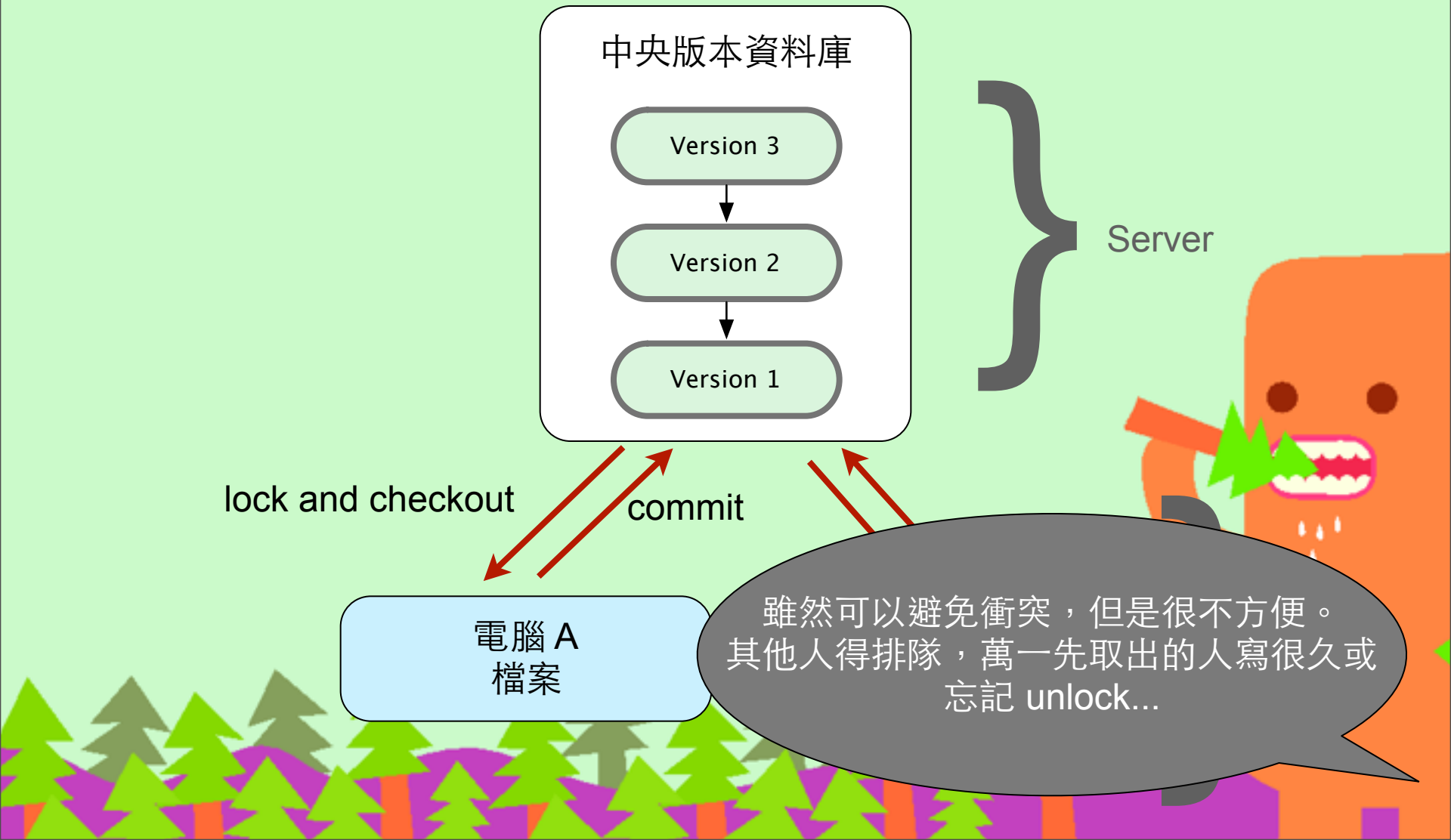
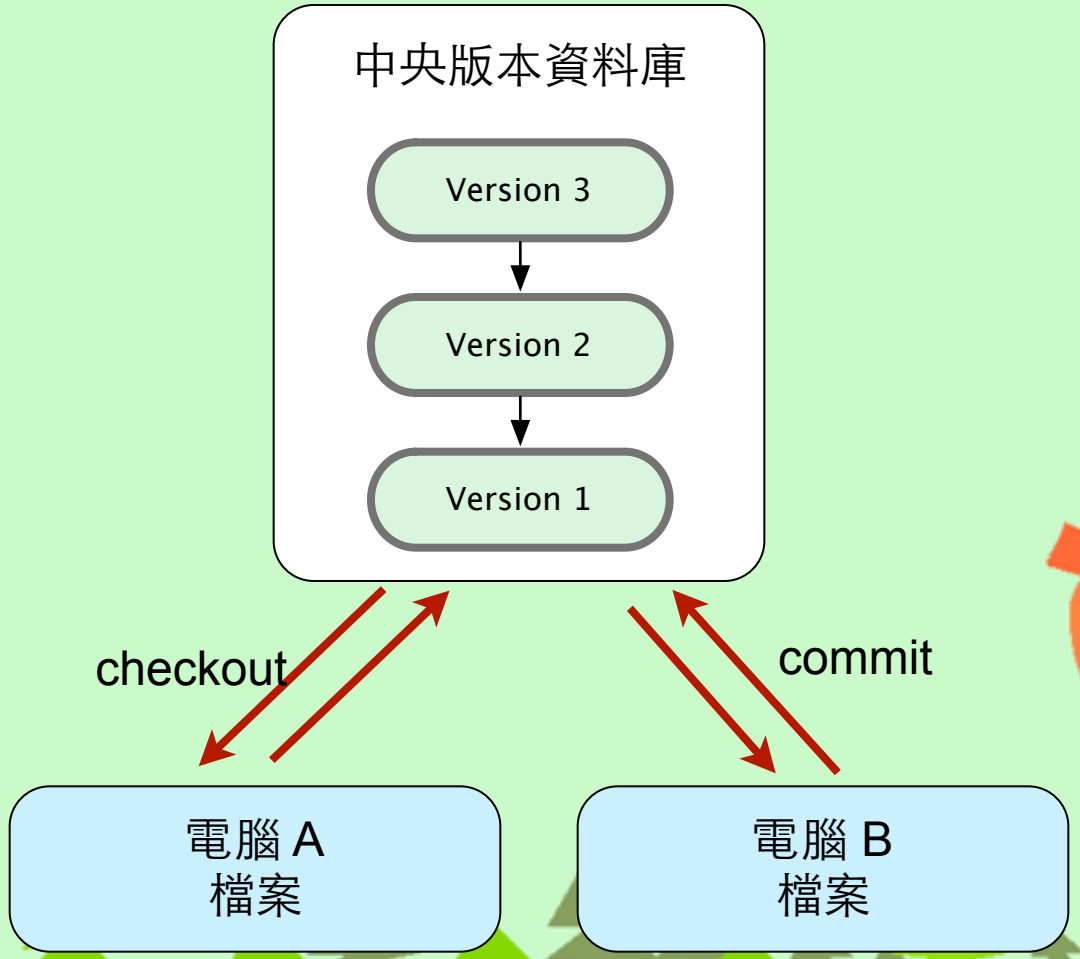


Centralized VCS (Merge型，樂觀鎖定)

CVS, Subversion, Perforce



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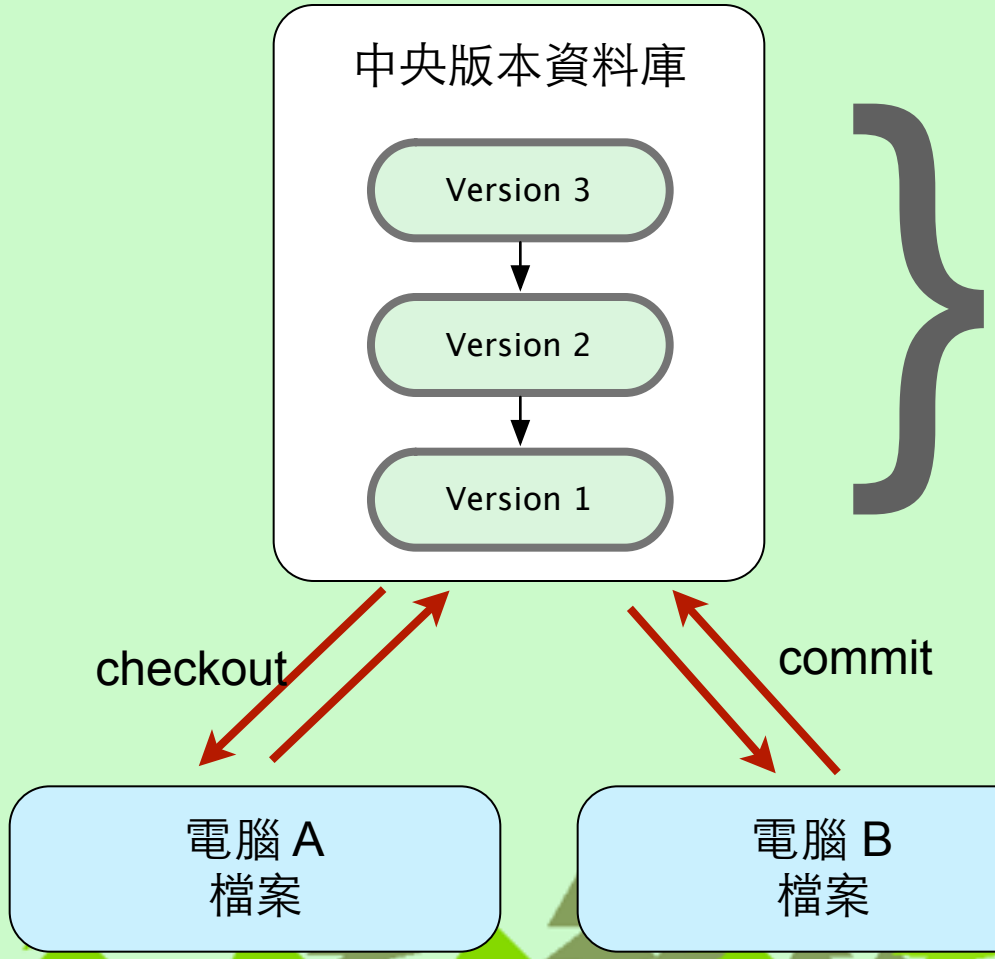

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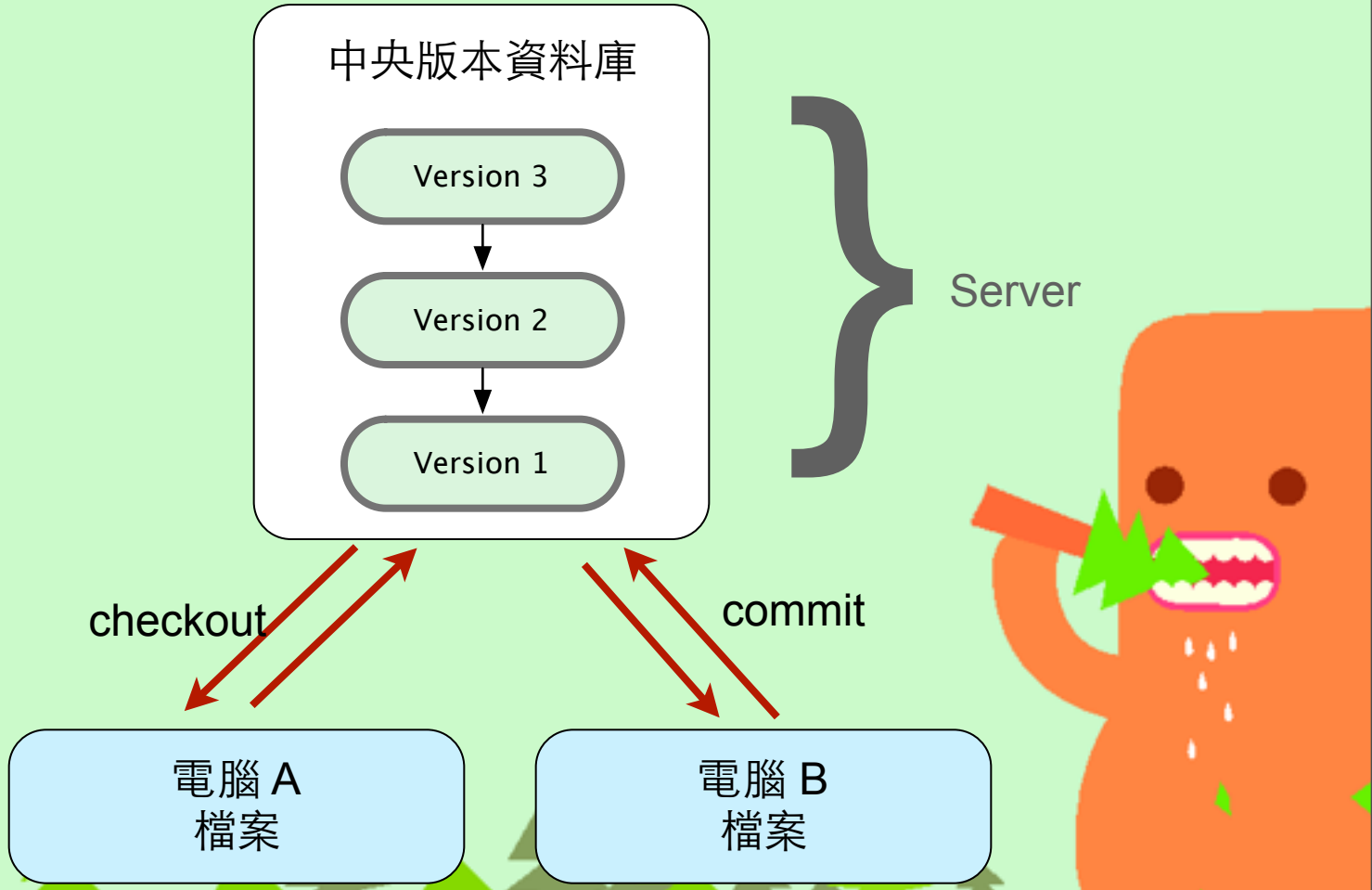

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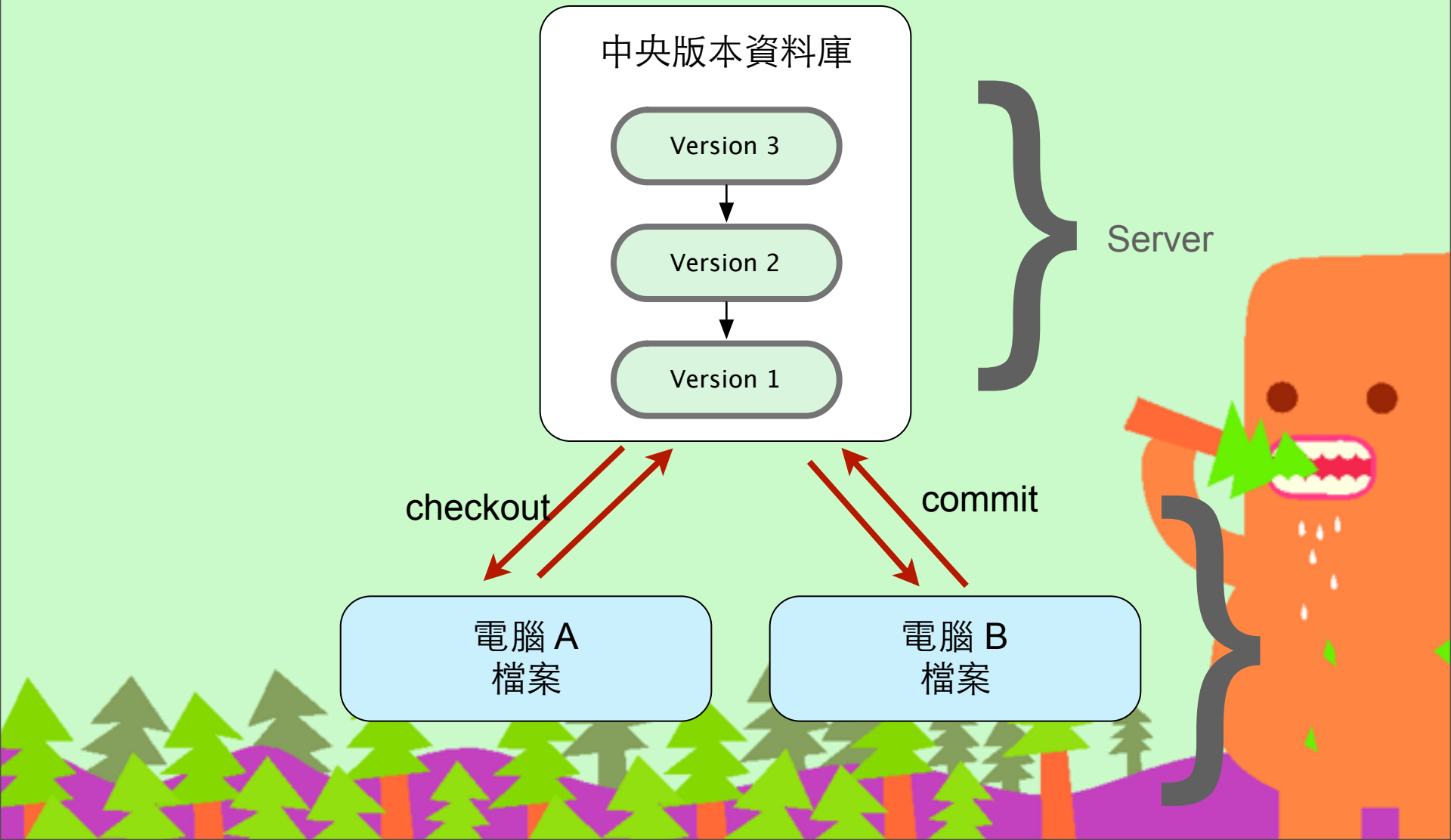

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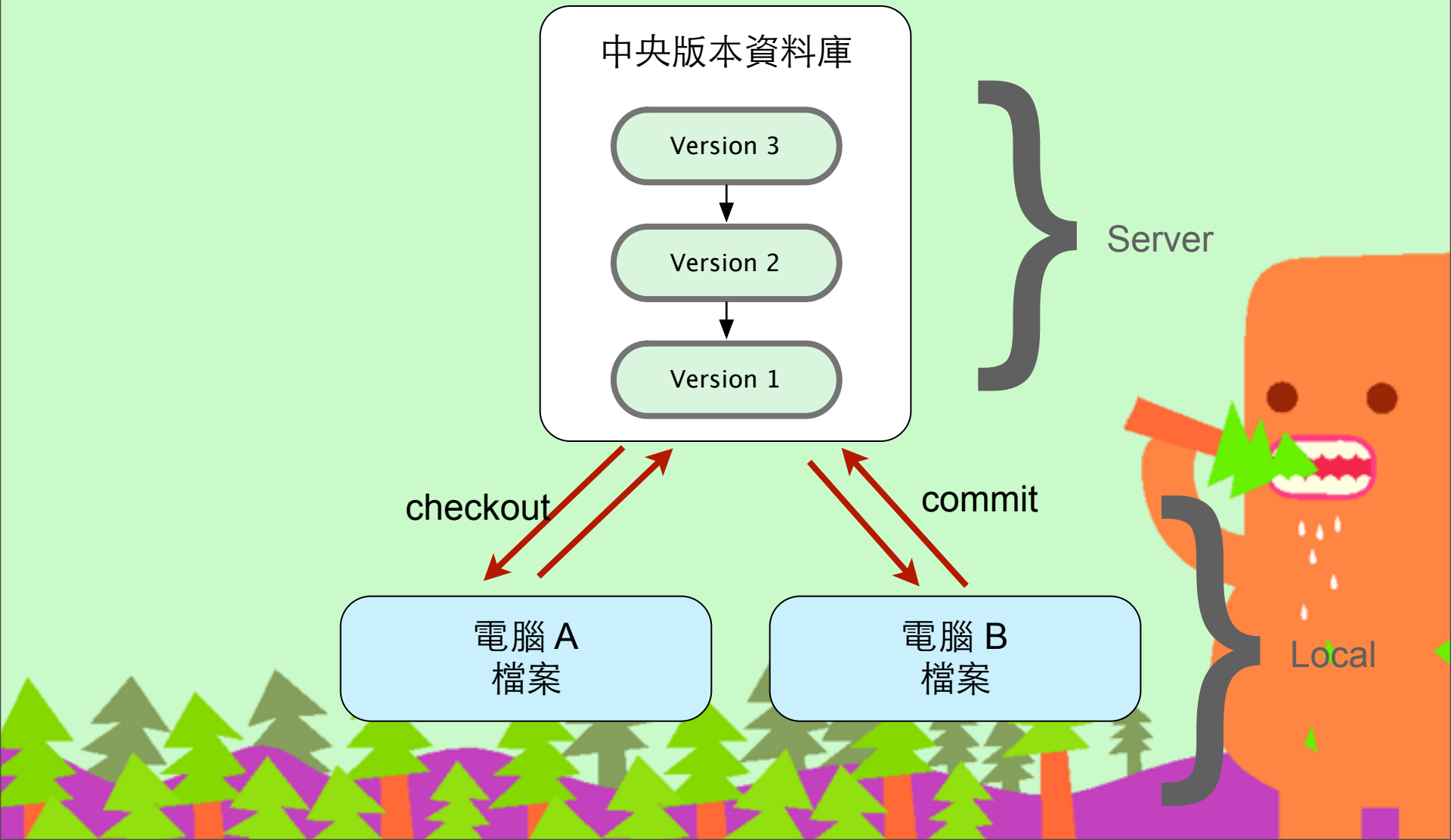

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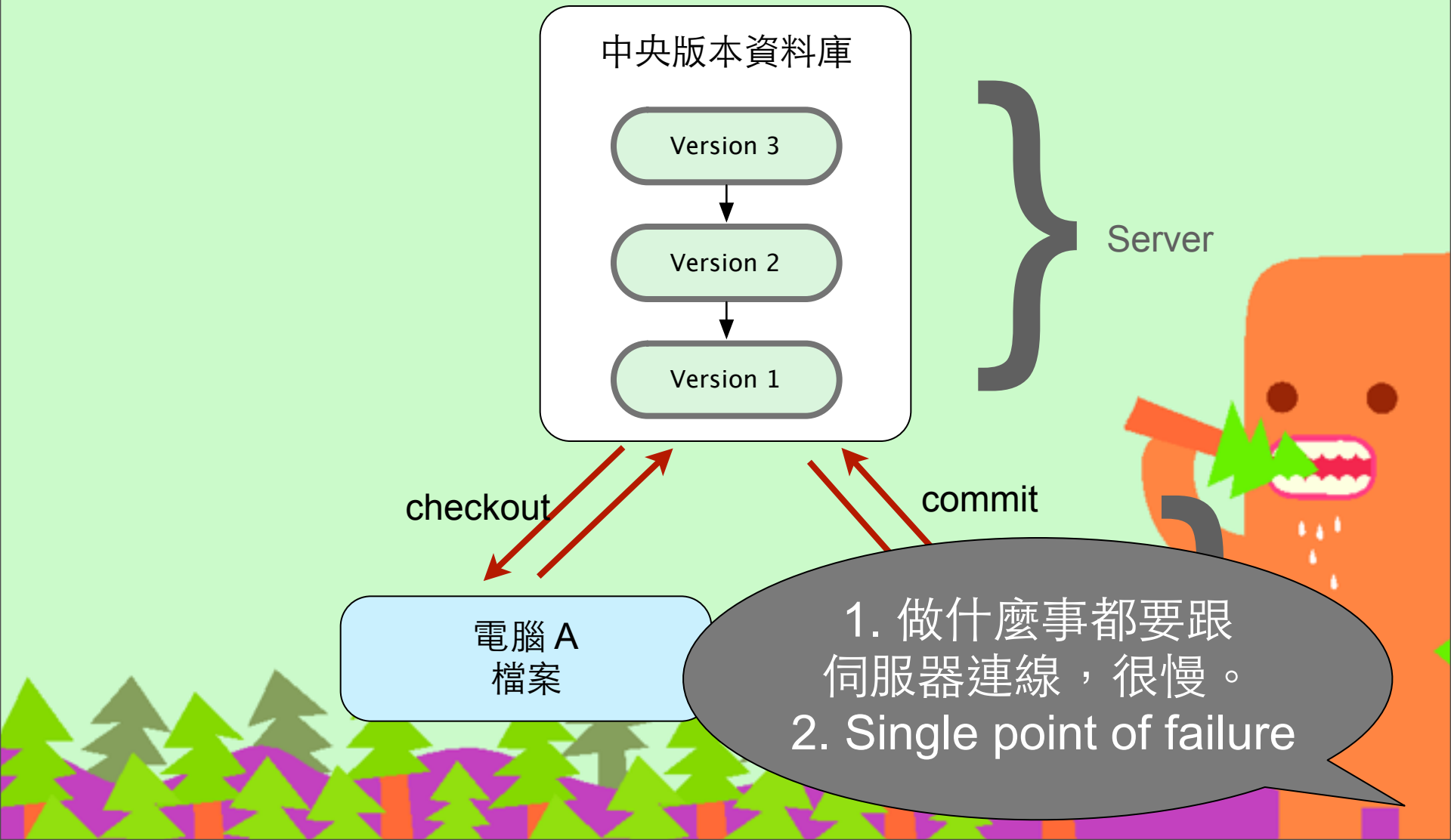
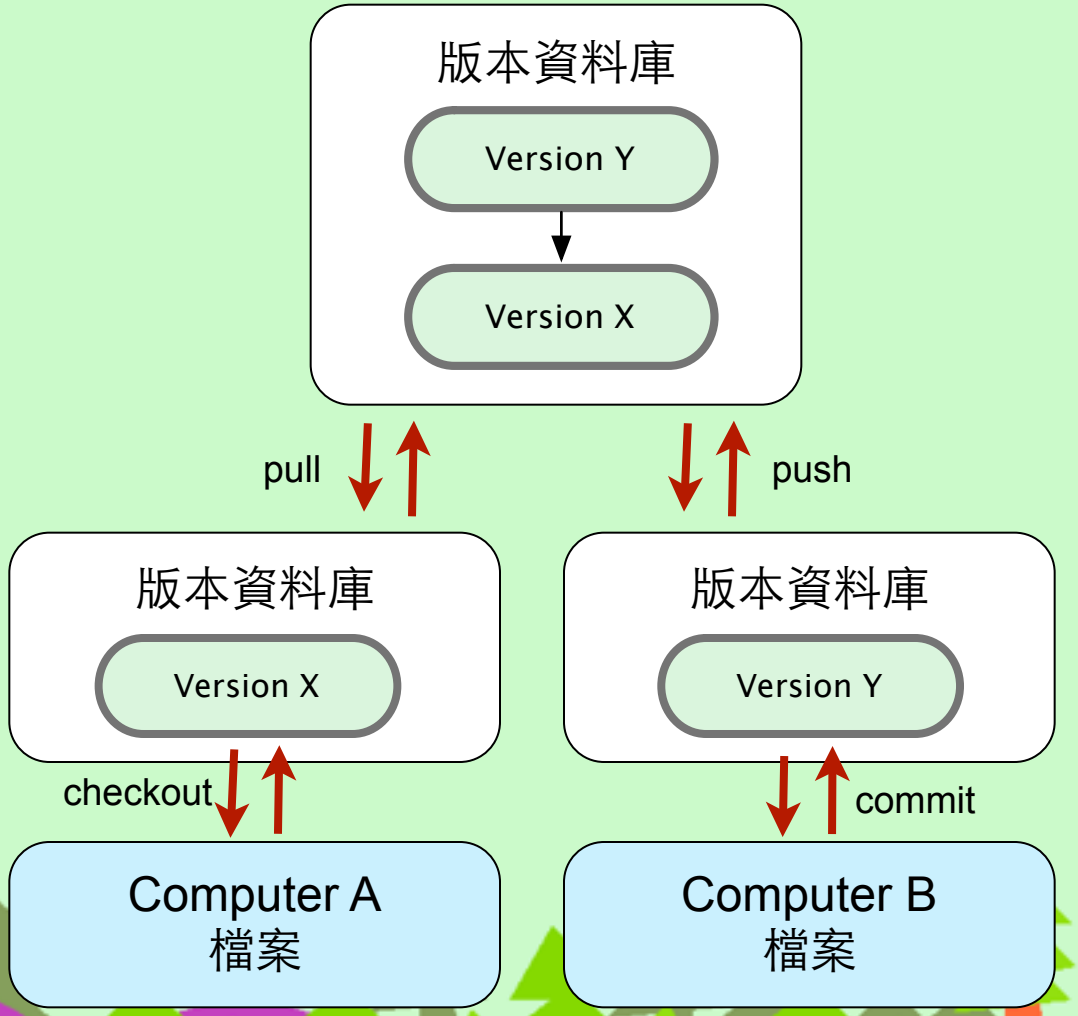


Distributed VCS

Git, Mercurial(Hg), Bazaar



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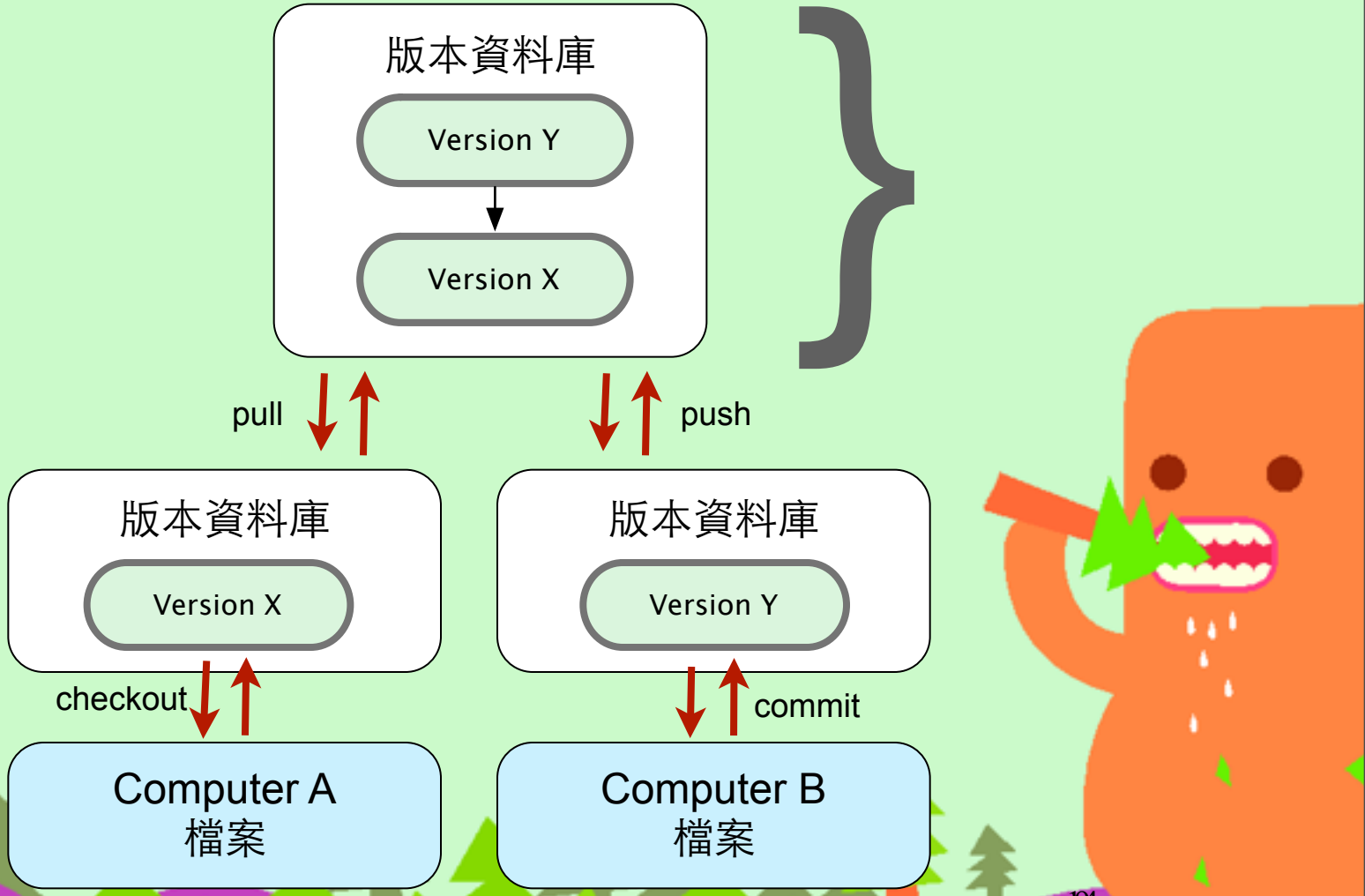

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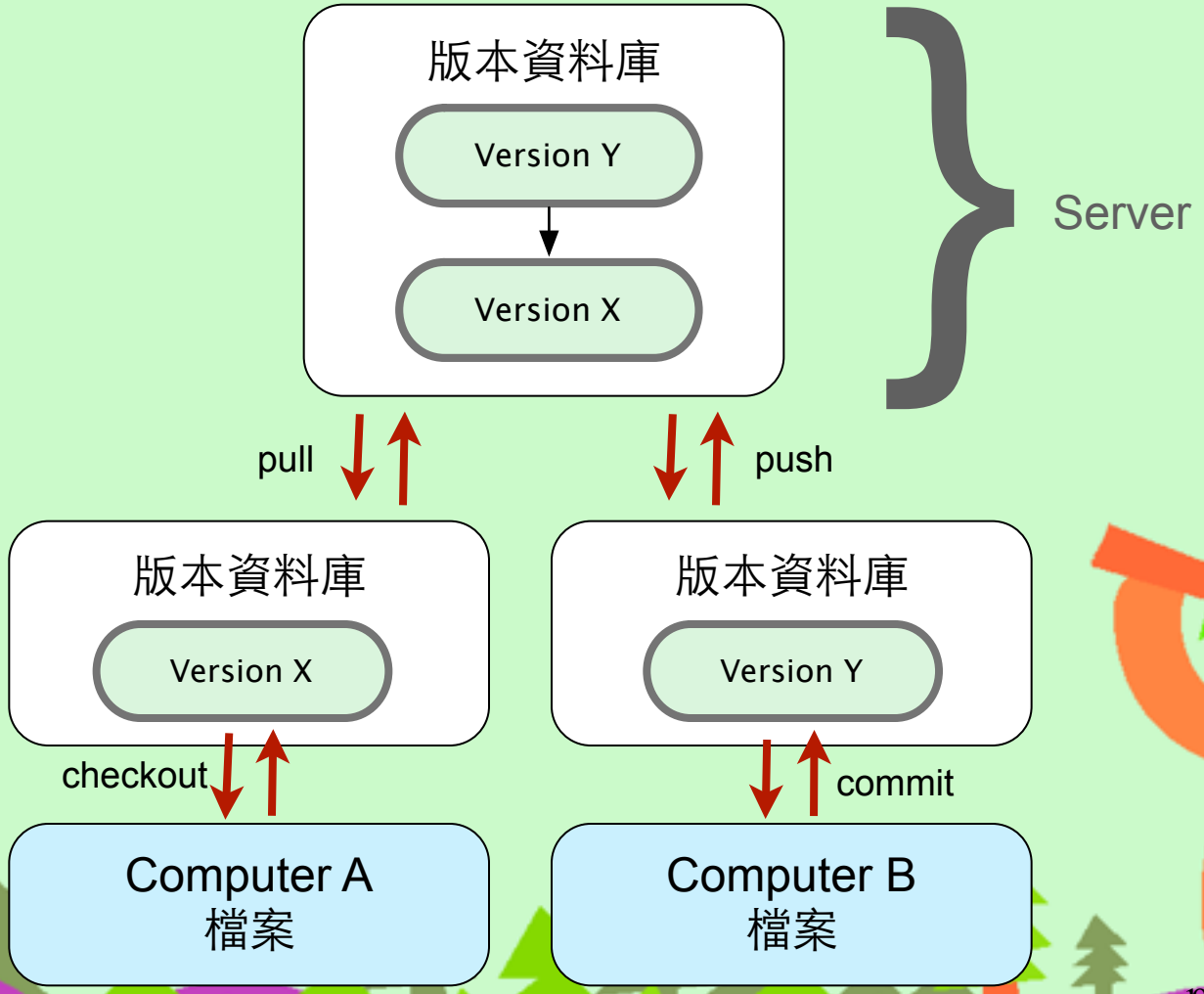

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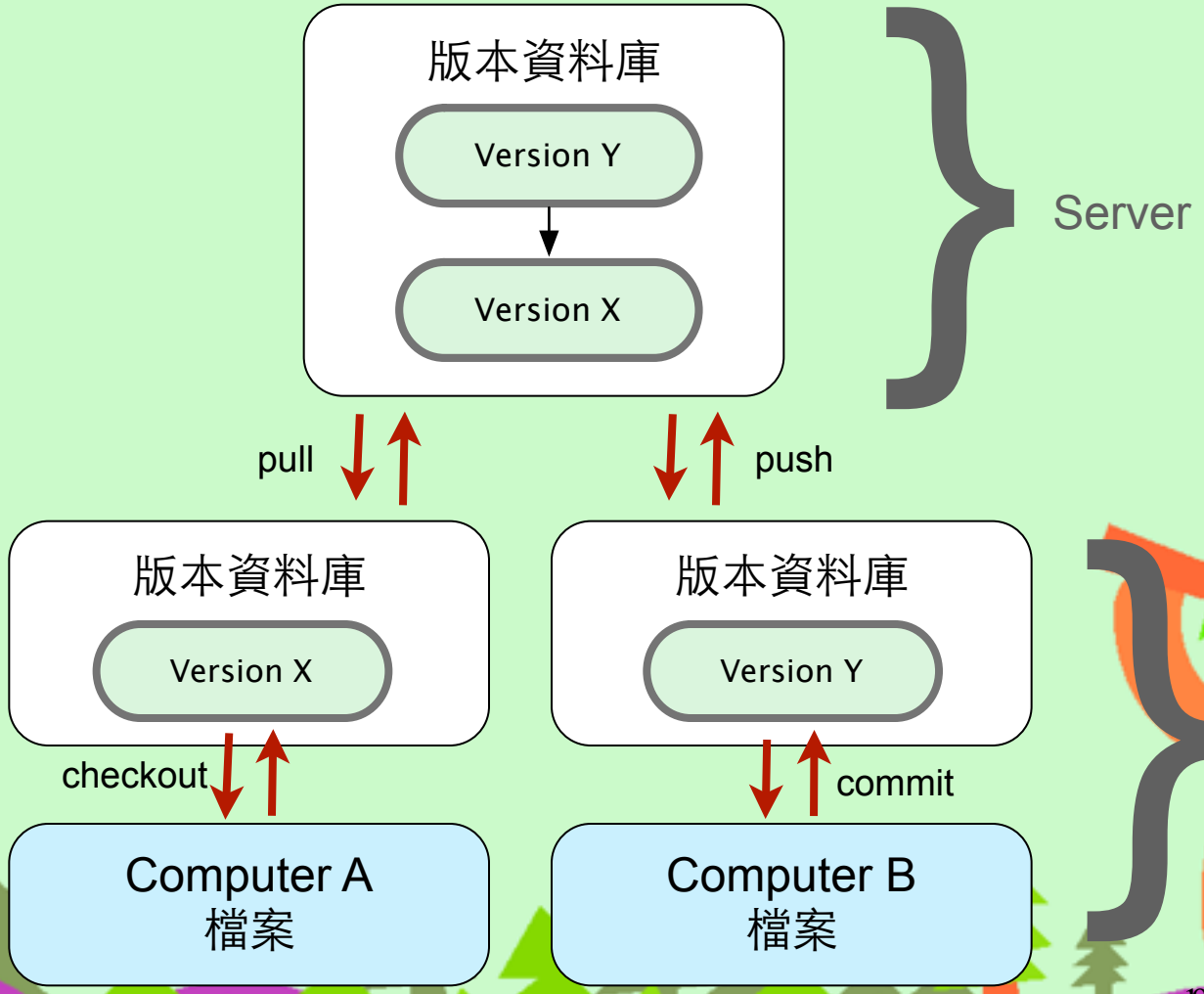

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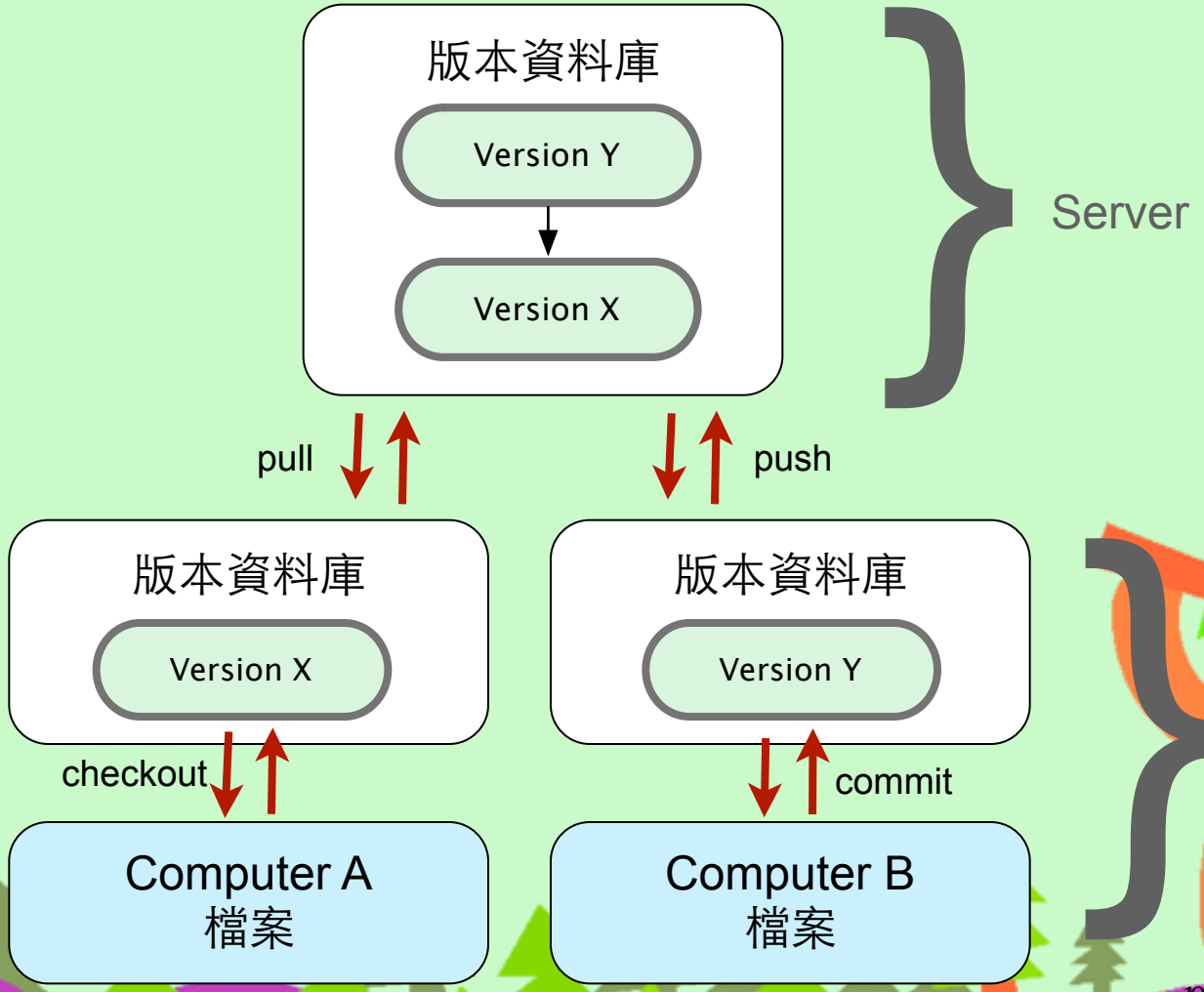

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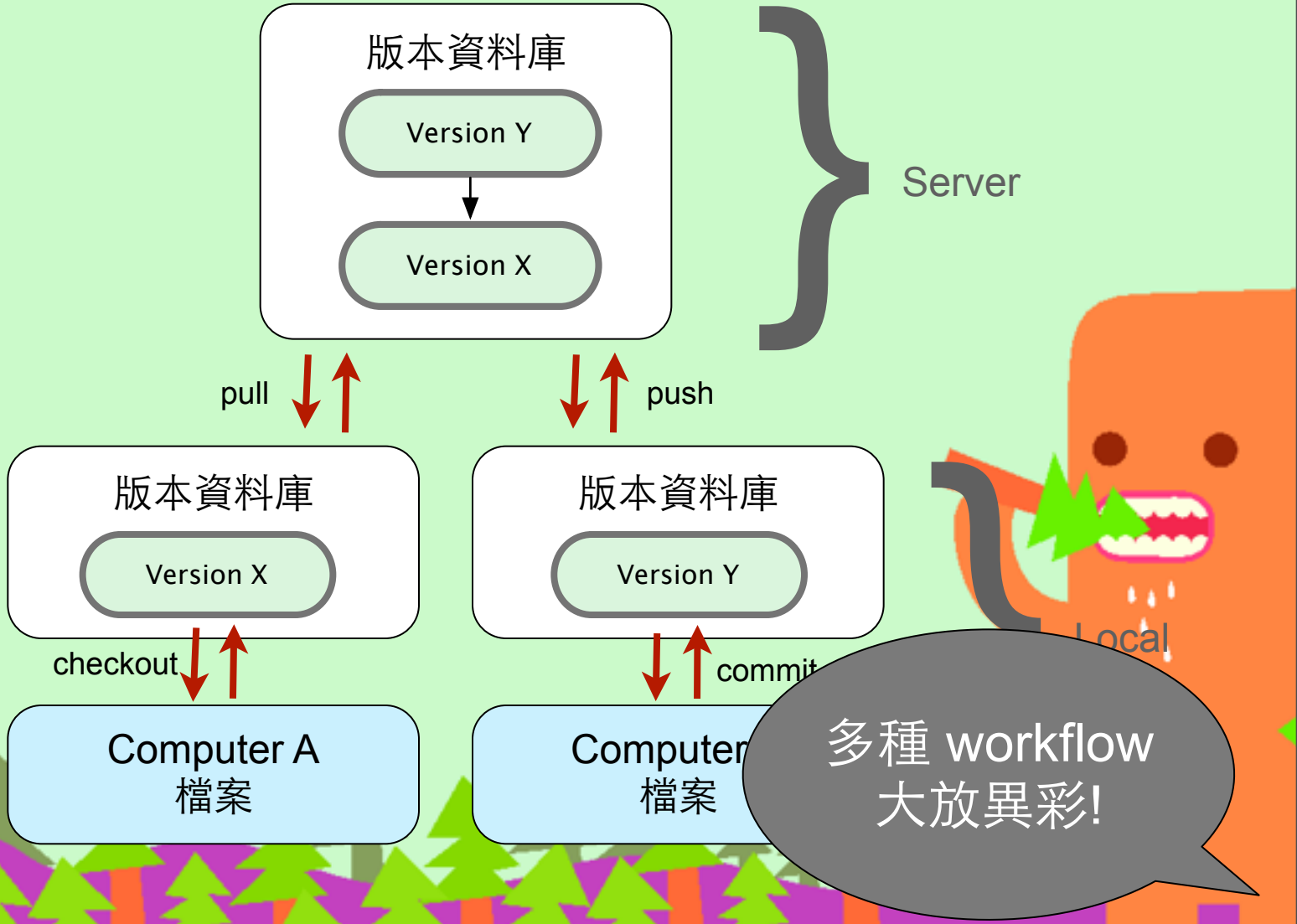


Local development

- 集中式的VCS 系統，沒網路就不能開發，無法 commit，無法看 history log。
  - 坐高鐵，坐飛機的時候
  - 網路故障的時候
  - 咖啡店沒有無線網路的時候
- 分散式 CSV 系統即使沒網路，照常可以 commit 和看 history log。
- 不用擔心server備份

2. Git 簡介

Git

- 開放源碼的分散式版本管理系統(DVCS)
- 發明人 Linux Torvalds (Linux creator)
- 目的是管理 Linux Kernel 原始碼
- 2005/4 開始開發，2005/6 開始管理 Linux Kernel，2005/12 釋出 1.0 版

誰在用 Git?

- Git
- Linux Kernel
- Perl
- Eclipse
- Gnome
- KDE
- Qt
- Ruby on Rails
- Android
- PostgreSQL
- Debian
- X.org

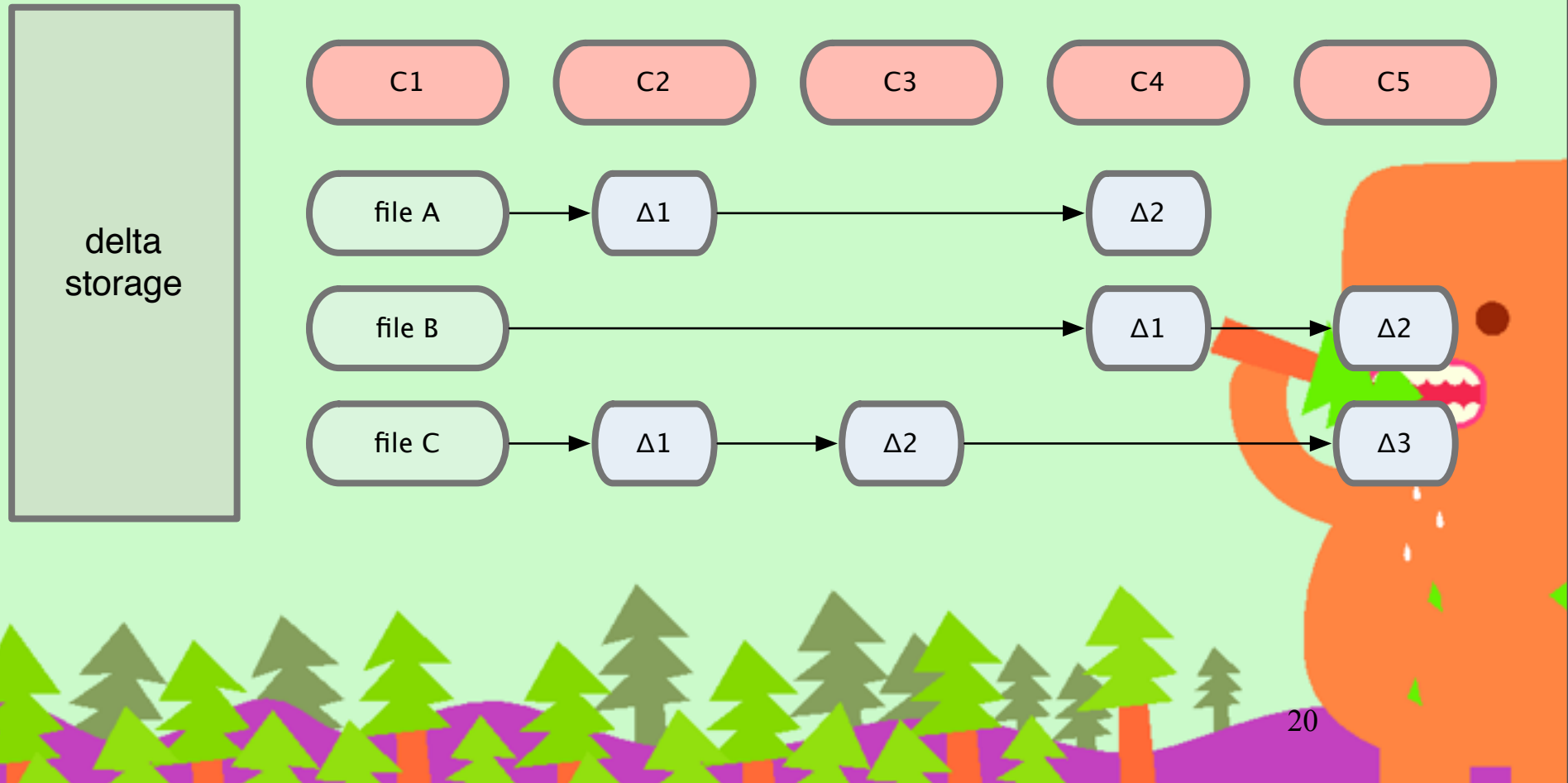
Why Git is Better than X

http://thkoch2001.github.com/whygitisbetter/

- 便宜快速的本地分支
- 所有內容都在本地端
- Git 很快
- Git 很省空間
- Staging 功能
- 它是分散式的
- 適用任何工作流程
- 我們有 GitHub!

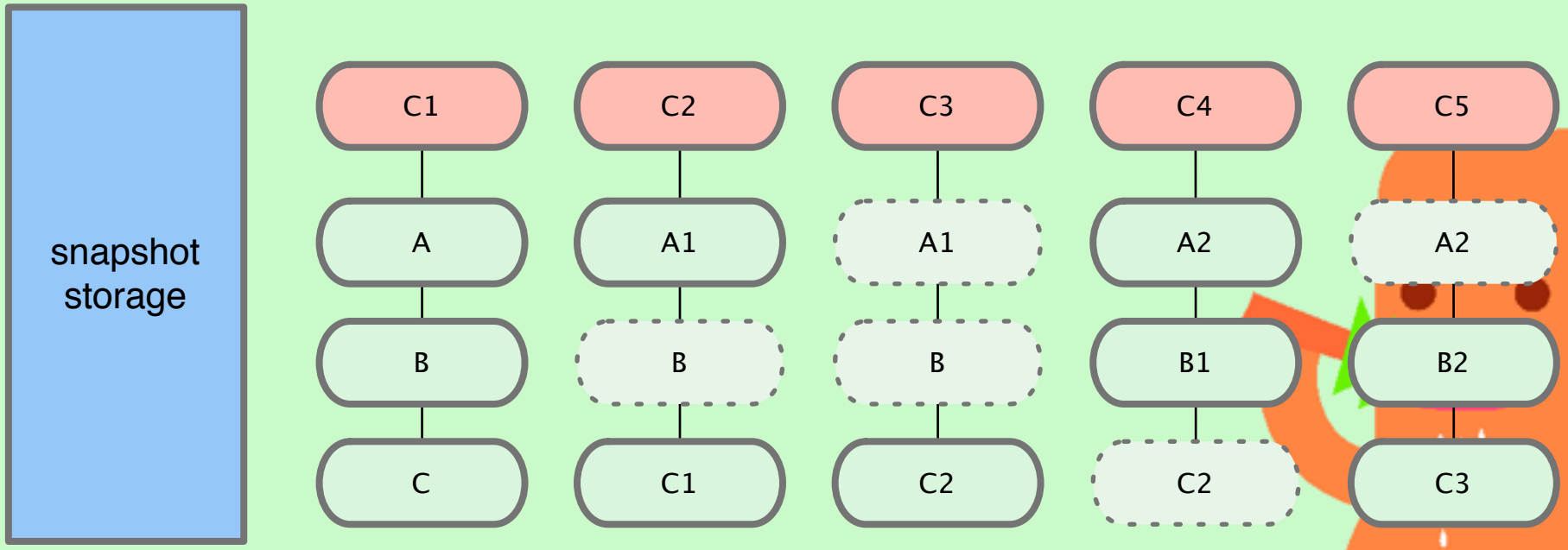
傳統 Delta 儲存方式

記錄每次檔案變更，開分支需要建立副本。



DAG 儲存方式 (DAG: Directed acyclic graph)

利用有向無環圖來記錄 metadata 建構出 snapshots 。
相同內容只會有一份記錄。



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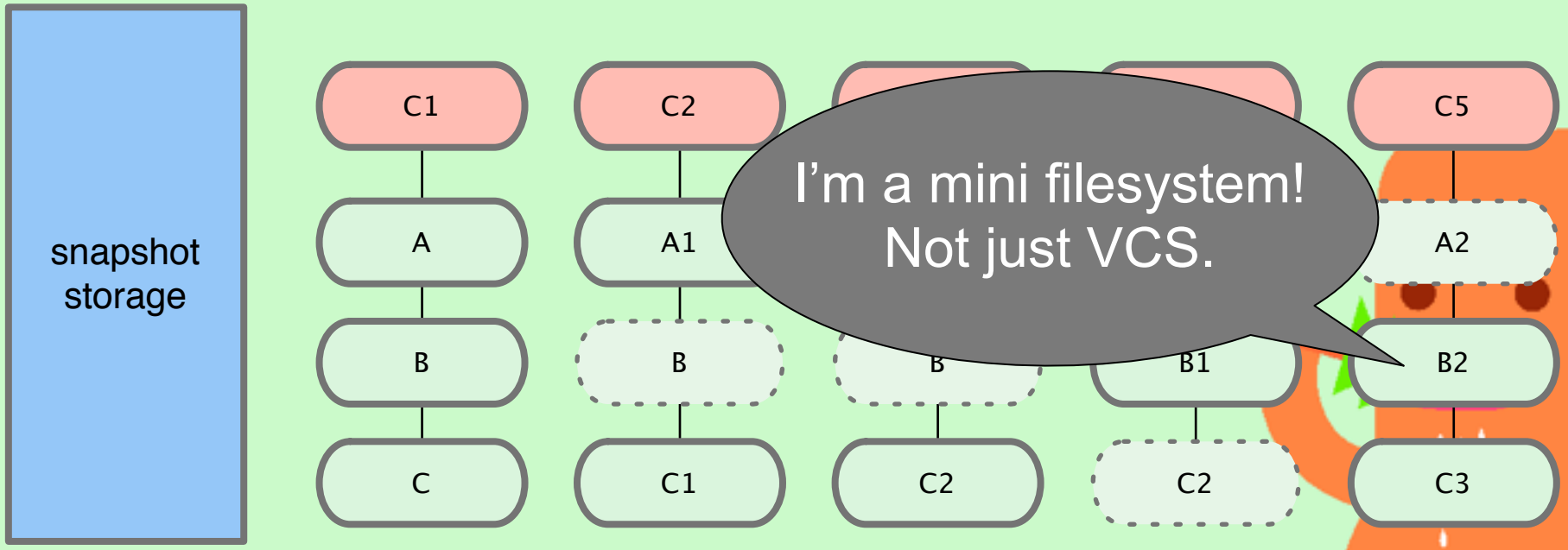

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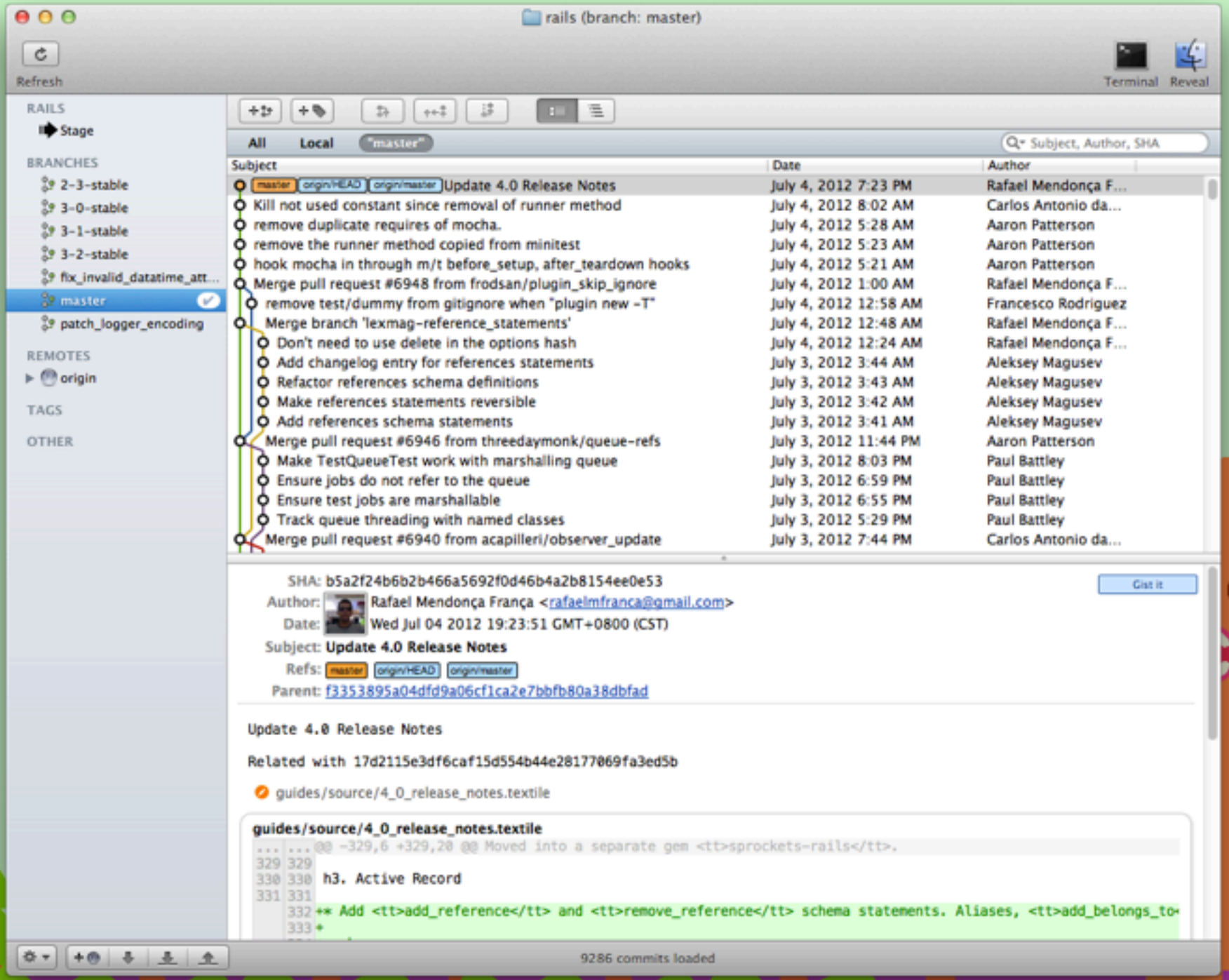
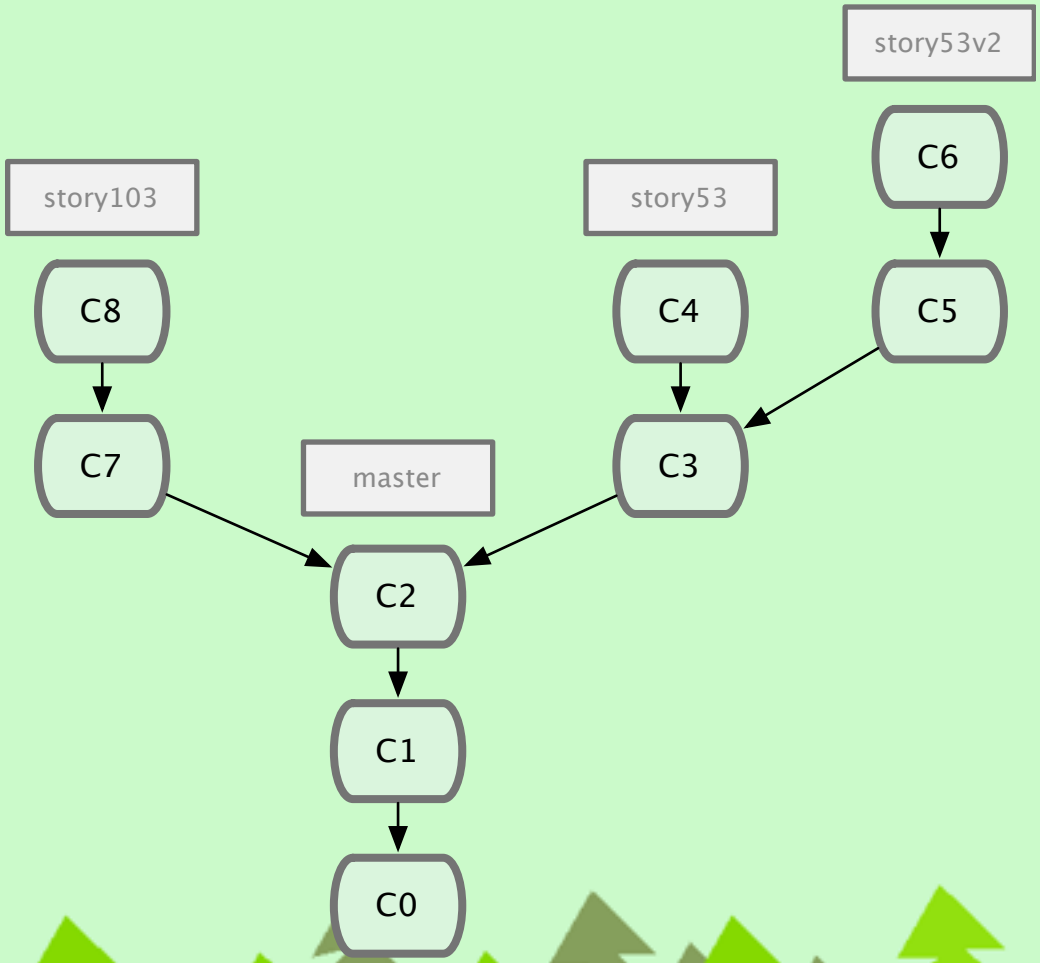

rails (branch: master)
Refresh
Terminal
Reveal
RAILS
Stage
BRANCHES
2-3-stable
3-0-stable
3-1-stable
3-2-stable
fix_invalid_datatime_att...
master
patch_logger_encoding
REMOTES
origin
TAGS
OTHER
All
Local
"master"
Subject, Author, SHA
Subject
Date
Author
master origin/HEAD origin/master Update 4.0 Release Notes July 4, 2012 7:23 PM Rafael Mendonça F...
Kill not used constant since removal of runner method July 4, 2012 8:02 AM Carlos Antonio da...
remove duplicate requires of mocha. July 4, 2012 5:28 AM Aaron Patterson
remove the runner method copied from minitest July 4, 2012 5:23 AM Aaron Patterson
hook mocha in through m/t before_setup, after_teardown hooks July 4, 2012 5:21 AM Aaron Patterson
Merge pull request #6948 from frodsan/plugin_skip_ignore July 4, 2012 1:00 AM Rafael Mendonça F...
remove test/dummy from gitignore when "plugin new -T" July 4, 2012 12:58 AM Francesco Rodriguez
Merge branch 'lexmag-reference_statements' July 4, 2012 12:48 AM Rafael Mendonça F...
Don't need to use delete in the options hash July 4, 2012 12:24 AM Rafael Mendonça F...
Add changelog entry for references statements July 3, 2012 3:44 AM Aleksey Magusev
Refactor references schema definitions July 3, 2012 3:43 AM Aleksey Magusev
Make references statements reversible July 3, 2012 3:42 AM Aleksey Magusev
Add references schema statements July 3, 2012 3:41 AM Aleksey Magusev
Merge pull request #6946 from threedaymonk/queue-refs July 3, 2012 11:44 PM Aaron Patterson
Make TestQueueTest work with marshalling queue July 3, 2012 8:03 PM Paul Battley
Ensure jobs do not refer to the queue July 3, 2012 6:59 PM Paul Battley
Ensure test jobs are marshallable July 3, 2012 6:55 PM Paul Battley
Track queue threading with named classes July 3, 2012 5:29 PM Paul Battley
Merge pull request #6940 from acapilleri/observer_update July 3, 2012 7:44 PM Carlos Antonio da...
SHA: b5a2f24b6b2b466a5692f0d46b4a2b8154ee0e53
Gist it
Author: Rafael Mendonça França <rafaelmfranca@gmail.com>
Date: Wed Jul 04 2012 19:23:51 GMT+0800 (CST)
Subject: Update 4.0 Release Notes
Refs: master origin/HEAD origin/master
Parent: f3353895a04dfd9a06cf1ca2e7bbfb80a38dbfad
Update 4.0 Release Notes
Related with 17d2115e3df6caf15d554b44e28177069fa3ed5b
guides/source/4_0_release_notes.textile
guides/source/4_0_release_notes.textile
@@ -329,6 +329,20 @@ Moved into a separate gem <tt>sprockets-rails</tt>.
h3. Active Record
** Add <tt>add_reference</tt> and <tt>remove_reference</tt> schema statements. Aliases, <tt>add_belongs_to</tt>
*
9286 commits loaded

Git graph example



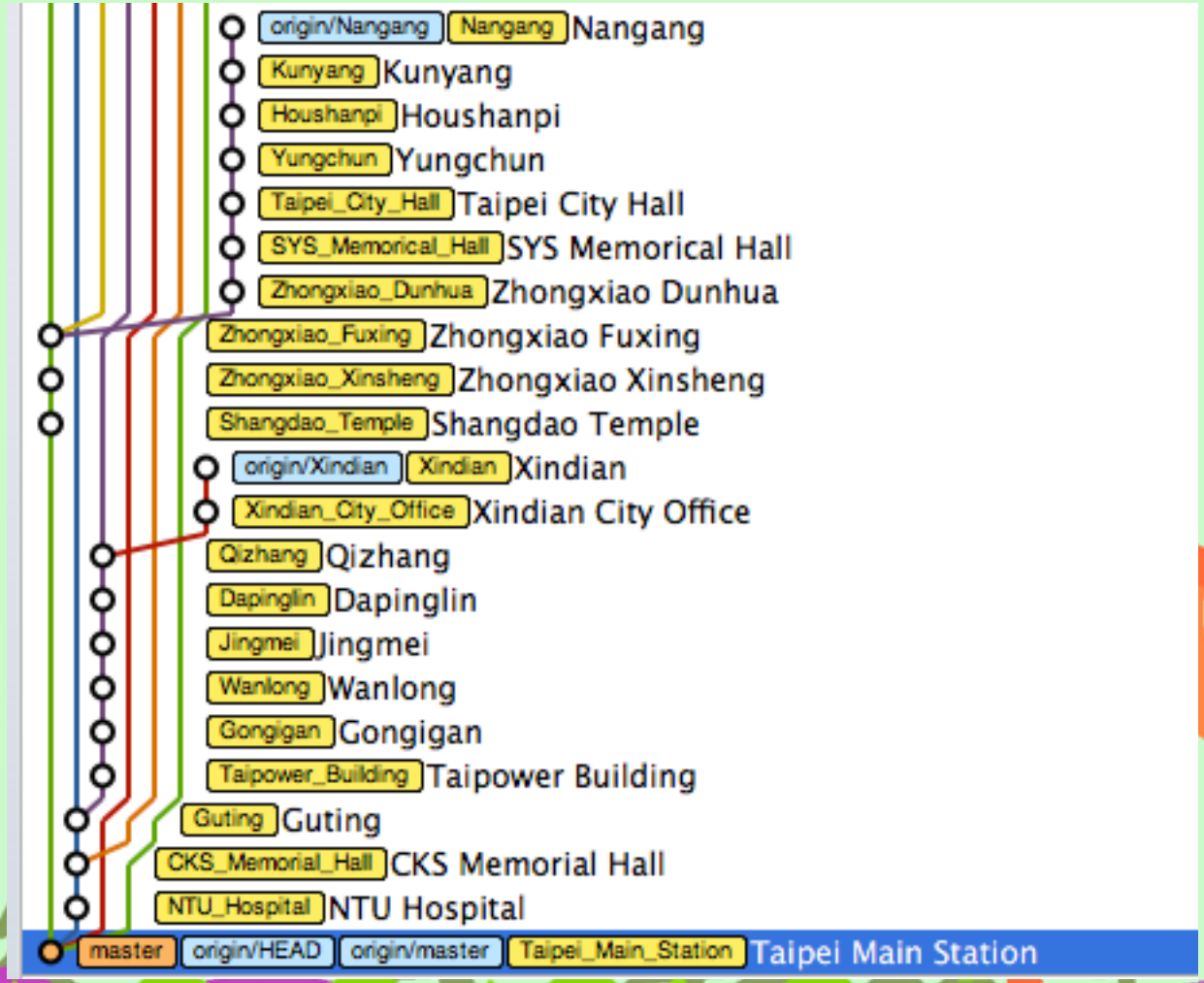
@KentBeck
Kent Beck

finally figuring out that git commands are strangely named graph manipulation commands--creating/deleting nodes, moving pointers around

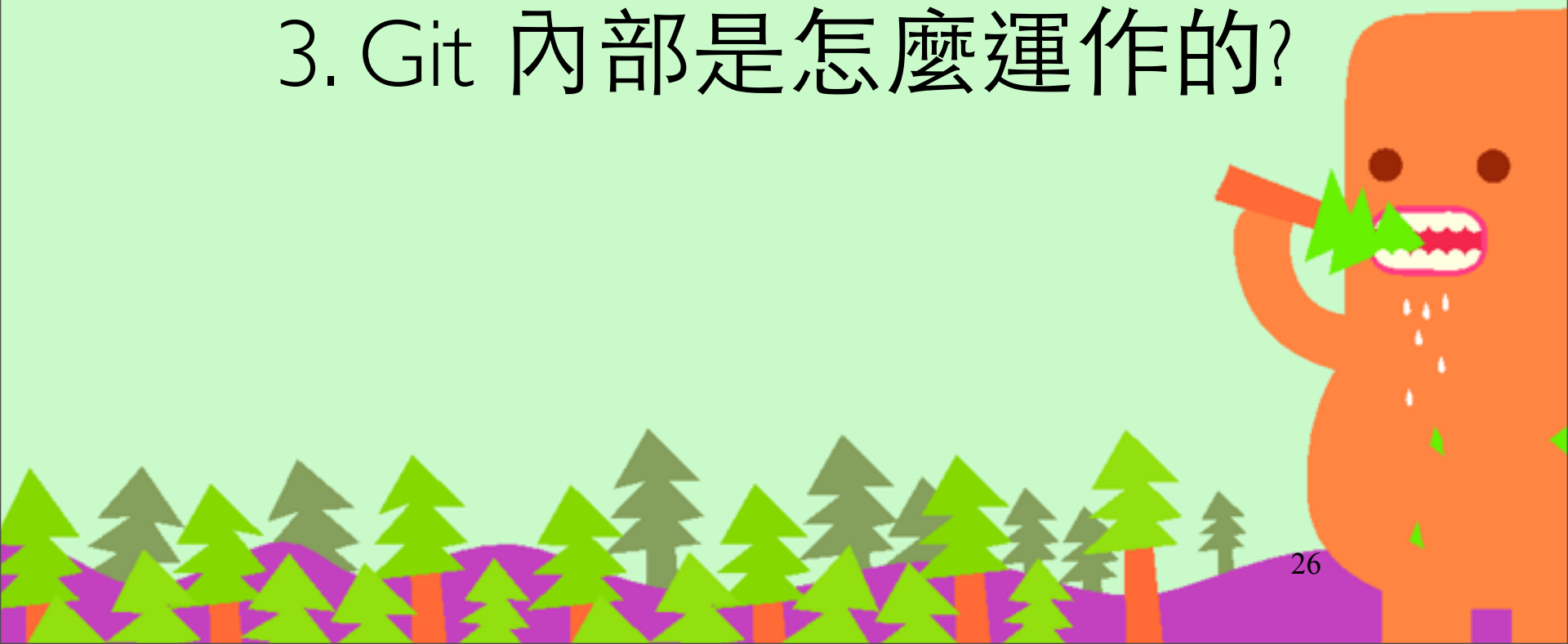
1 Mar via TweetDeck ★ Unfavorite ↻ Retweet ↩ Reply

用 Git 表示台北捷運

http://gugod.org/2009/12/git-graphing/



3. Git 內部是怎麼運作的?



Git SHA1 (demo)

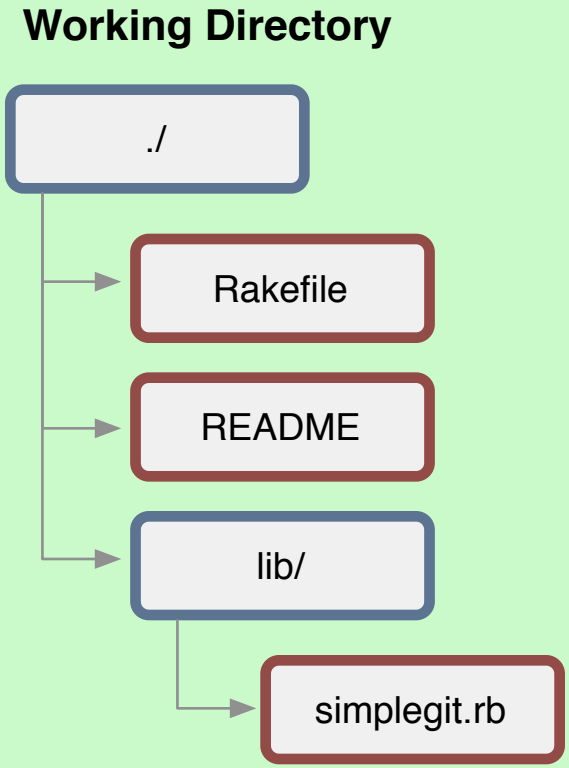
- echo sweet > sweet.txt
- git add .
- find .git/objects -type f
- Git 內部儲存在 .git/objects/aa/823728ea7d592acc69b36875a482cdf3fd5c8d
- 這是 "blob" SP "6" NUL "sweet" LF 的 SHA1
- printf "blob 6\000sweet\n" | shasum
  - 或 echo 'sweet' | git hash-object -w --stdin
- git cat-file -p aa823728ea7d592acc69b36875a482cdf3fd5c8d

http://www-cs-students.stanford.edu/~blynn/gitmagic/ch08.html

Git is Content Tracker

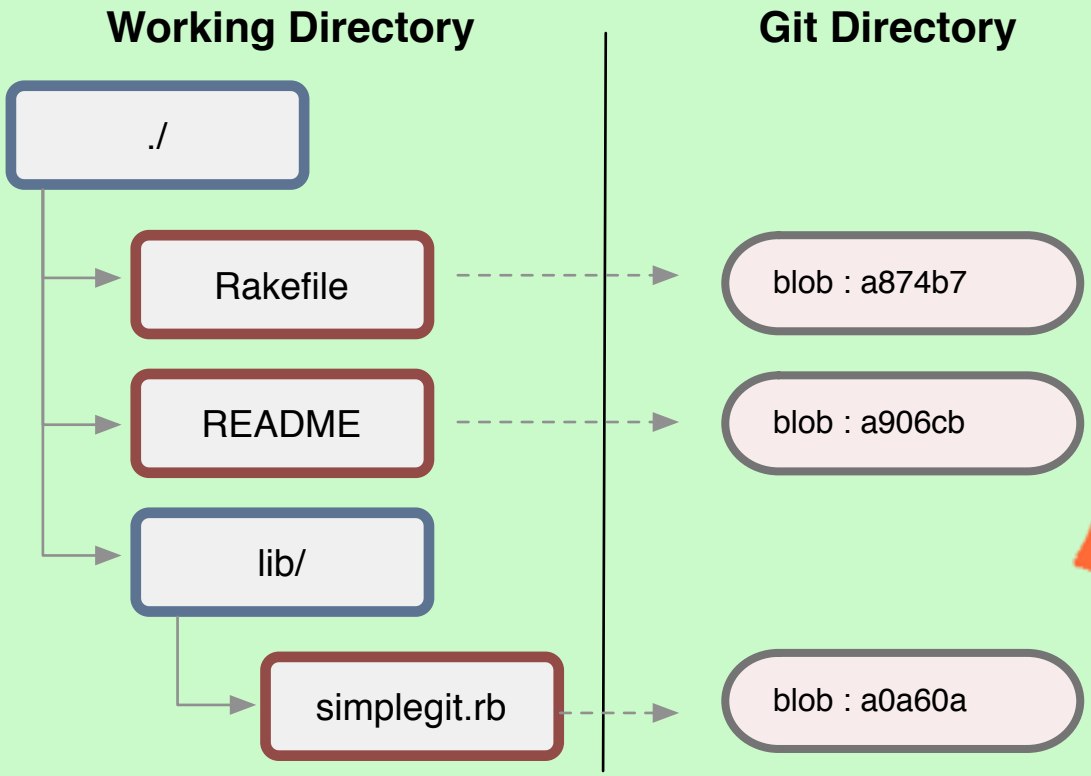
- Git is content-addressable filesystem
- SHA1 是根據內容產生的，跟檔名無關
  - 內容一樣的檔案，可以 reuse，例如 revert 的情況
  - 解耦合(decouple)了內容與當時的檔名
- Git 有四種 Objects 記錄內容：Blob、Tree、Commit、Tag

Git Object Database



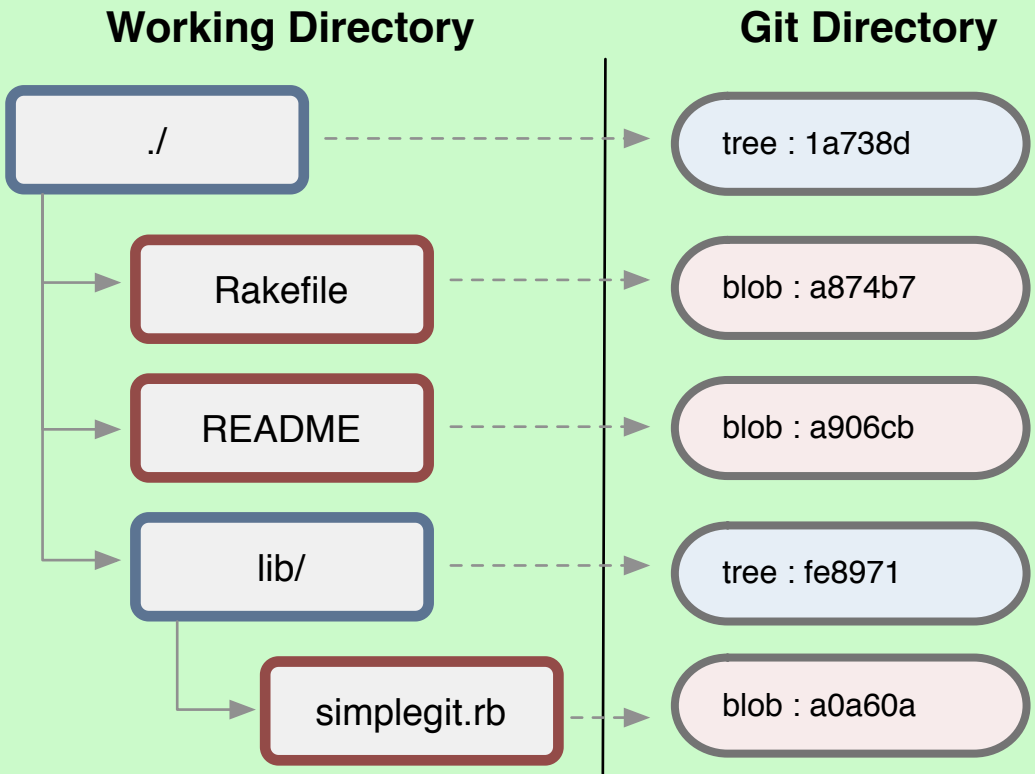
Blob

記錄檔案內容


Working Directory
Git Directory
./
Rakefile
README
lib/
simplegit.rb
blob : a874b7
blob : a906cb
blob : a0a60a

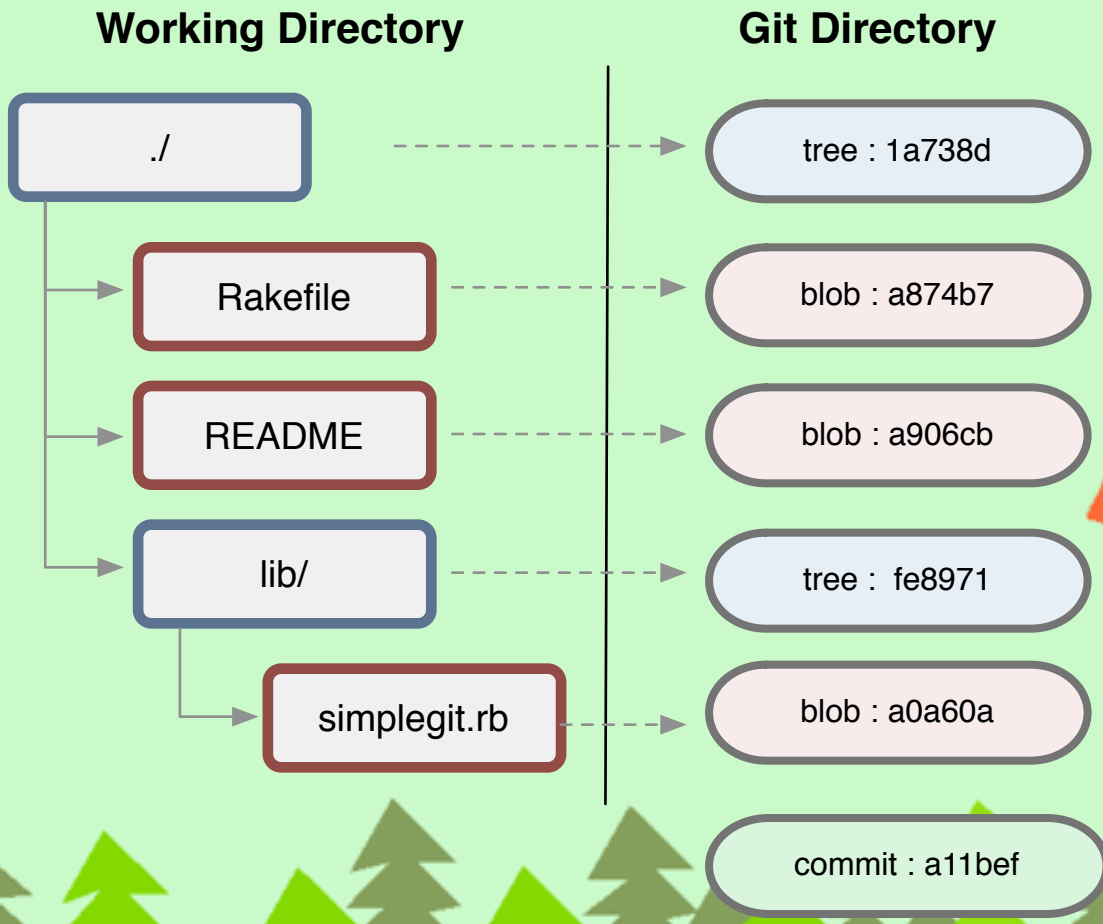
Tree

記錄該目錄下有哪些檔案(檔名、內容的SHA1)和Trees

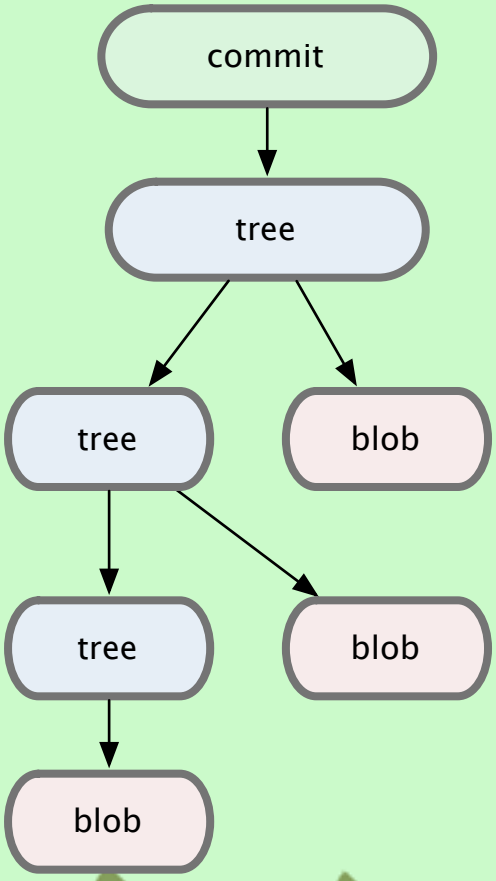


Commit

記錄 commit 訊息、Root tree 和 Parent commits 的 SHA1

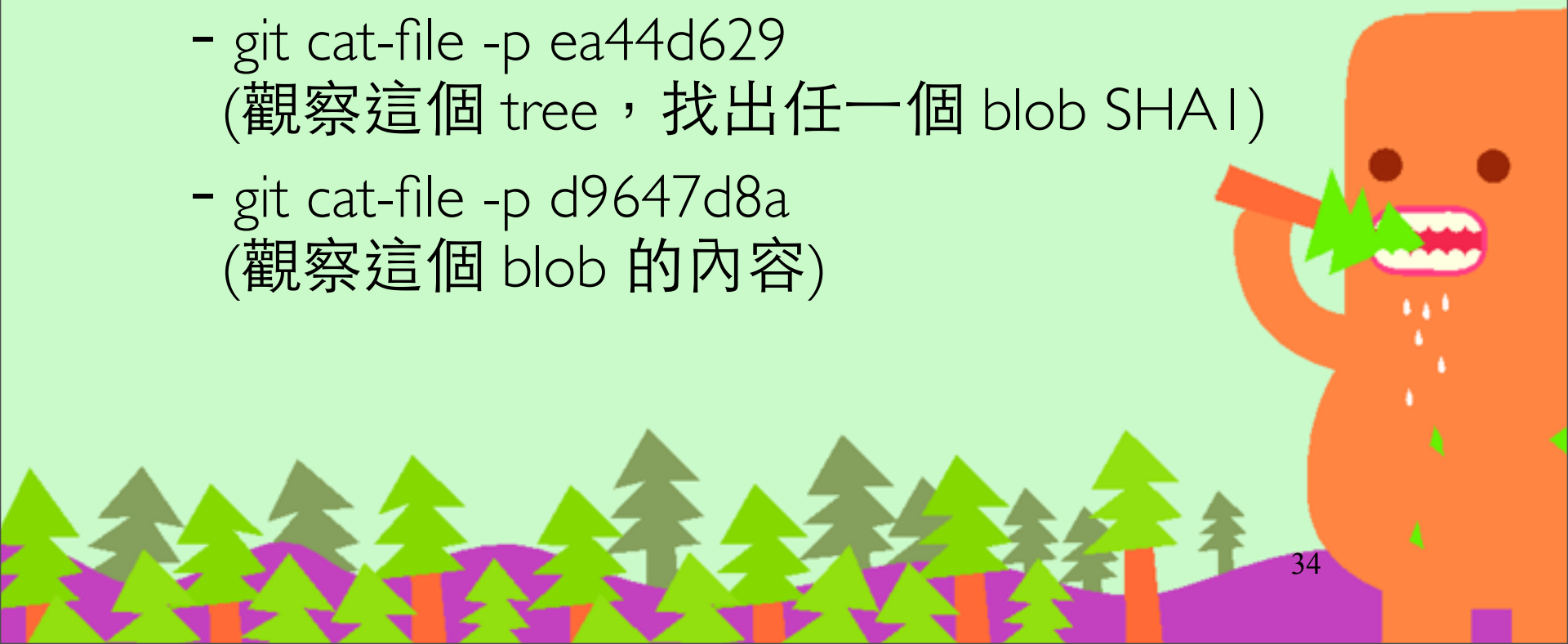


Object DAG Example

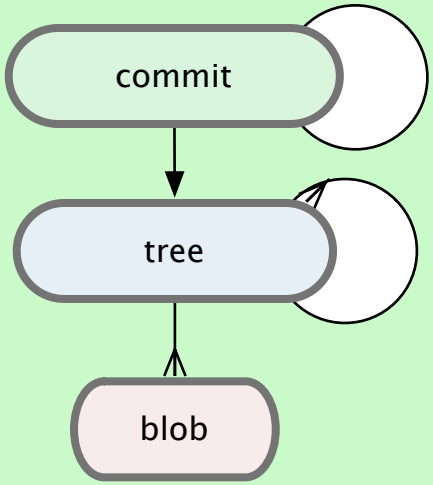


Trace Git commit (demo)

- 隨便抓一個 Commit 的 SHA1 開始：
  - git cat-file -p a08181bf3
    (觀察這個 commit，找出 tree 位置)
  - git cat-file -p ea44d629
    (觀察這個 tree，找出任一個 blob SHA1)
  - git cat-file -p d9647d8a
    (觀察這個 blob 的內容)



Object DAG Model

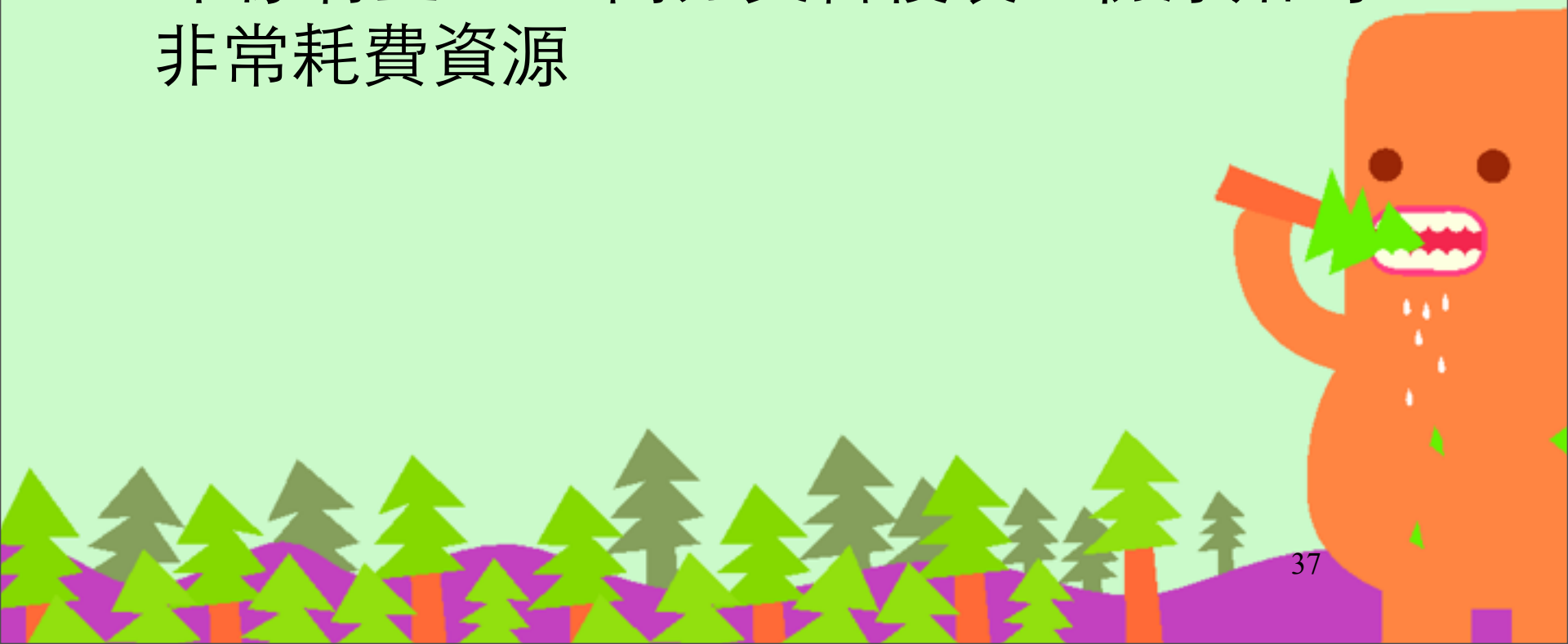


參照 refs

- Reference 會指向一個 Commit
- tag 不會移動，指向的 commit 都一樣
  - (帶有額外資訊的 tag 內部會用 Object 儲存)
- branch 指向該 branch 最新的 commit
- HEAD 指向 current branch

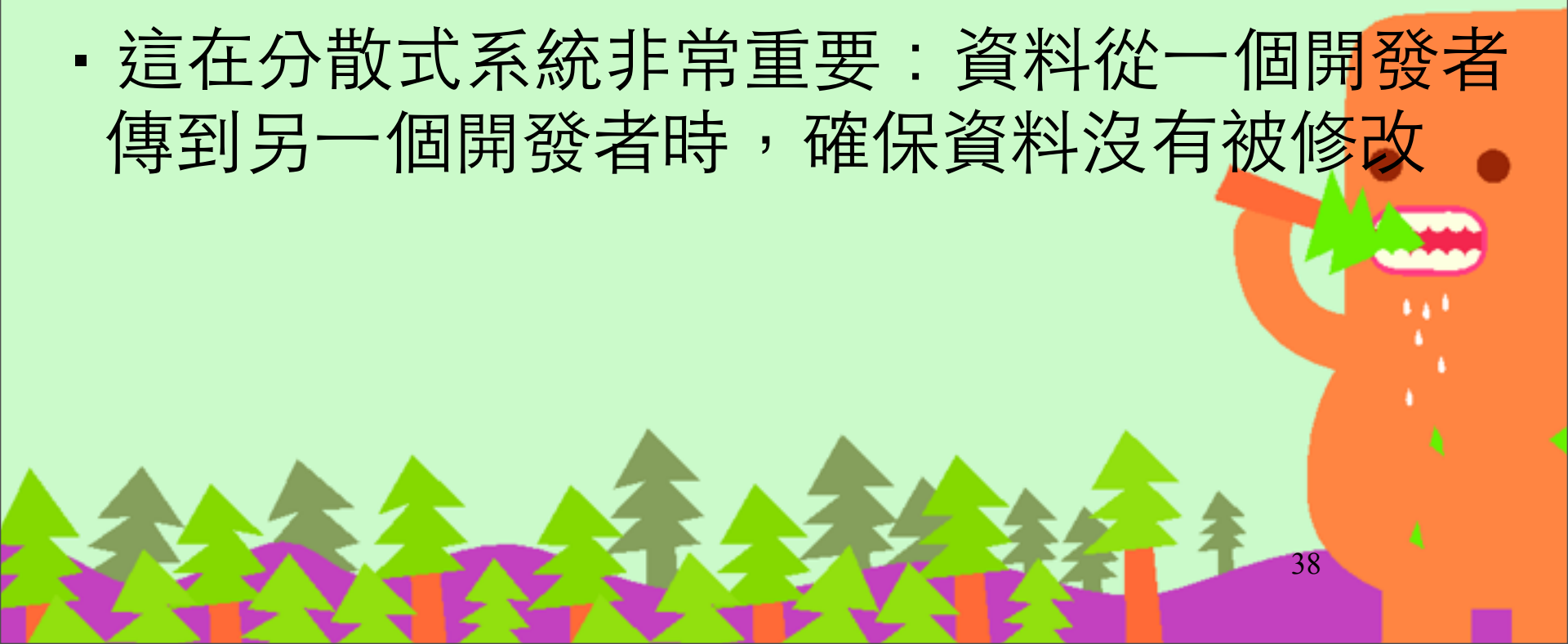
Reference is cheap!

- 開新 branch 和 tag 只不過是 refs 而已，直到真的有 commit 前都沒有什麼負擔
- 不像有些 CSV 開分支會複製一份原始碼，非常耗費資源

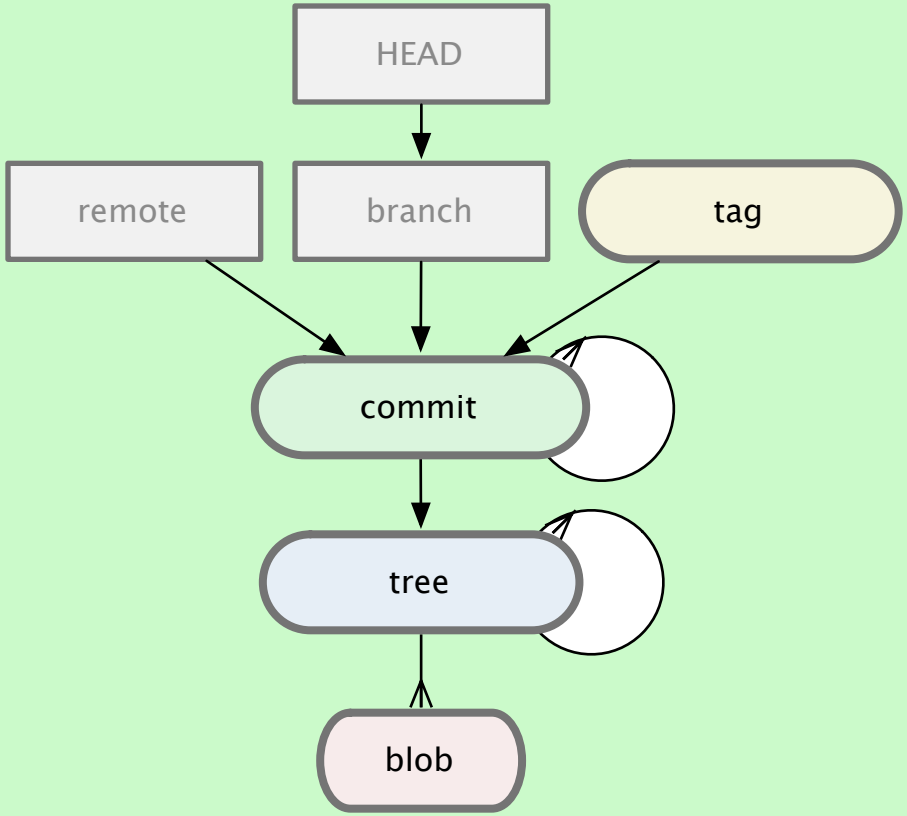


Integrity

- SHA1 是內容的 checksum
- Integrity: 如果檔案內容有損毀，就會發現跟 SHA1不同。如果 tree 改檔名，也會被發現。
- 這在分散式系統非常重要：資料從一個開發者傳到另一個開發者時，確保資料沒有被修改



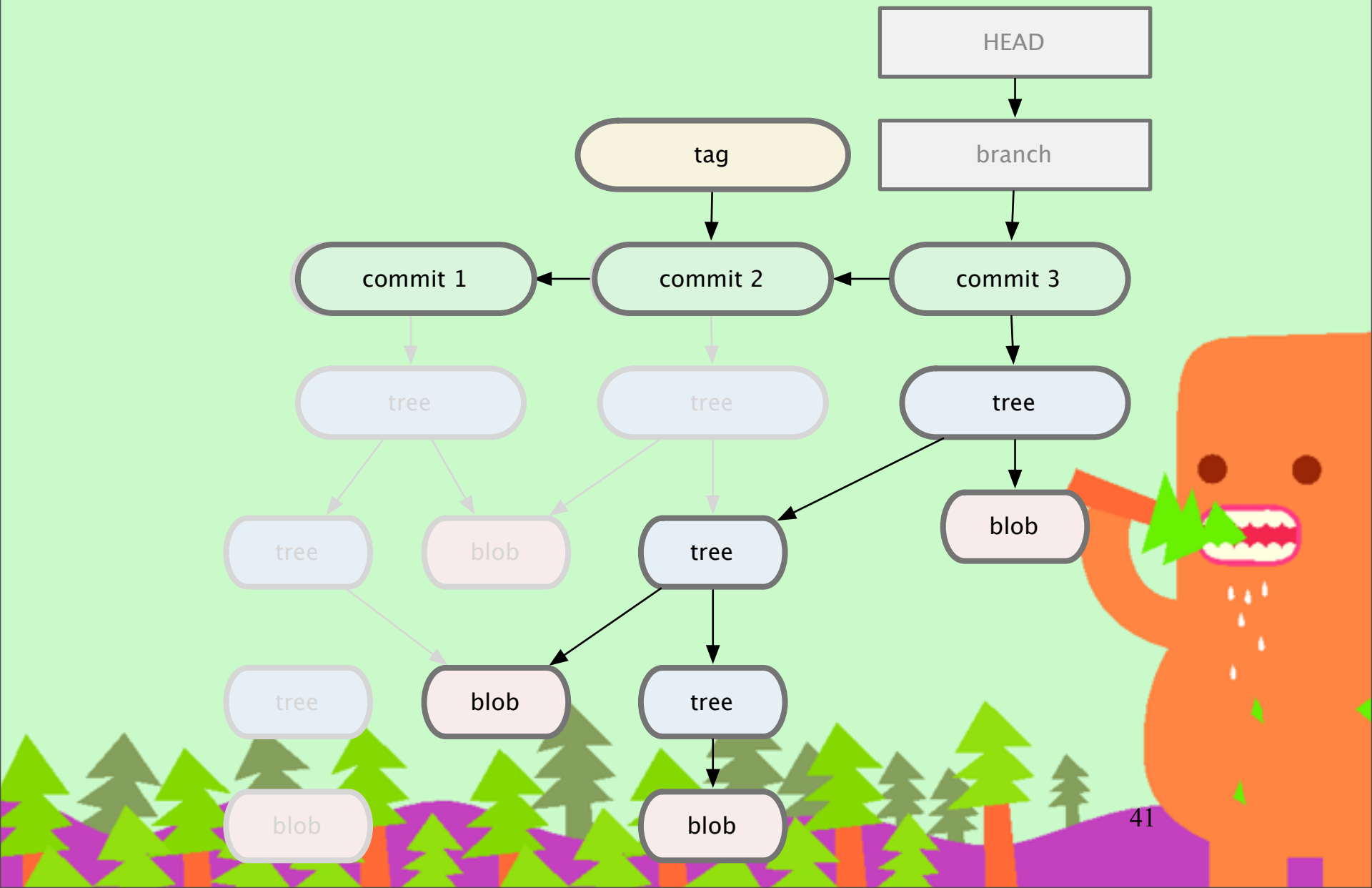
Object DAG Model



Trace Git branch (demo)

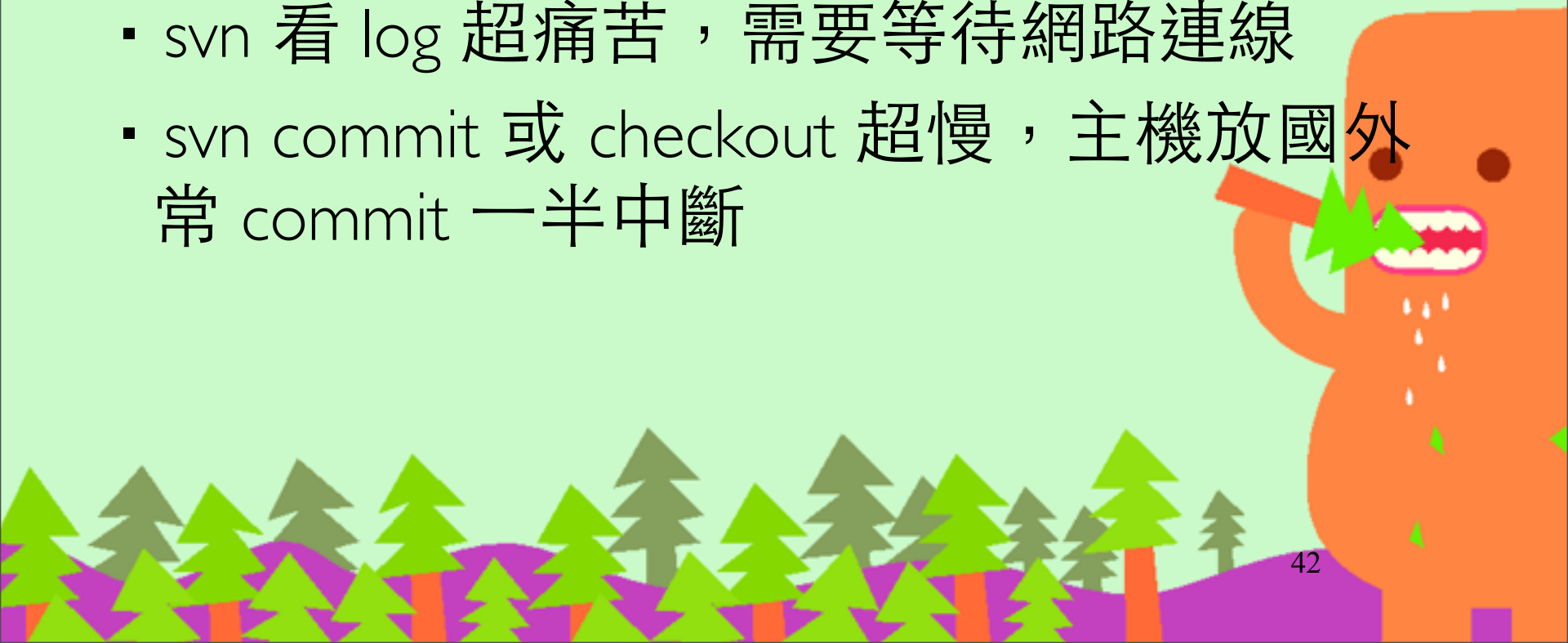
- cat .git/HEAD 拿到目前工作目錄 current branch 是指向哪一個 branch
- cat .git/refs/heads/master 拿到 master branch 指向的 commit
- cat .git/refs/tags/foobar 拿到 foobar tag 指向的 commit

Object DAG Full Example



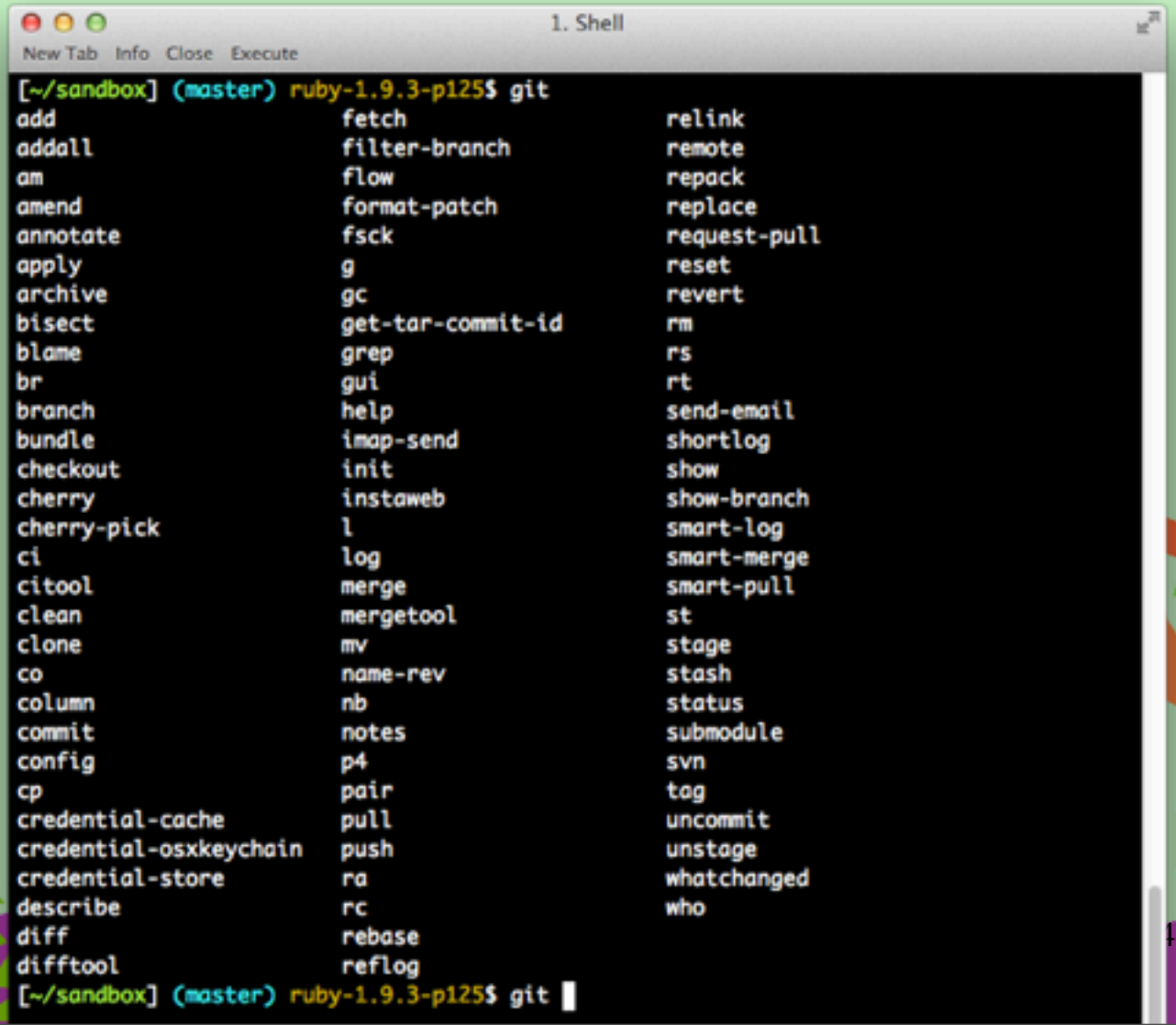
自從用了 Git，就再也不會想用 SVN 了

- svn 開分支和 merge 超痛苦，能避免開 branch 就避免開 branch
- svn 看 log 超痛苦，需要等待網路連線
- svn commit 或 checkout 超慢，主機放國外常 commit 一半中斷



4-1. Git 指令基礎

Git is a collection of command-Line utilities



Install Git

- 安装 Git
  - http://help.github.com/set-up-git-redirect
- 安装 Git GUI(optional)
  - GitX (Mac)
  - TortoiseGit/Git Extensions (Windows)
  - gitq, gitk (Linux)

Setup

- 編輯 ~/.gitconfig 或輸入以下指令
- git config --global user.name "Your Name"
- git config --global user.email "your@email.com"
- git config --global color.ui true
- git config --global core.editor "vi"

Setup (Windows only)

- 處理換行字元誤認為變更
- git config --global core.autocrlf true
- git config --global core.safecrlf true

從頭建立 Repository (demo)

- mkdir sandbox
- cd sandbox
- git init

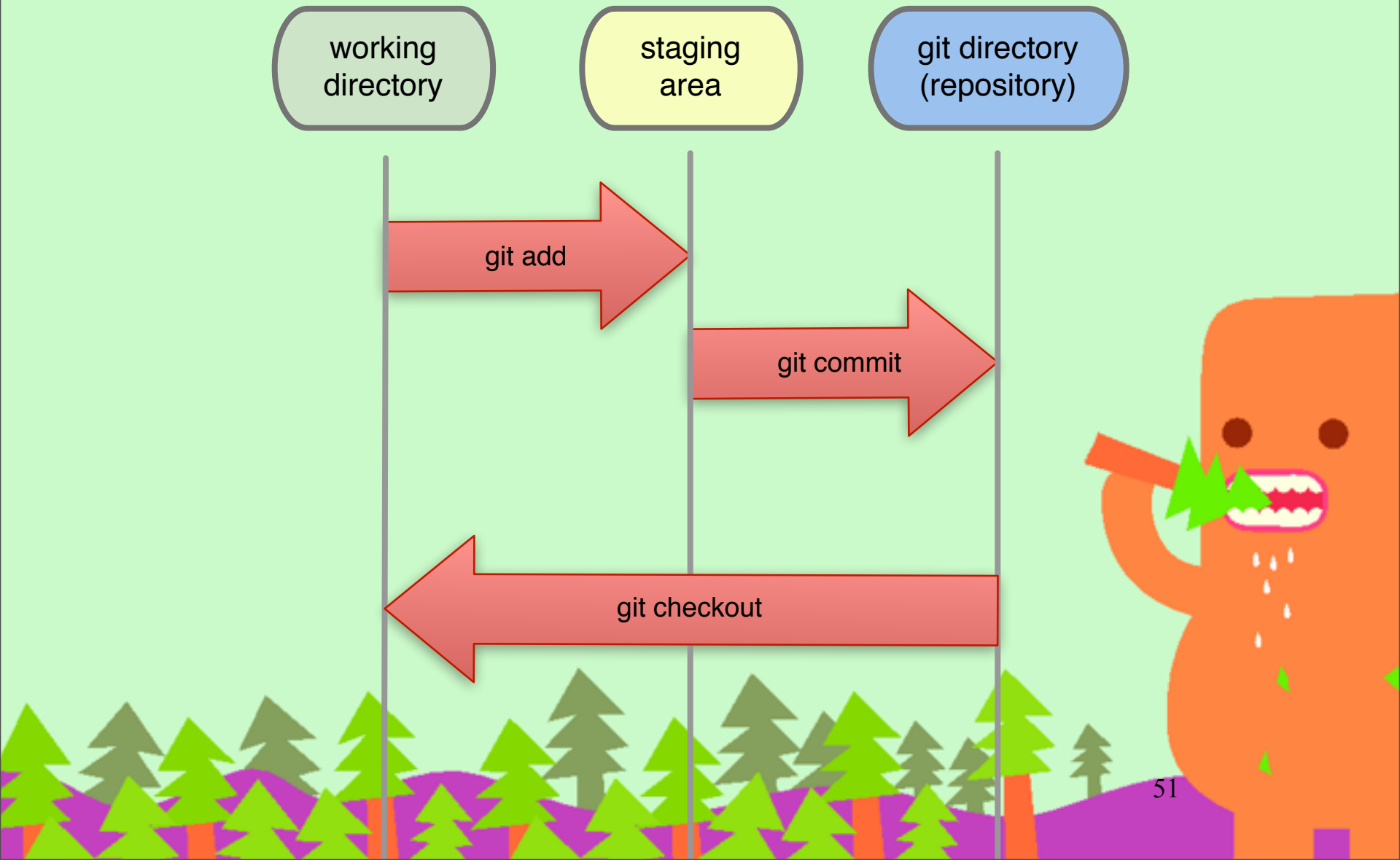
第一次 commit (demo)

- touch README
- git add README
- git status
- git commit -m “First Commit”

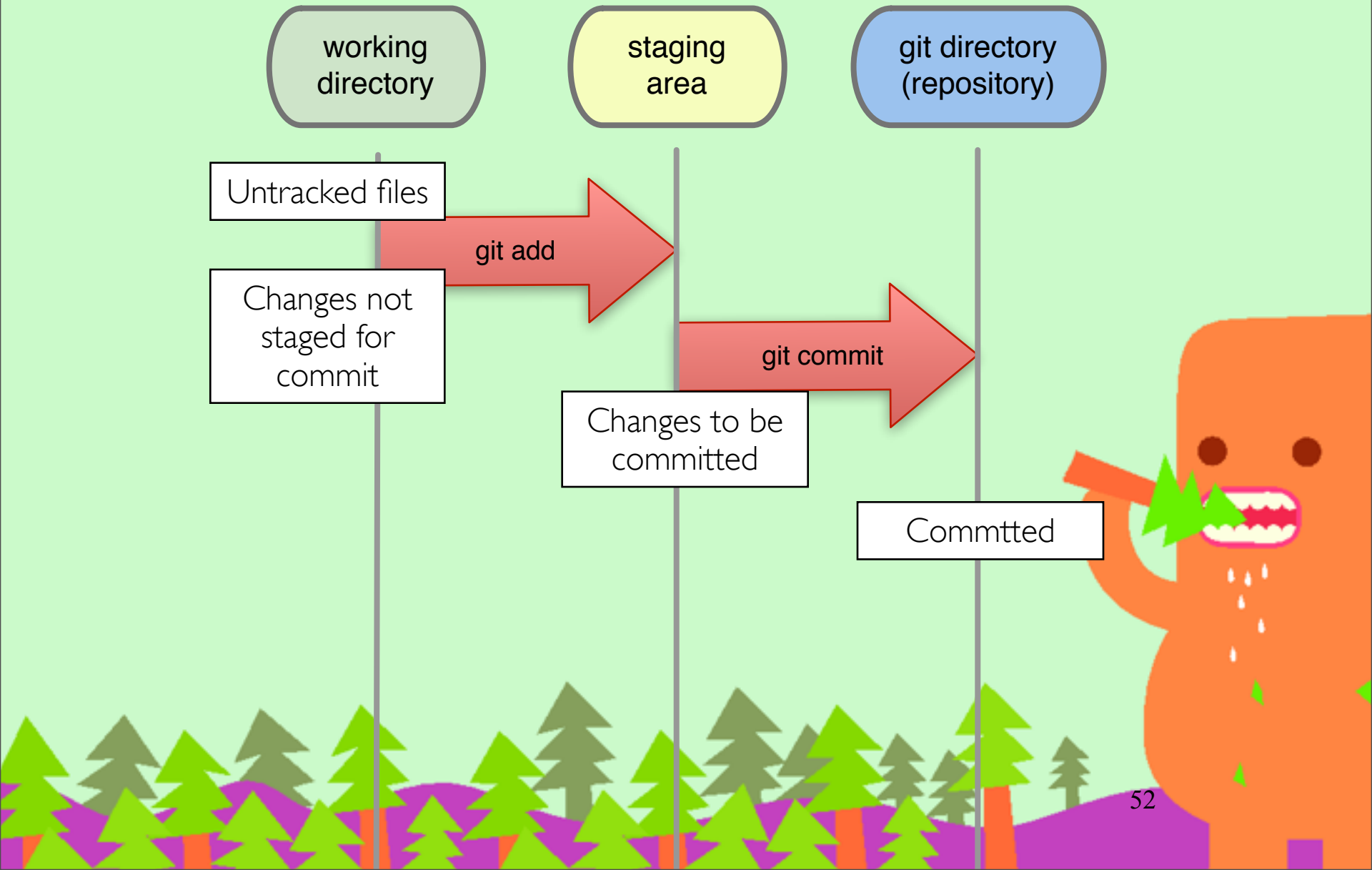
修改看看 (demo)

- 編輯 README 做些變更
- git status
- git diff
- git add .
  (一次加入所有變更跟新增檔案，但不包括刪除的檔案!)
- git status
- git diff --cached
- git commit -m “Update README”

三種區域: Working tree/Staging Area/Repository



Working tree 裡的檔案有四種狀態



Why? Staging Area

- Working tree 可能很亂，包含了想要 commit 的內容和不相關的實驗修改等
- Staging area 的設計可以讓你只 commit 想要的檔案，甚至是想要的部份修改而已
- Staging Area 又叫作 Index

只 commit 部分檔案 (demo)

- touch a.rb
- touch b.rb
- git add a.rb
- git commit “Update a”
- git add b.rb
- git commit “Update b”

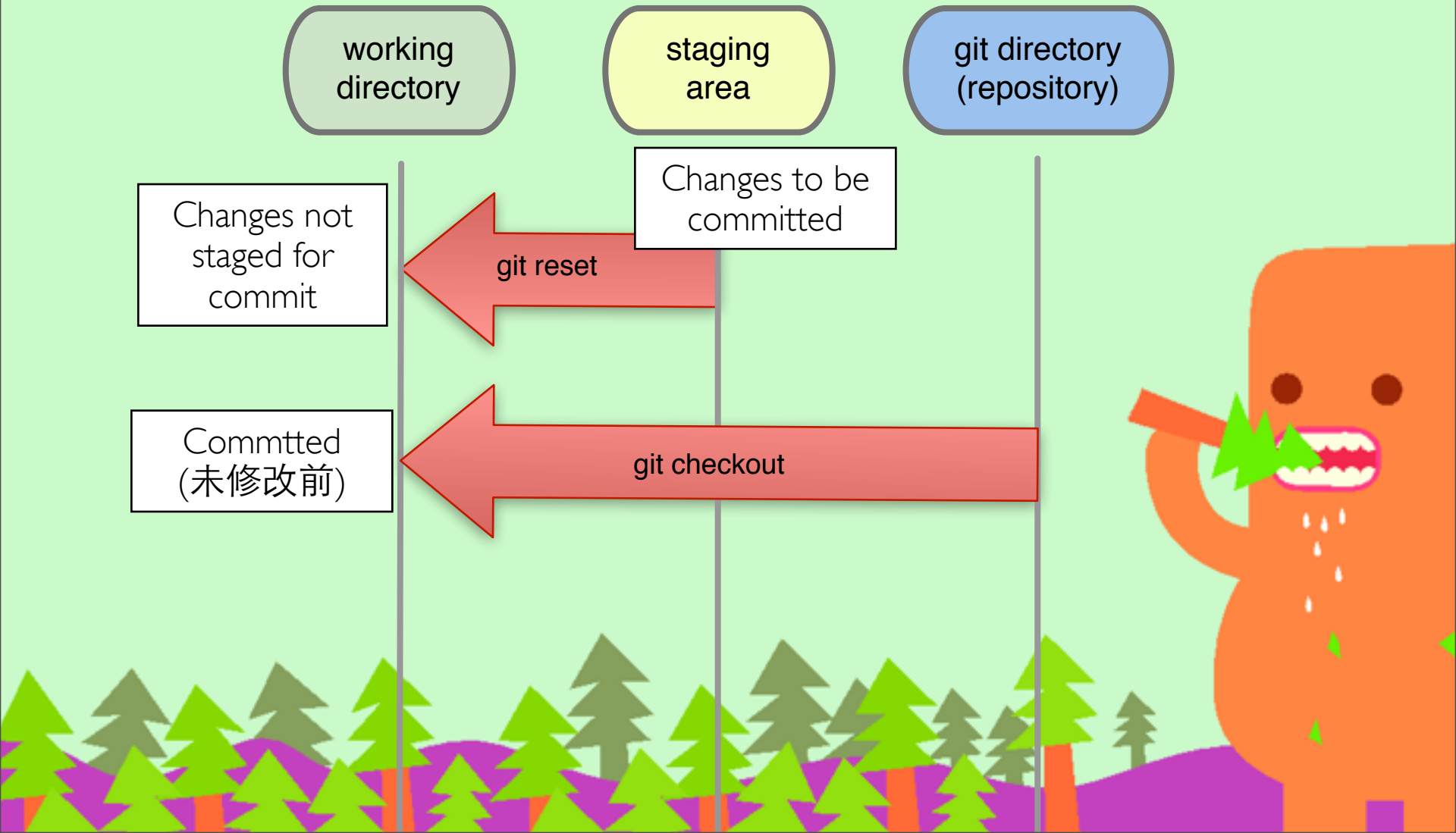
staging 之後又再修改內容 (demo)

- 修改 a.rb
- git add a.rb
- 再次修改 a.rb
- git commit -m "commit a"
  - 這時 commit 的內容是第一次修改當時的內容而已

只 commit 同一檔案部分內容 (demo)

- git add --patch
  - y 加到 staging
  - n 不要加到 staging
  - s 可以拆小一點 hunk
- 或者用 GUI 例如 gitx 來選取

在 commit 之前如何復原修改? (demo)



刪除和搬移檔案 (demo)

- git rm a.rb
- git mv b.rb c.rb
- git add .
- git commit "Remove a, Rename b to c"
- 沒有 copy？因為 Git 是追蹤內容(相同內容SHA1相同)，你只要 cp 即可，不用擔心浪費空間。

revert (還原 commit 記錄)

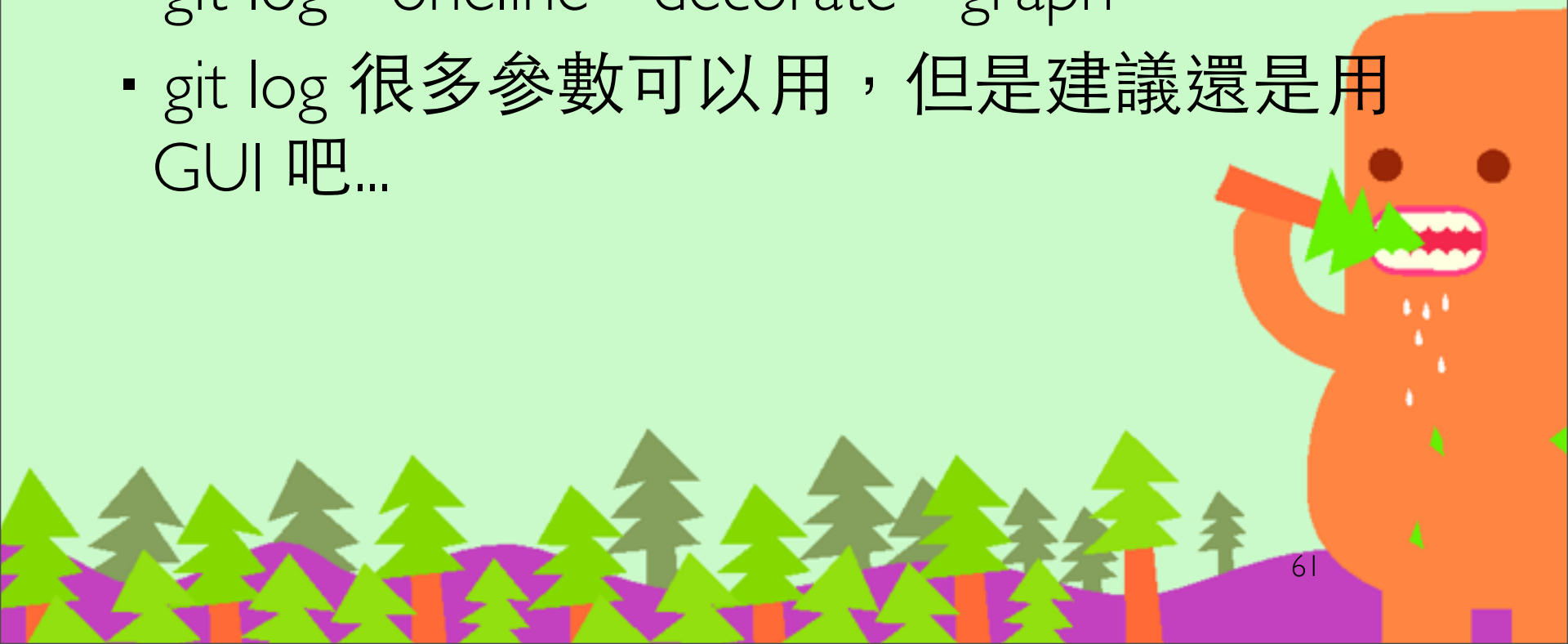
- 新增一筆 commit 來做還原
  - 例如本來的 commit 是新增一行，那麼 revert commit 就會移除那一行
- git revert e37c75787
- git revert HEAD^

下標籤 (demo)

- git tag foo
- git tag foo <SHA1>
- git tag bar -m “some message”
- git tag
- git tag -d foo

歷史紀錄

- git log
- git log --oneline
- git log --oneline --decorate --graph
- git log 很多參數可以用，但是建議還是用 GUI 吧...



比較差異 Diff

- git diff <SHA1> 拿 Working Tree 比較
- git diff <SHA1> <SHA1>
- git diff --stat <SHA1>
- git diff --cached 或 git diff --staged
  拿 Staging Area 來比較

砍掉 untracked 檔案 (demo)

- git clean -n 列出打算要清除的檔案
- git clean -f 真的清除
- git clean -x 連 gitignore 裡列的檔案也清掉

忽略不需要追蹤的檔案

- 編輯 .gitignore (屬於專案的設定，會 commit 出去)
- 編輯 ~/.gitignore (你個人的 Global 設定)
- 空目錄不會 commit 出去，必要時需要放 .gitkeep 檔案
- .gitignore 大集合
  https://github.com/github/gitignore

通常什麼檔案不需要 commit 出去?

- tmp/*
- log/*
- 你個人環境的設定檔(例如你偏愛的編輯器設定檔)
- 可以自動產生的檔案
- build/* 等 compile 之後的檔案
- .DS_Store
- Thumbs.rb

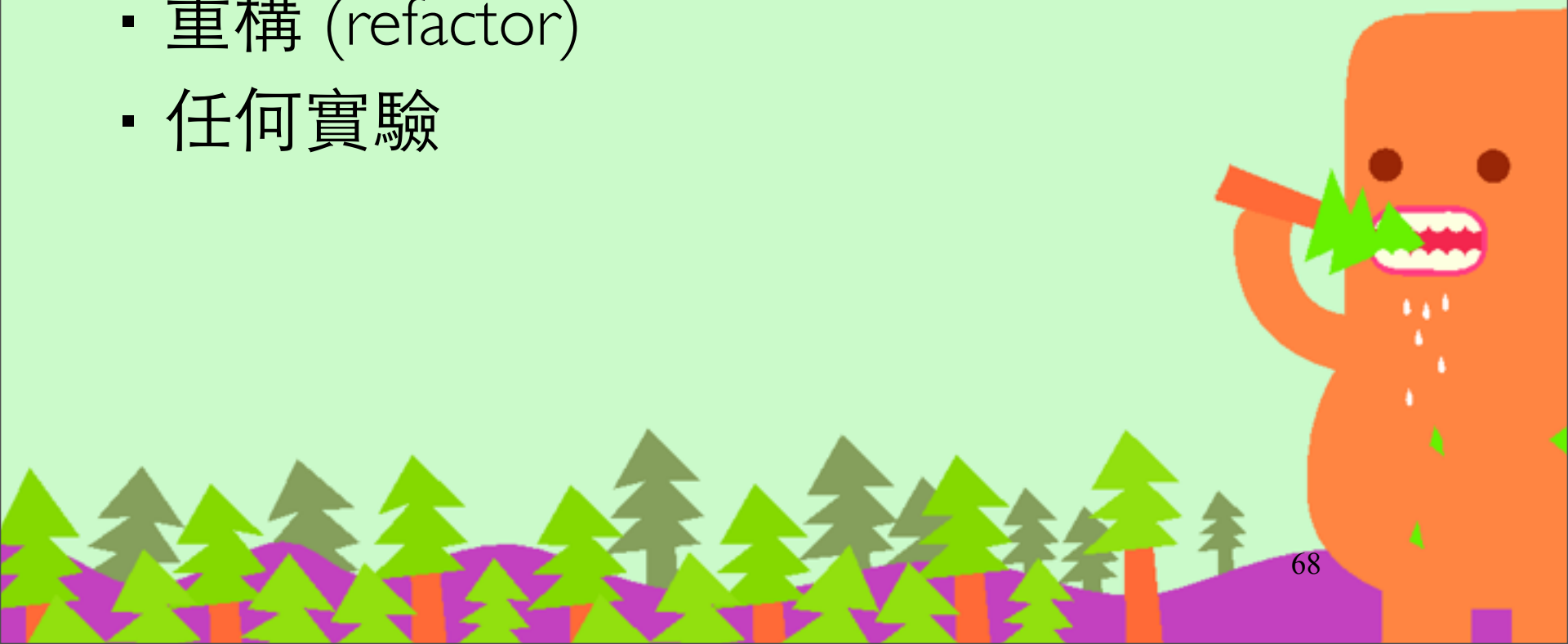
Commit 基本原則

- 適當的粒度/相關性/獨立性
  - 以一個小功能、小改進或一個 bug fixed 為單位。
  - 對應的 unit test 程式在同一個 commit
  - 無相關的修改不在同一個 commit
  - 語法錯誤的半成品程式不能 commit
- git diff --check 可以檢查多餘的空白
- commit 訊息很重要
  - 第一行寫摘要
  - 有需要寫實作細節的話，放第二行之後

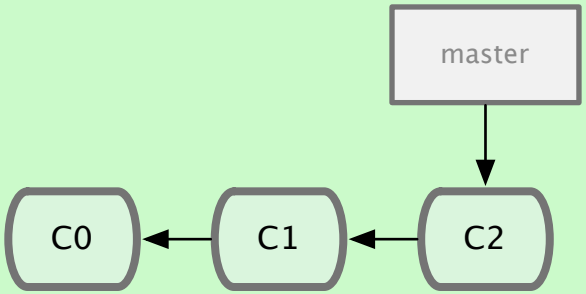
4-2. Git 指令：開分支

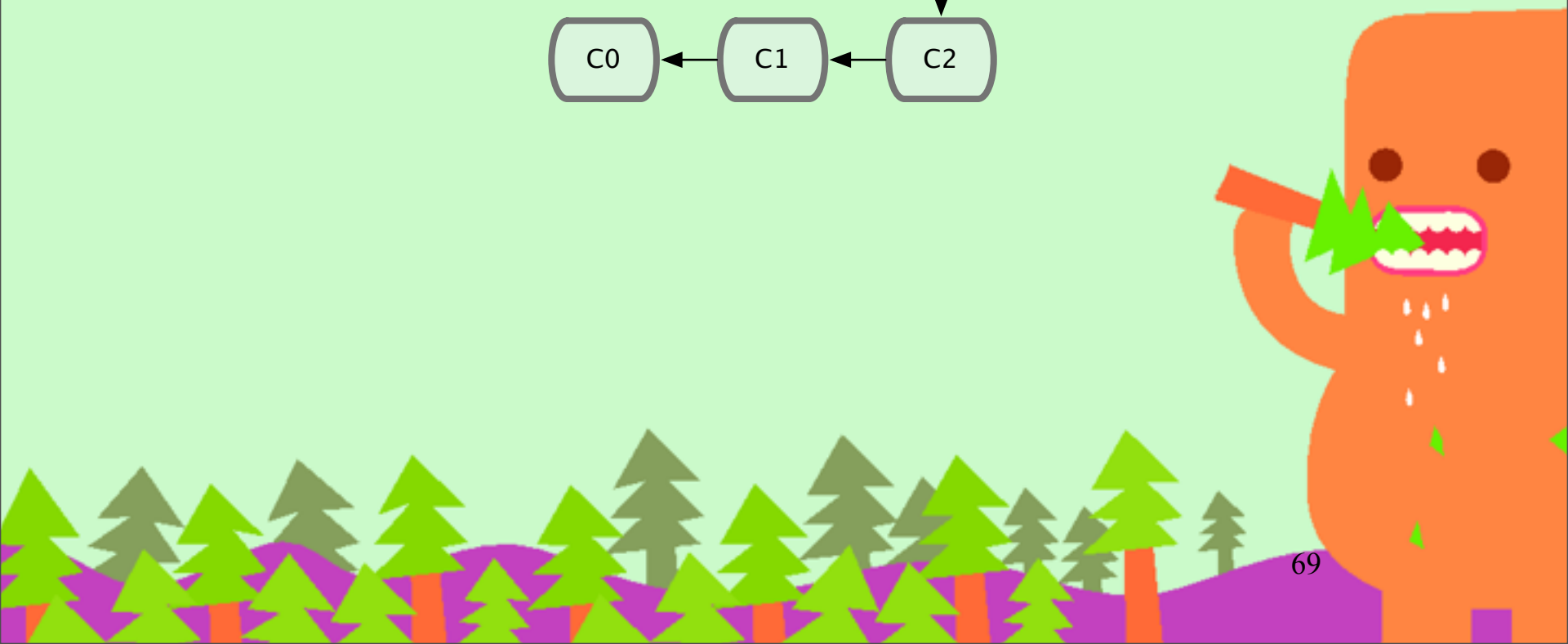
何時開 Branch ?

- Topic feature 開發新功能
- Bug fixes
- 重構 (refactor)
- 任何實驗

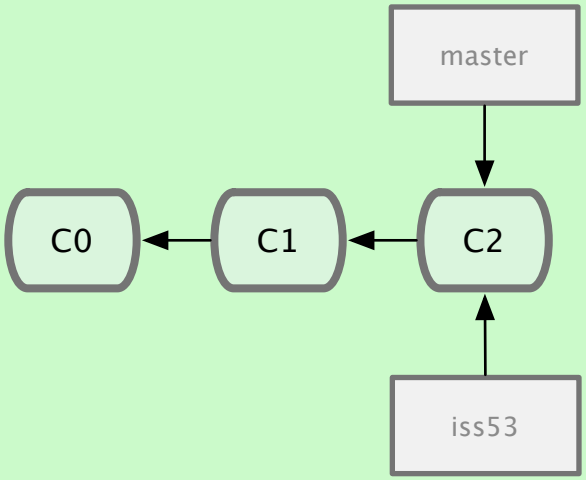


一個流程範例

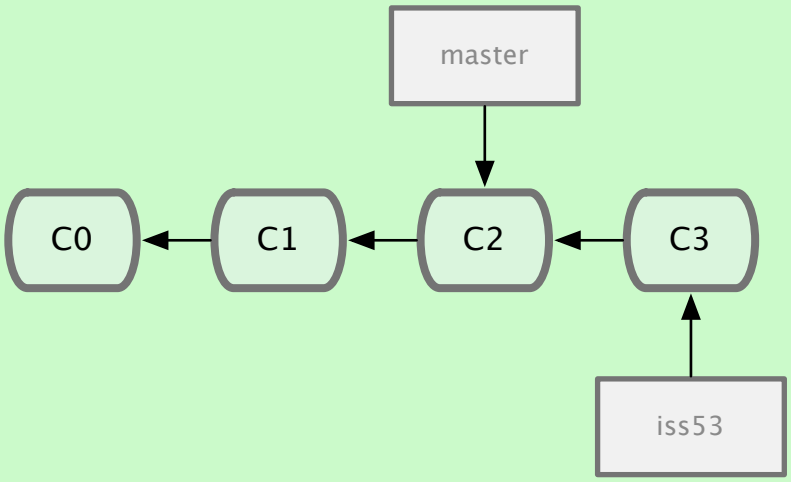




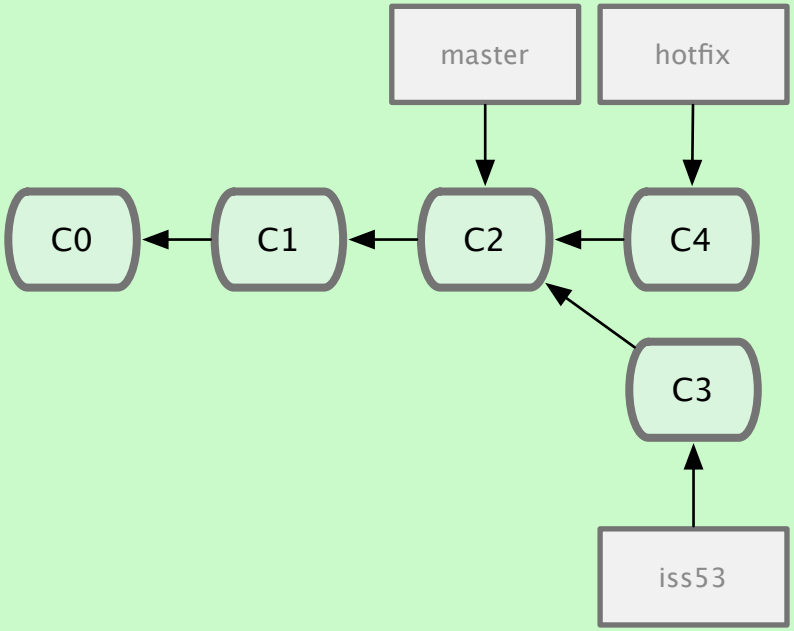
(master) git branch iss53



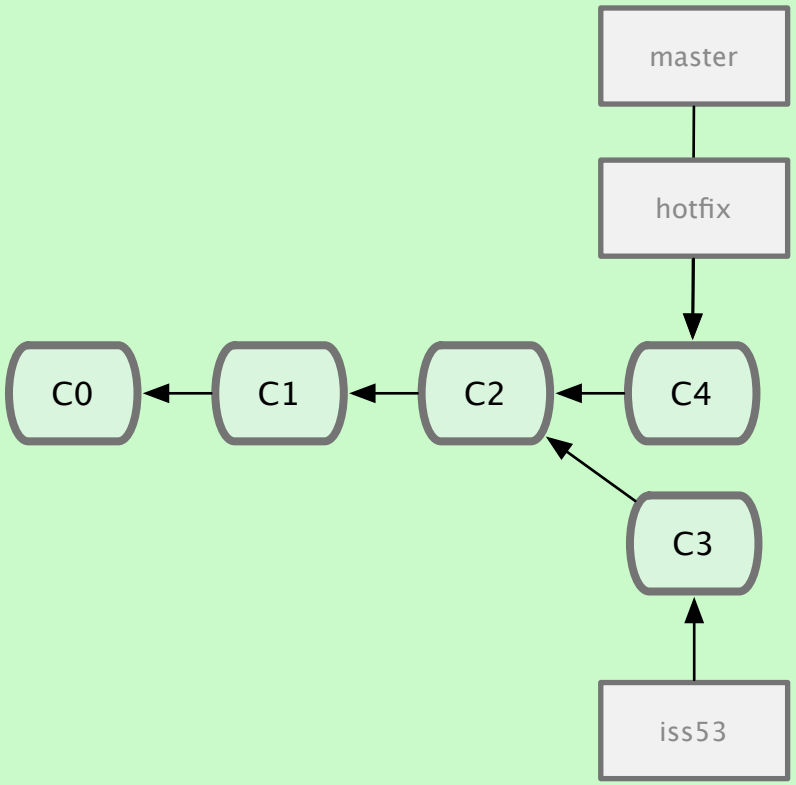
(iss53) git commit



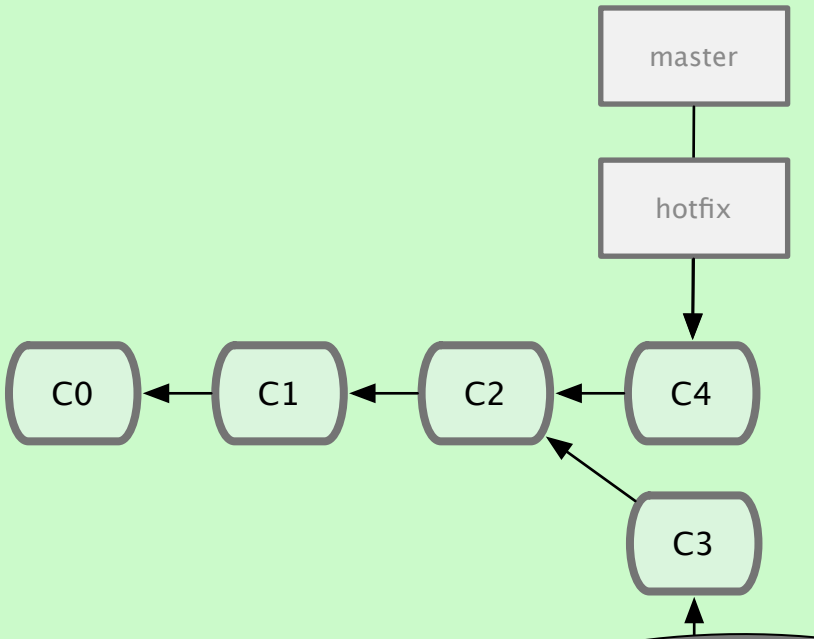
(master) git branch hotfix
(hotfix) git commit



(master) git merge hotfix

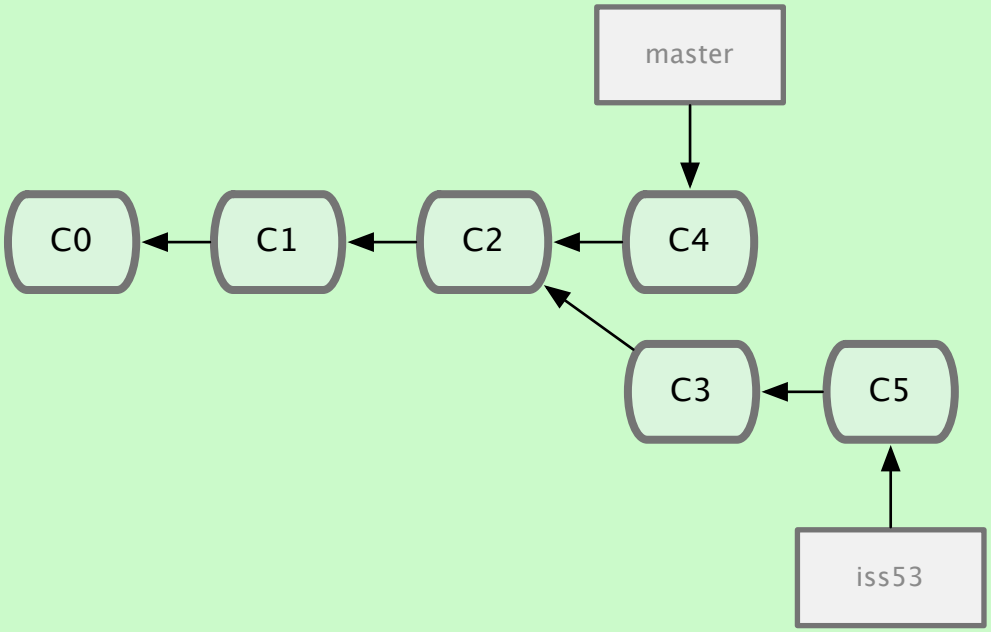


(master) git merge hotfix

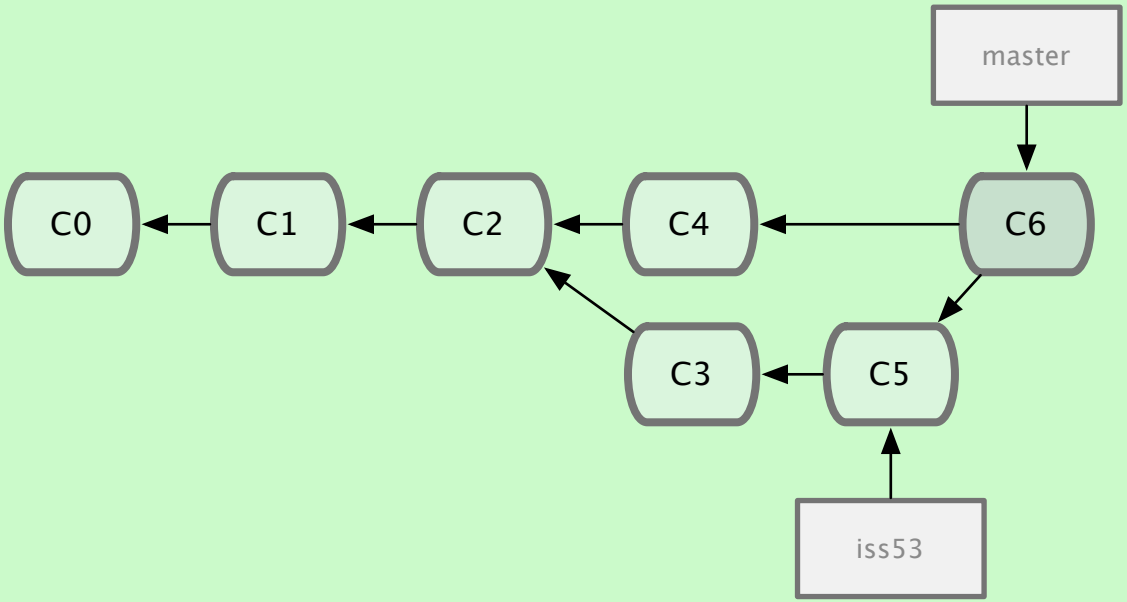


這種只需要改變
參考的合併叫作
fast-forward

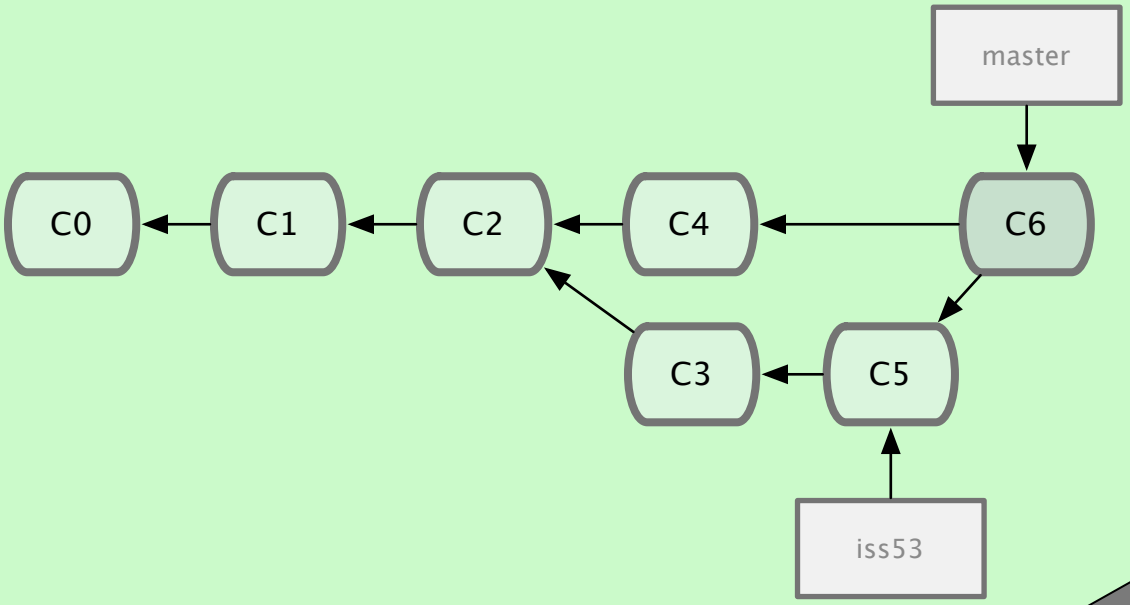
(iss53) git commit



(master) git merge iss53



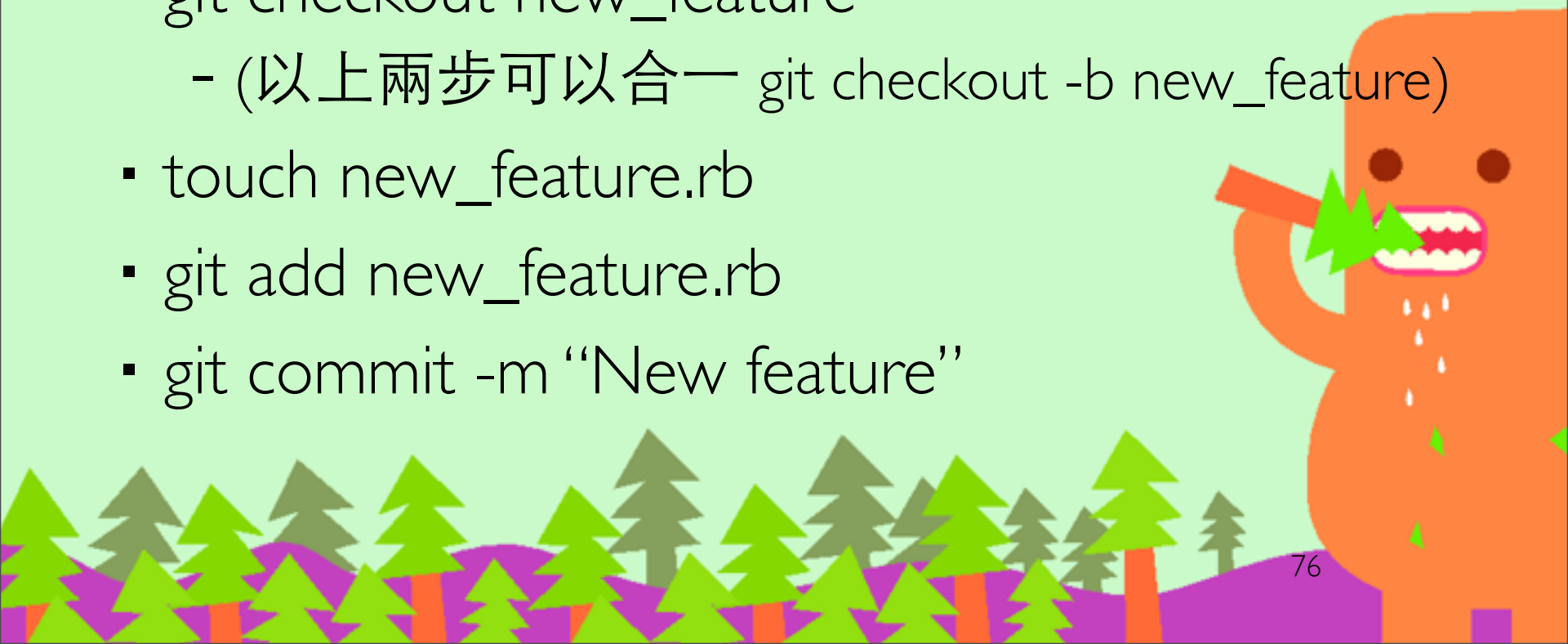
(master) git merge iss53



C6 是個 merge commit
(會有兩個 parent commits)

開 branch (demo)

- git branch new_feature
- git branch 或 git branch <SHA1>
- git checkout new_feature
  - (以上兩步可以合一 git checkout -b new_feature)
- touch new_feature.rb
- git add new_feature.rb
- git commit -m "New feature"



開 branch (demo)

- git branch new_feature
- git branch 或 git branch <SHA1>
- git checkout new_feature
  - (以上兩步可以合一 git checkout -b new_feature)
- touch new_feature.rb
- git add new_feature.rb
- git commit -m "New

合併 branch 回來 (demo)

- git checkout master
- git merge new_feature

Merge CONFLICT 怎麼辦?

- git status 看哪些檔案有 conflict
- 手動編輯這些檔案，解決 <<<<<< ====== >>>>>>> 有衝突的部分
- 或是 git mergetool 用工具解決
- git reset HEAD --hard 放棄合併

Merge CONFLICT 怎麼辦?

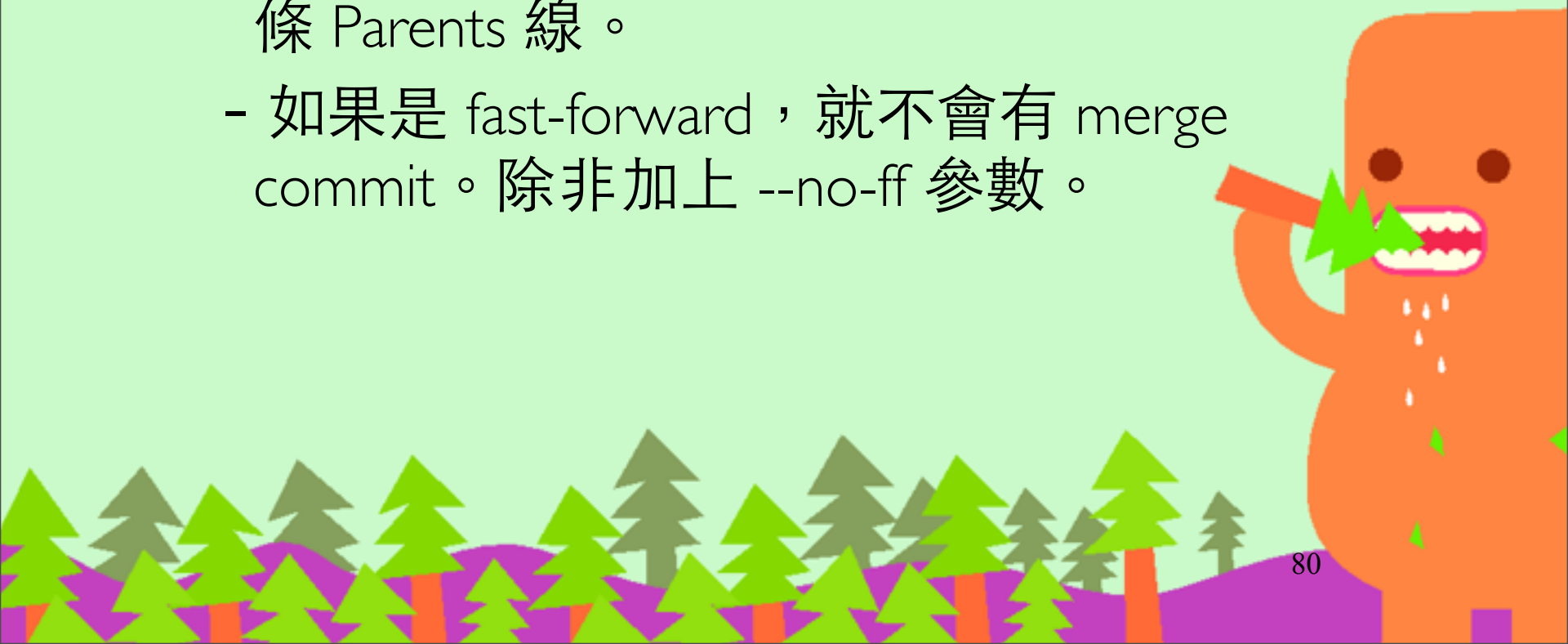
- git status 看哪些檔案有 conflict
- 手動編輯這些檔案，解決 <<<<<< ====== >>>>>> 有衝突的部分
- 或是 git mergetool 用工具解決
- git reset HEAD --hard 放棄合併

Branch 更名和删除

- git branch -m old_name new_name
- git branch -M old_name new_name (強制覆蓋)
- git branch new_feature -d
- git branch new_feature -D (強制删除)

四種合併方式

- Straight merge 預設的合併模式
  - 保留被合併的 branch commits 記錄，並加上一個 merge commit，看線圖會有兩條 Parents 線。
  - 如果是 fast-forward，就不會有 merge commit。除非加上 --no-ff 參數。



四種合併方式 (cont.)

- Squashed commit
  - git merge new_feature --squash
  - 壓縮成只有一個 merge-commit，不會有被合併的 log。SVN 的 merge 即是如此。
- cherry-pick
  - git cherry-pick 714cba
  - 只合併指定的 commit
  - -x 參數會在 log 裡加注本來是哪個SHA1 (適合用在 backpointing 情境)

使用 branch 注意事項

- 切換 working tree 的 branch 時，如果有檔案在 staging area 或是 modified，會無法切換。
- 可以先 commit，反正只要不 push 出去，再 reset 回來即可
- 或是用 stash 指令暫存起來
  - git stash
  - git stash apply
  - git stash clear

Branches 當做存檔(savepoint)

- git branch is cheap!
- 建立 branch 即可保留當時的 Graph
- 就像遊戲存檔

安全合併法: Scout way

- 先建立一個 test_merge
- git checkout -b test_merge
- git merge XXX
- 不喜歡就重來
- 如果喜歡就回 git checkout master
- git merge test_merge 此時會 fast-forward

安全合併法: Savepoint way

- git branch savepoint
- git merge XXX
- git branch -d savepoint
- 如果不喜歡想重來
  - git reset savepoint --hard

無名 Branch 狀態

- git checkout <branch_name> 前往特定 Branch
- git checkout <SHA1> 則會前往特定節點，此時會是 detached HEAD 狀態，一種沒有名字的 current branch 狀態
- git checkout -b new_branch 就會給一個名字

什麼是 Three-way merge

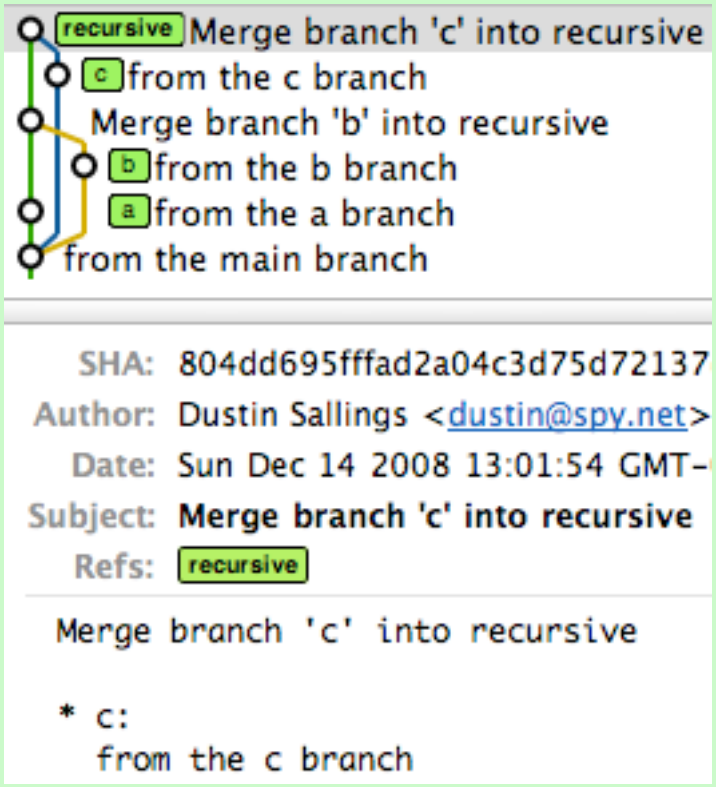
- two-way merge 只用兩個檔案進行合併 (svn 預設即 two-way merge)
- three-way merge 除了要合併的兩個檔案，還加上兩個檔案的共同祖先。如此可以大大減少人為處理 conflict 的情況。

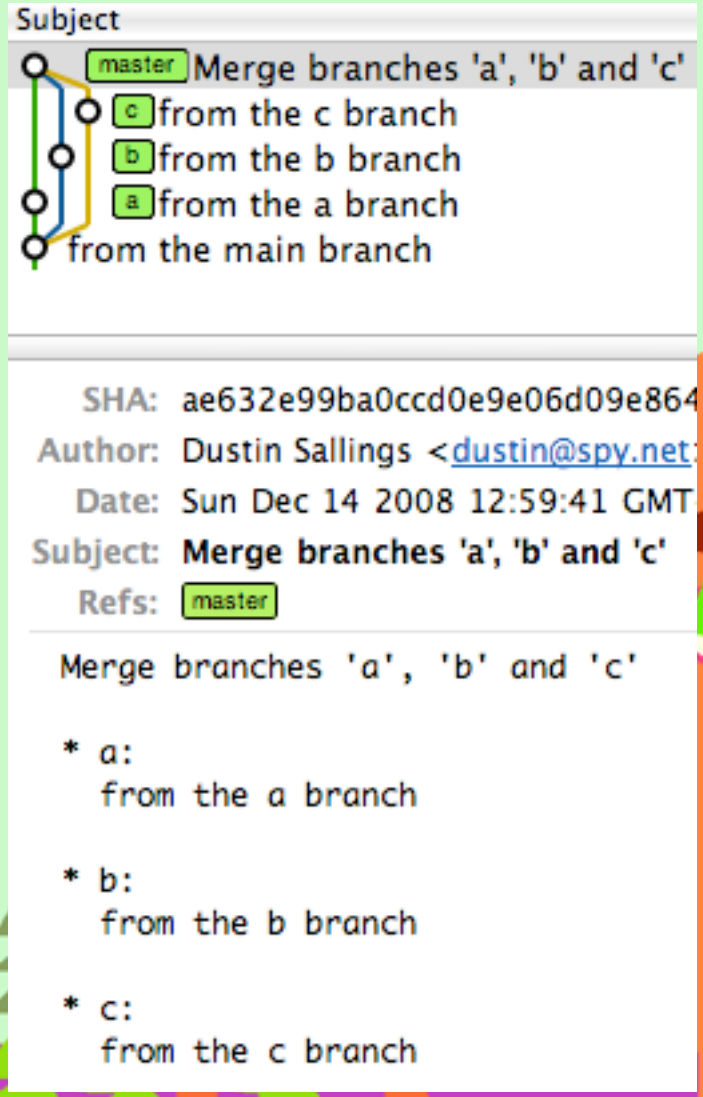
http://en.wikipedia.org/wiki/Merge_(revision_control)

Git merge strategy

- recursive，當共同的祖先不只一個 commits 時，遞迴式的進行 three-way merge (此為預設)
  - git merge foobar -s recursive -X ours
  - git merge foobar -s recursive -X theirs
- resolve，直接挑一個共同的祖先進行 three-way merge
- octopus，當合併超過兩個以上的 branchs 時
- ours，只用自己的 branch 的 commits
- subtree 合併成一個子目錄

Git 可以一次合併多個 Branchs
git merge A B C





http://stackoverflow.com/questions/366860/when-would-you-use-the-different-git-merge-strategies

4-3. Git 指令：遠端操作

拷貝從一個已經存在的 Repository

- SSH 安全性最佳
  - git clone git@github.com:ihower/sandbox.git
- HTTP/HTTPS 速度最差，但能突破防火牆限制
  - git clone https://ihower@github.com/ihower/sandbox.git
- Git protocol 速度最快，但缺認證機制(因此只能做成唯讀)
  - git clone git://github.com/ihower/sandbox.git
- File 本機目錄 (有人用 Dropbox 分享 git init --bare --shared 目錄!! Crazy!!)
  - git clone file://path/to/repo.git

以 GitHub Repository 為例 建立一個專案

- 產生 SSH Key
  - ssh-keygen -t rsa -C "your_email@youremail.com"
- 至 Github 開一個專案
- git remote add origin git@github.com:your_account/sandbox.git
- git push -u origin master
- 之後只需要 git push
  - 出現 ![rejected] 表示需要先做 git pull

Clone 別人的專案

- 如果有讀寫權限，使用 SSH 協定
  - git clone git@github.com:ihower/sandbox.git
- 如果只有讀取權限，使用 Git 協定
  - git clone git://github.com/ihower/sandbox.git
- 如果有防火牆問題，用 HTTPS 協定
  - git clone https://github.com/ihower/sandbox.git

Pull 從遠端更新

- git pull origin master 或 git pull
  - 實際作用是先 git fetch 遠端的 branch
  - 然後與本地端的 branch 做 merge，產生一個 merge commit 節點

Push 將 Commit 送出去

- git push 或 git push origin master
  - 實際的作用是將本地端的 master branch 與遠端的 master branch 作 fast-forward 合併
- 如果出現 [rejected] 錯誤的話，表示你必須先作 pull。
- 預設不會 push tags 資訊
  - git push --tags

列出和取出遠端 branch

- git branch -r
- git checkout -t origin/foobar
- git branch -r --merged (列出已經被合併的)

刪除遠端 Branch

- git push origin :foobar
- git pull 和 git fetch 不會清除已經被刪掉的 branch
  - 請用 git fetch -p

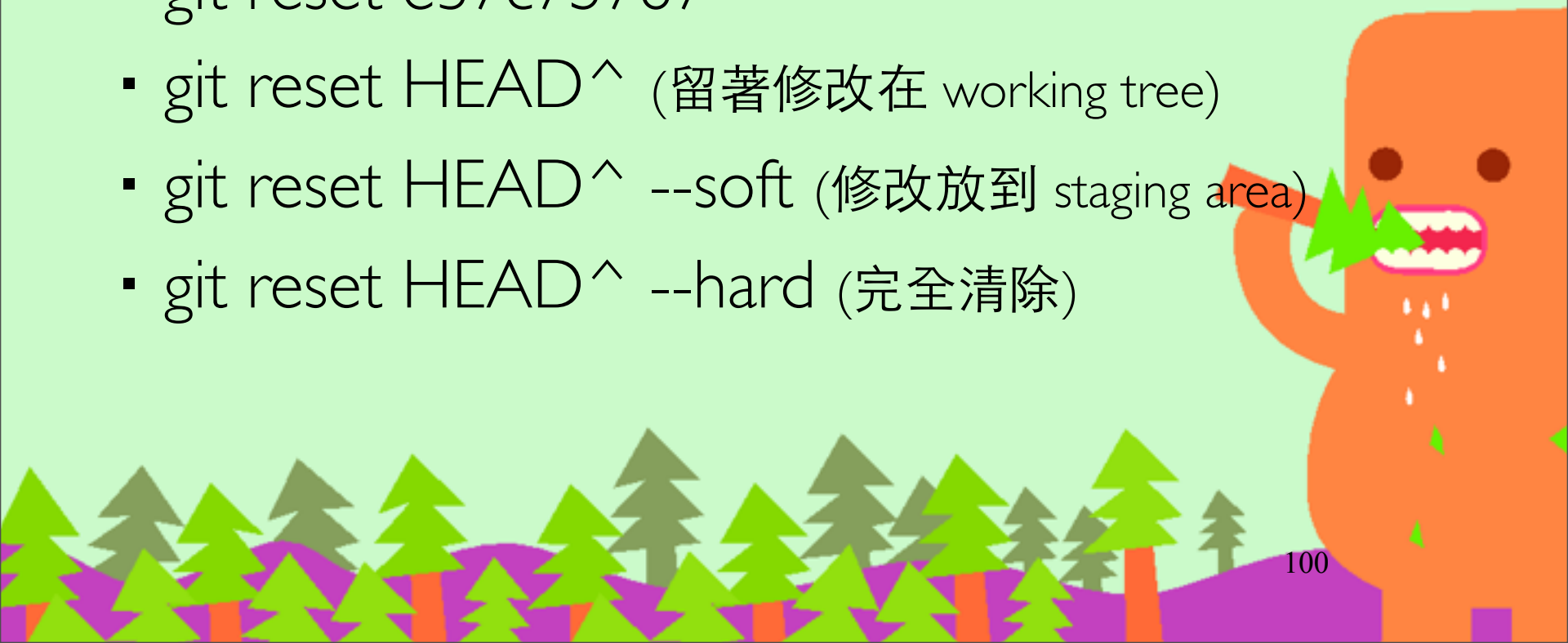
4-4. Git 指令：還沒 push 前可以做的事

還沒 push 分享出去的 branch，你可以...

- 不同於 SVN，Git 的 Commit 其實還在本地端，所以可以修改 commit logs!!
  - 修改 commit 訊息，甚至內容
  - 合併 commits
  - 打散 commit 成多個 commits
  - 調換 commits 順序

reset (回到特定節點)

- 跟 revert 不同，reset 是直接砍掉 commits 歷史記錄
- git reset e37c75787
- git reset HEAD^ (留著修改在 working tree)
- git reset HEAD^ --soft (修改放到 staging area)
- git reset HEAD^ --hard (完全清除)



其實剛剛的安全合併法 savepoint way 不需要建立 branch

- 直接 git reset <SHA1> --hard 即可
- branch name 只是 reference

快速修正上一個 Commit

- 上一個commit有typo，想要重新commit
  - git reset HEAD^
  - 修正
  - git commit -am “message”
- 可以簡化成
  - 修正
  - git commit -a --amend

rebase (重新 commit 一遍)

- git rebase -i e37c7578

```
pick 048b59e first commit
pick 995dbb3 change something
pick aa3e16e changed

# Rebase 0072886..1b6475f onto 0072886
#
# Commands:
#  p, pick = use commit
#  r, reword = use commit, but edit the commit message
#  e, edit = use commit, but stop for amending
#  s, squash = use commit, but meld into previous commit
#  f, fixup = like "squash", but discard this commit's log message
#  x, exec = run command (the rest of the line) using shell
#
# If you remove a line here THAT COMMIT WILL BE LOST.
# However, if you remove everything, the rebase will be aborted.
```

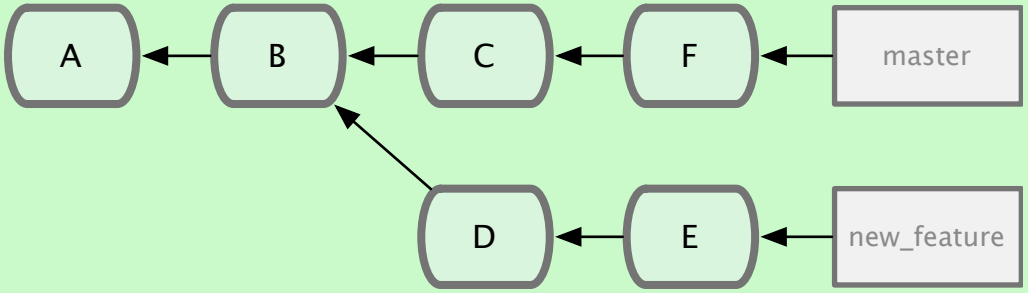
rebase is dangerous!!
It rewrite history!

rebase is dangerous!!
It rewrite history!

第四種合併方式: rebase

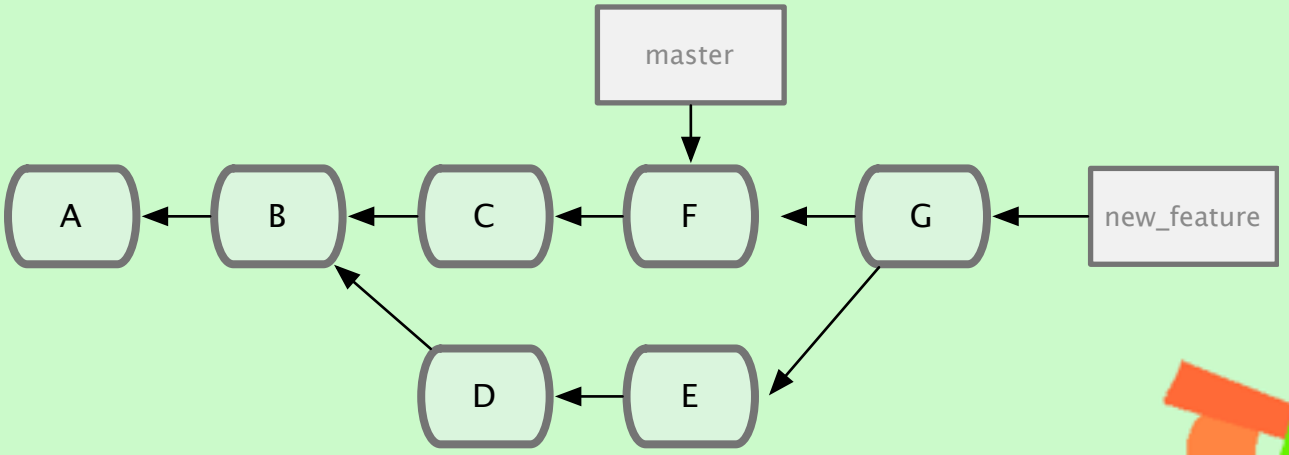
- rebase 調整分支點 (僅適用於 local branch)
  - 1. 從要被合併的 branch 頭重新分支
  - 2. 將目前 branch 的 commits 記錄一筆一筆重新 apply/patch 上去
  - 等於砍掉重練 commit log，僅適合還沒分享給別人的 local branch。

一個範例: 開發中的 new_feature 想要合併 master 主幹的變更



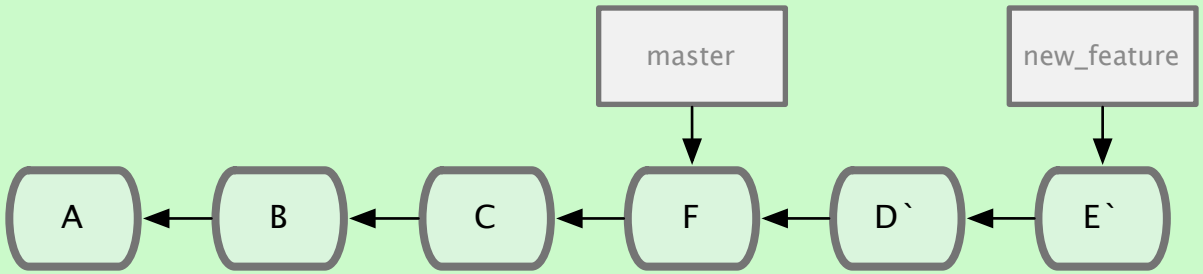
如果是 merge

(new_feature) git merge master



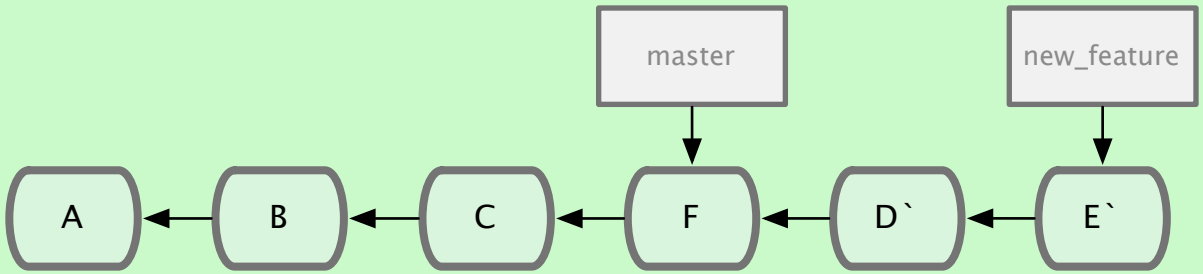
如果用 rebase，就沒有 G 點!

(new_feature) git rebase master



如果用 rebase，就沒有 G 點!

(new_feature) git rebase master



用這招可以不產生分支線和 merge commit

rebase notes

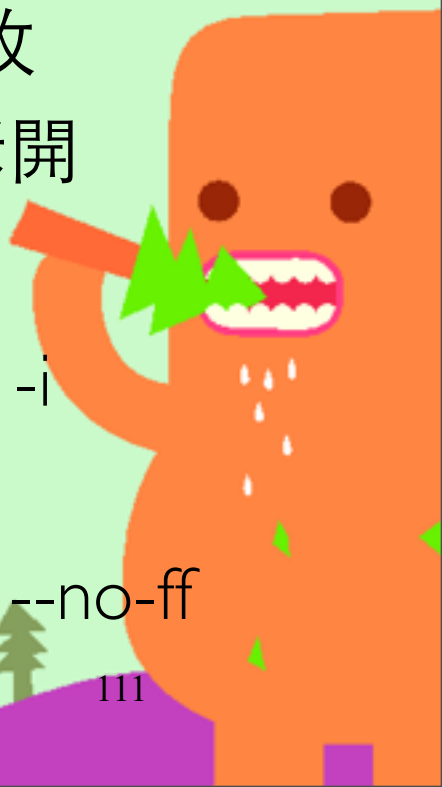
- 注意到 D` 和 E` 和本來的 D 和 E commits 已經被視為不同 commit，SHA1也不同了
- rebase 過程中，每一次 apply 都有可能發生 conflict，跟 merge 只發生一次不同。
- 發生 conflict 怎麼辦? 可以選擇修好後 continue, 忽略 skip 或放棄 abort
  - 記得一定要離開 rebase 的 context 情境

已經 push 分享出去的 commits 記錄，請千萬不要再修改記錄 push 出去!!

集大成：
rebase + merge 的 完美 合併法

(假設我們要將 feature branch 合併回主幹 develop)

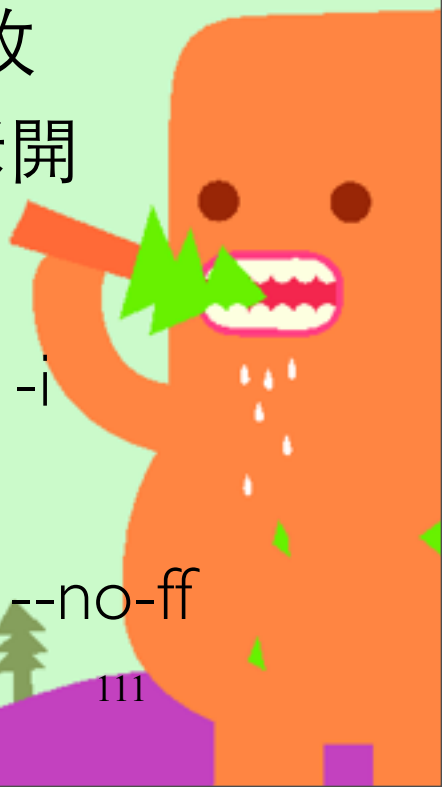
- 原因
  - feature branch 很亂，不時 merge 與主幹同步
  - feature branch 有 typo，commit 訊息想改
  - feature branch 有些 commits 想合併或拆開
- 作法
  - 先在 feature branch 做 git rebase develop -i
  - (反覆整理直到滿意) git rebase 分岔點 -i
  - 在從 develop branch 做 git merge feature --no-ff



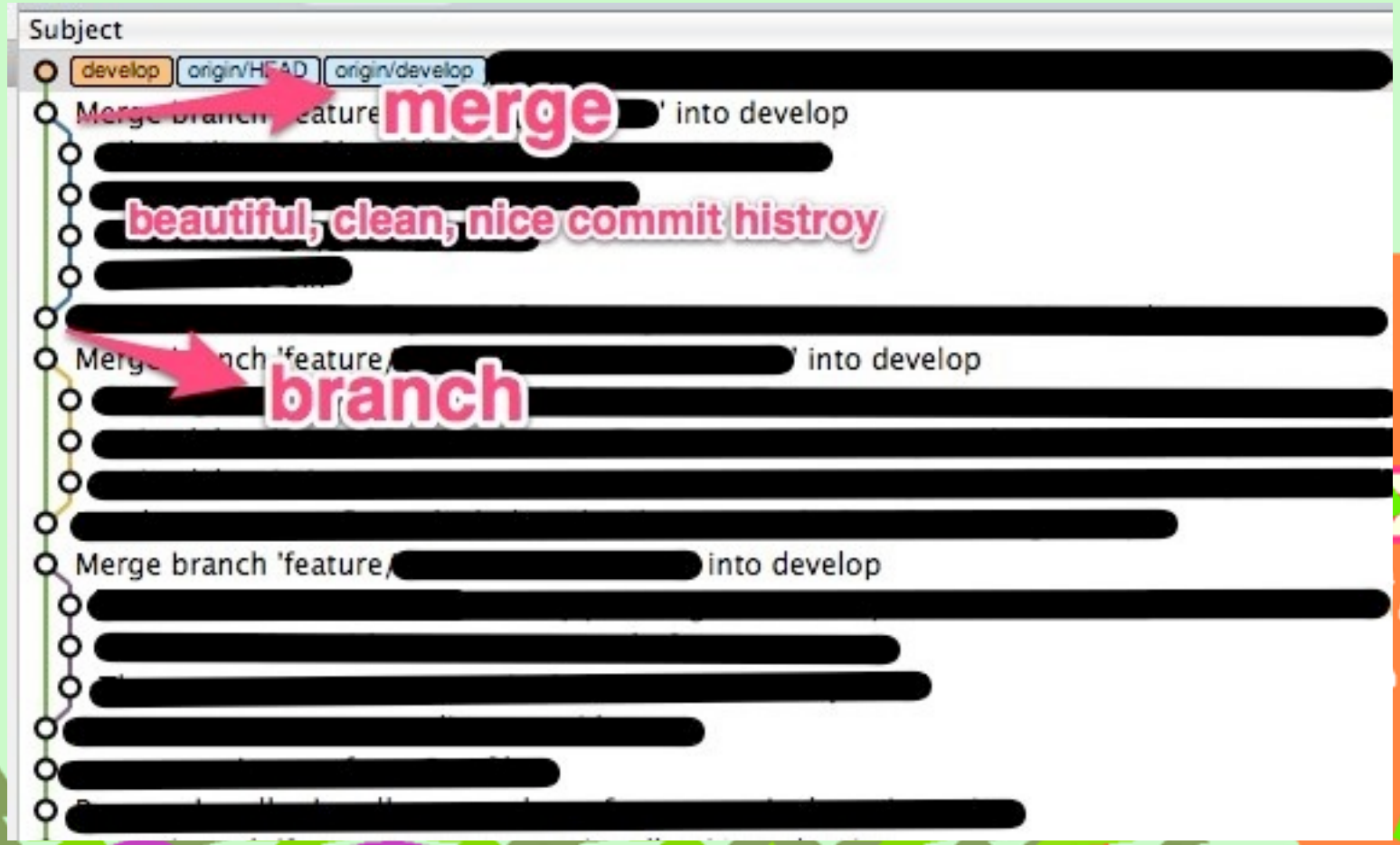
集大成：rebase + merge 的龜毛合併法

(假設我們要將 feature branch 合併回主幹 develop)

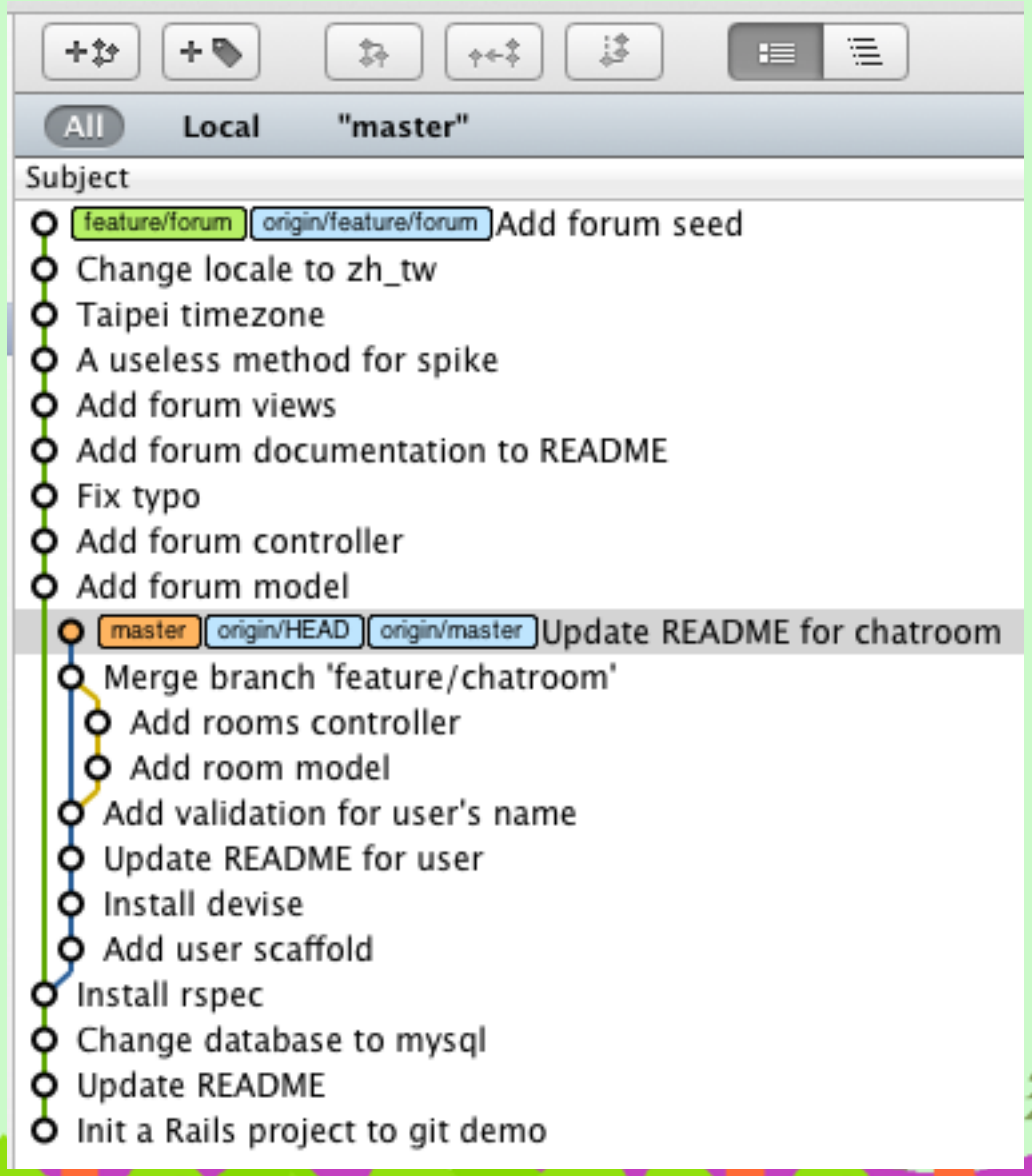
- 原因
  - feature branch 很亂，不時 merge 與主幹同步
  - feature branch 有 typo，commit 訊息想改
  - feature branch 有些 commits 想合併或拆開
- 作法
  - 先在 feature branch 做 git rebase develop -i
  - (反覆整理直到滿意) git rebase 分岔點 -i
  - 在從 develop branch 做 git merge feature --no-ff



超級乾淨，每一次的 merge commit 就代表一個功能完成

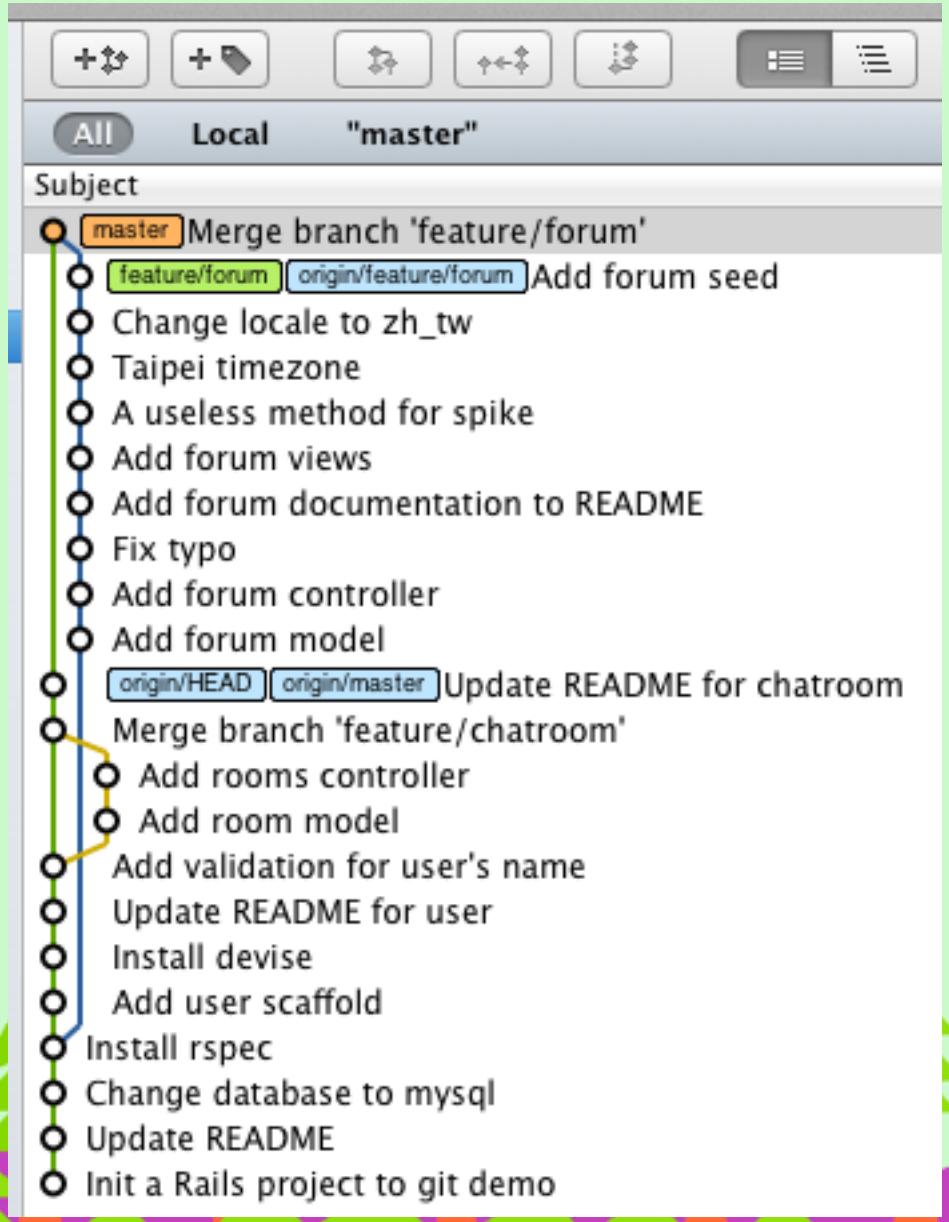


Demo (before merge)

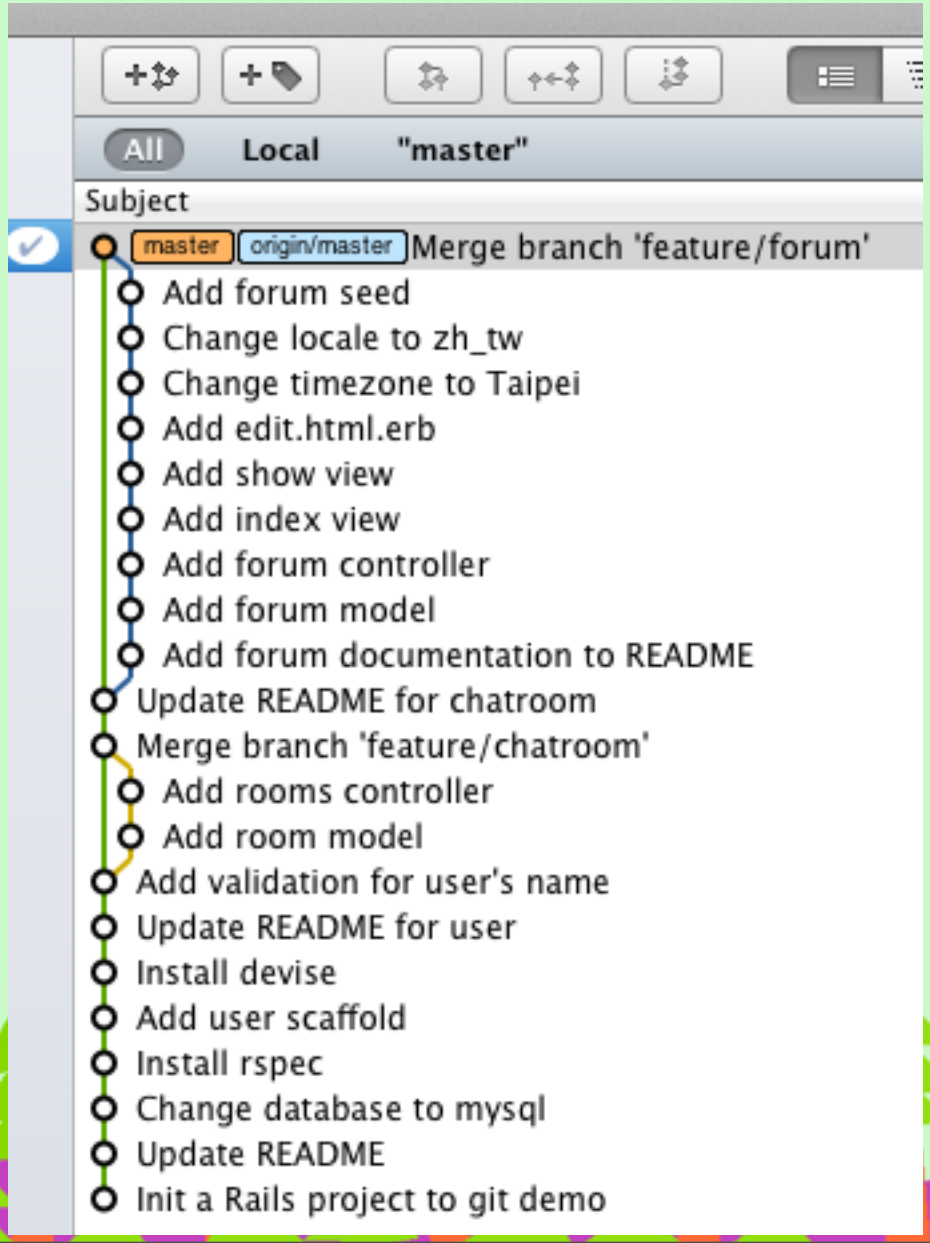


http://ihower.tw/blog/archives/6704/

Demo (normal merge)



Demo (rebase + merge)



注意事項 (I)

- 必須要加 --no-ff 才會有 merge commit。不然會是 fast-forward。
- rebase 之後的 feature branch 就不要再 push 出去了
- 如果有遠端的 feature branch，合併完也砍掉

注意事項 (2)

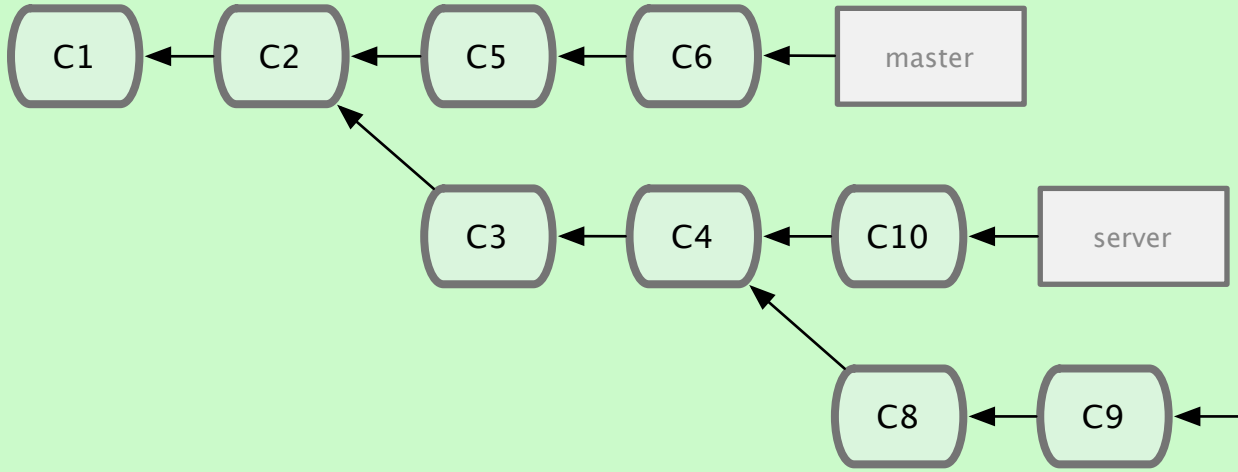
- 不求一次 rebase 到完美，不然中間的 conflict 會搞混。
- 可以一次改點東西就 rebase 一次，然後開個臨時的 branch 存檔起來，再繼續 rebase 自己直到滿意為止。

rebase --onto
指定從哪裡開始rebase

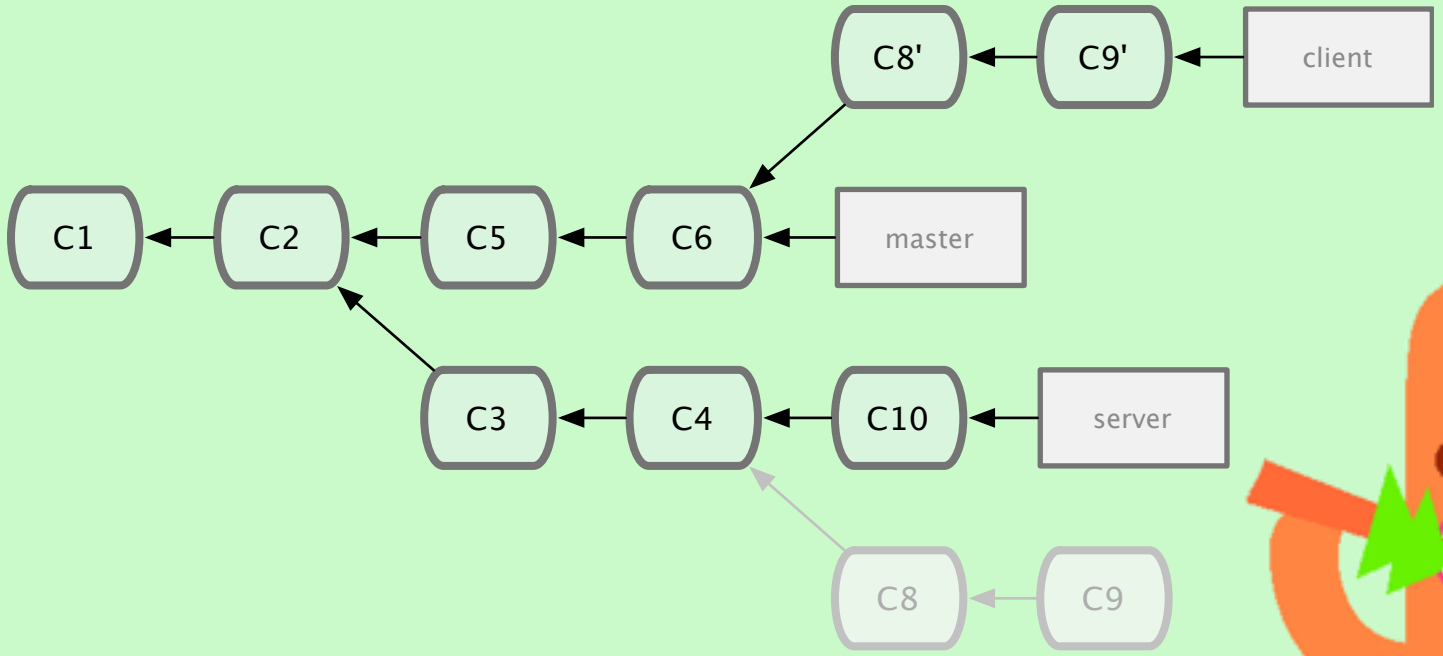
- http://blog.yorkxin.org/2011/07/29/git-rebase

rebase --onto example

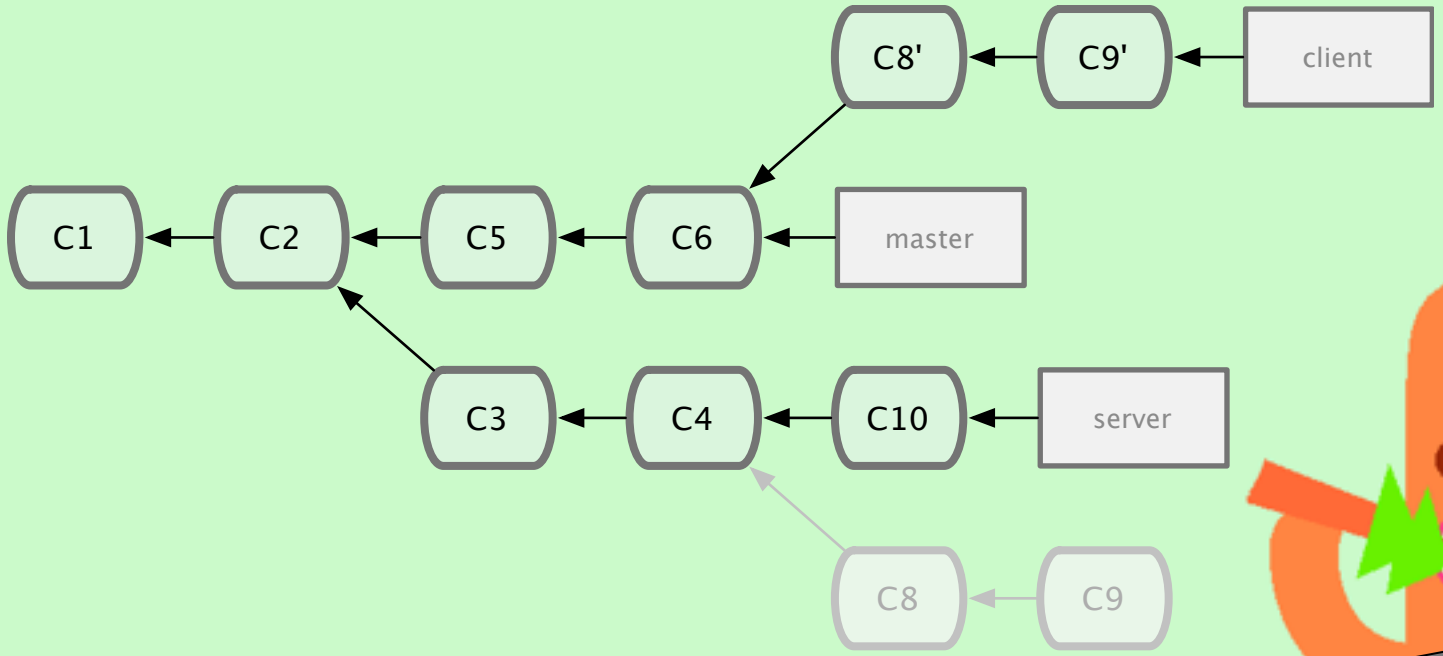
想把 client branch 的 C8, C9 搬到 master

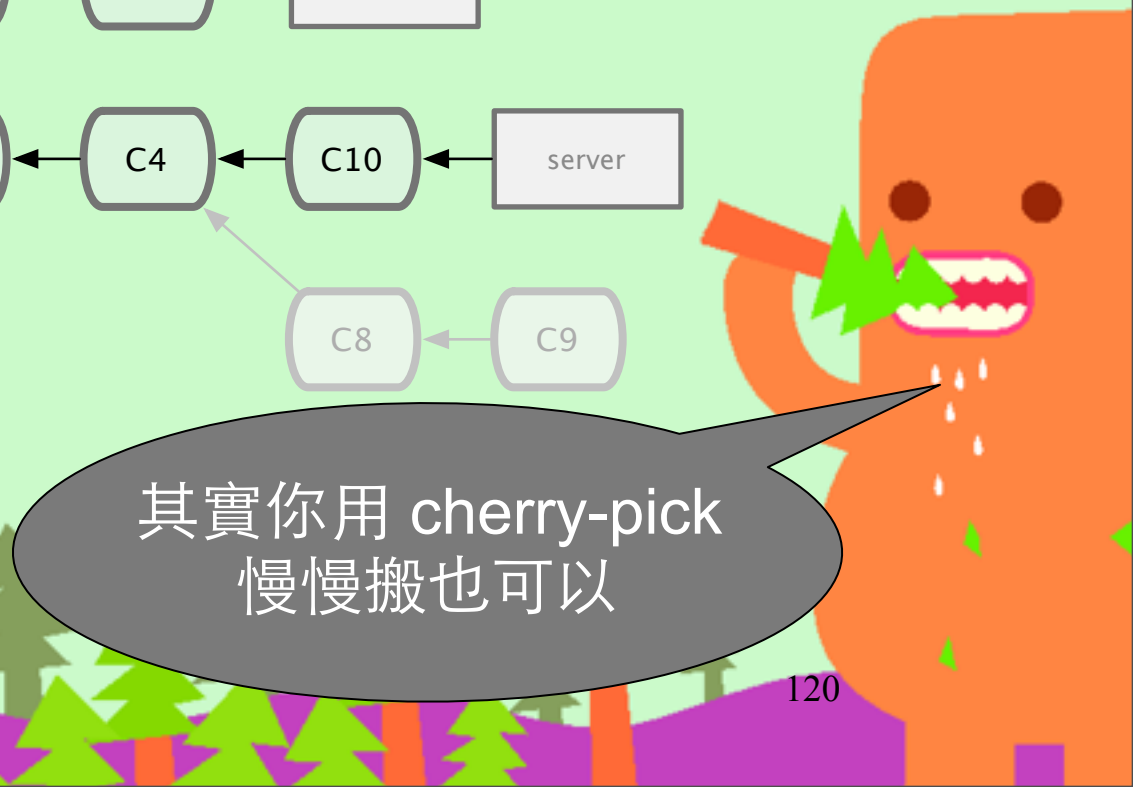


(在client branch中) git rebase --onto C6 C4



(在client branch中) git rebase --onto C6 C4



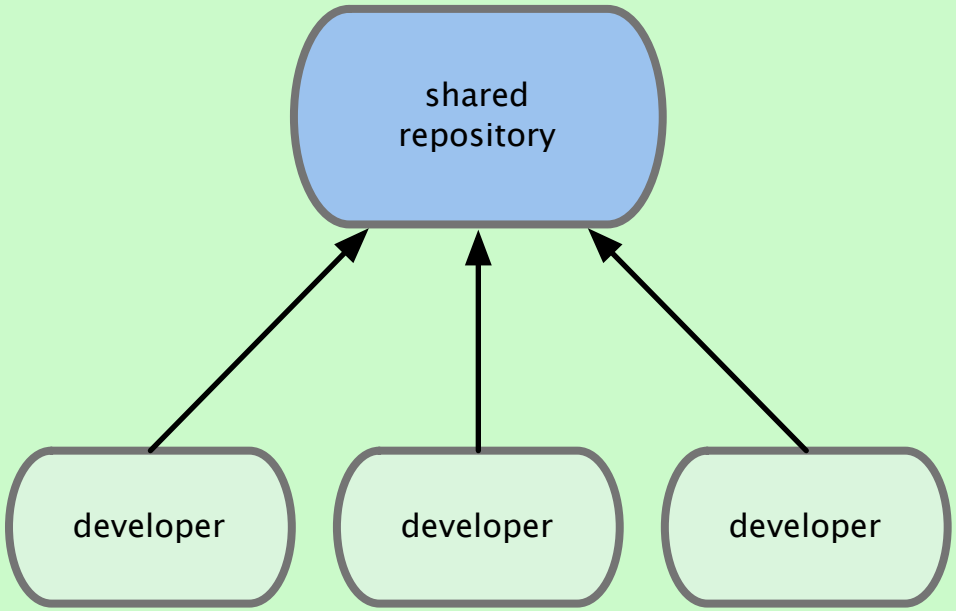


5. Git 開發模式及流程

1. 常見的 Remote Repositories 的管理方式

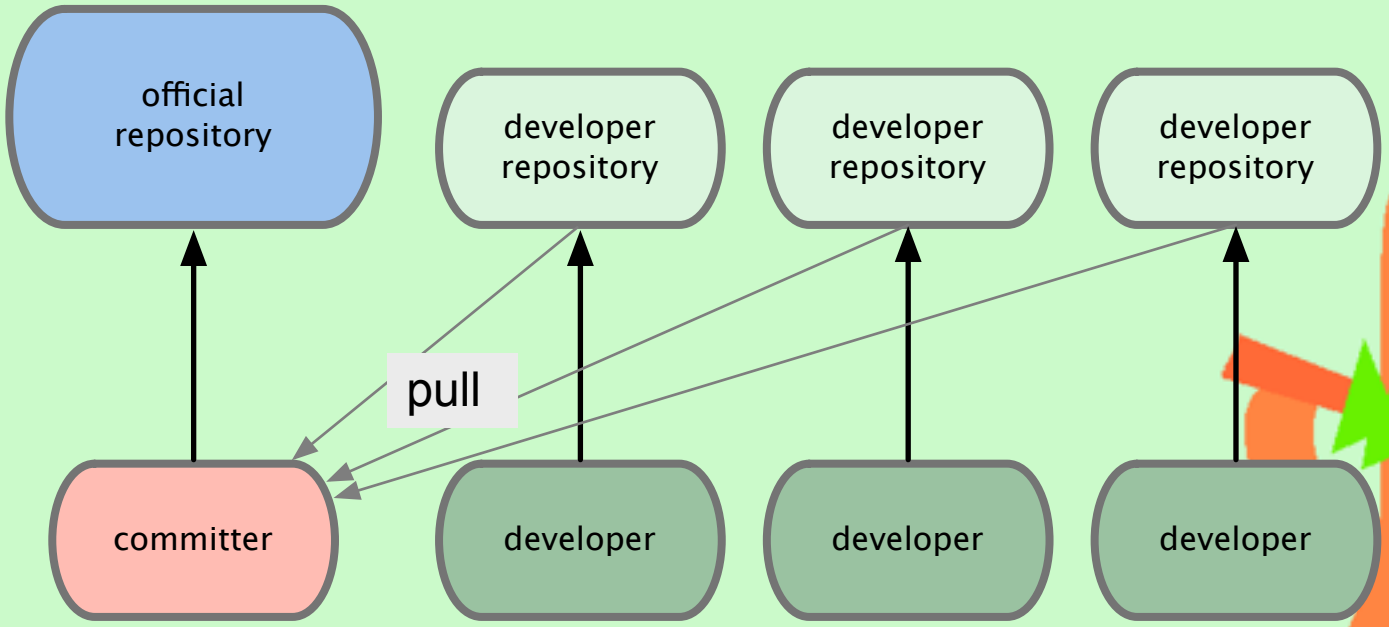
Centralized Workflow

團隊內部私有專案，大家都有權限 Push 到共用的 Repository。
使用 Branches 來管理流程(下述)



Integration-Manager Workflow

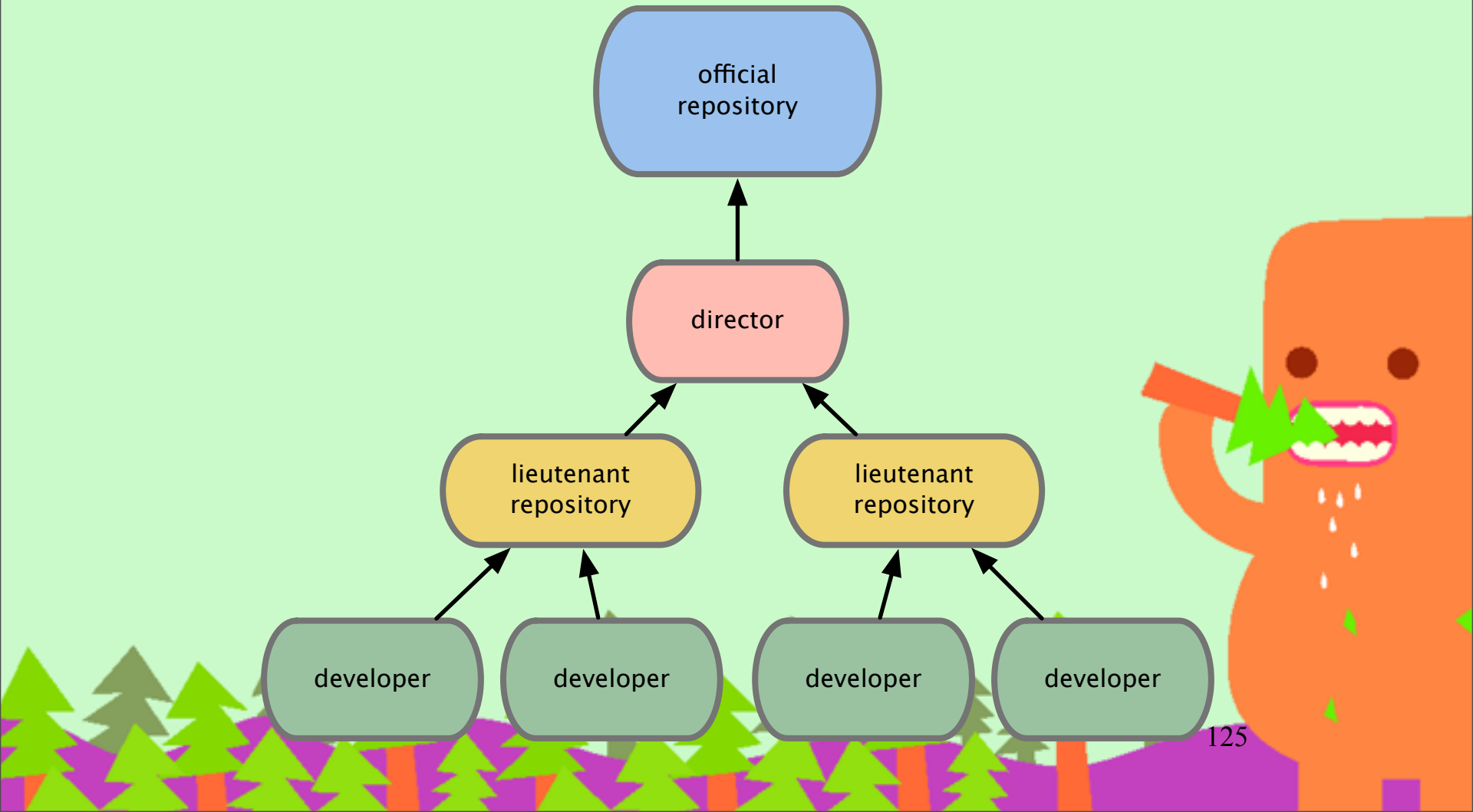
適合一般 Open Source 專案，只有少部分人有權限可以 Push 到 Repository，其他開發者用 request pull 請求合併。
例如 GitHub 提供的 Fork 和 Pull Request 功能



Dictator and Lieutenants Workflow

多層權限控管，適合大型 Open Source 專案，例如 Linux Kernel

又分成 patch 型或 pull request 型



2. 團隊如何管理 Branches 分支?

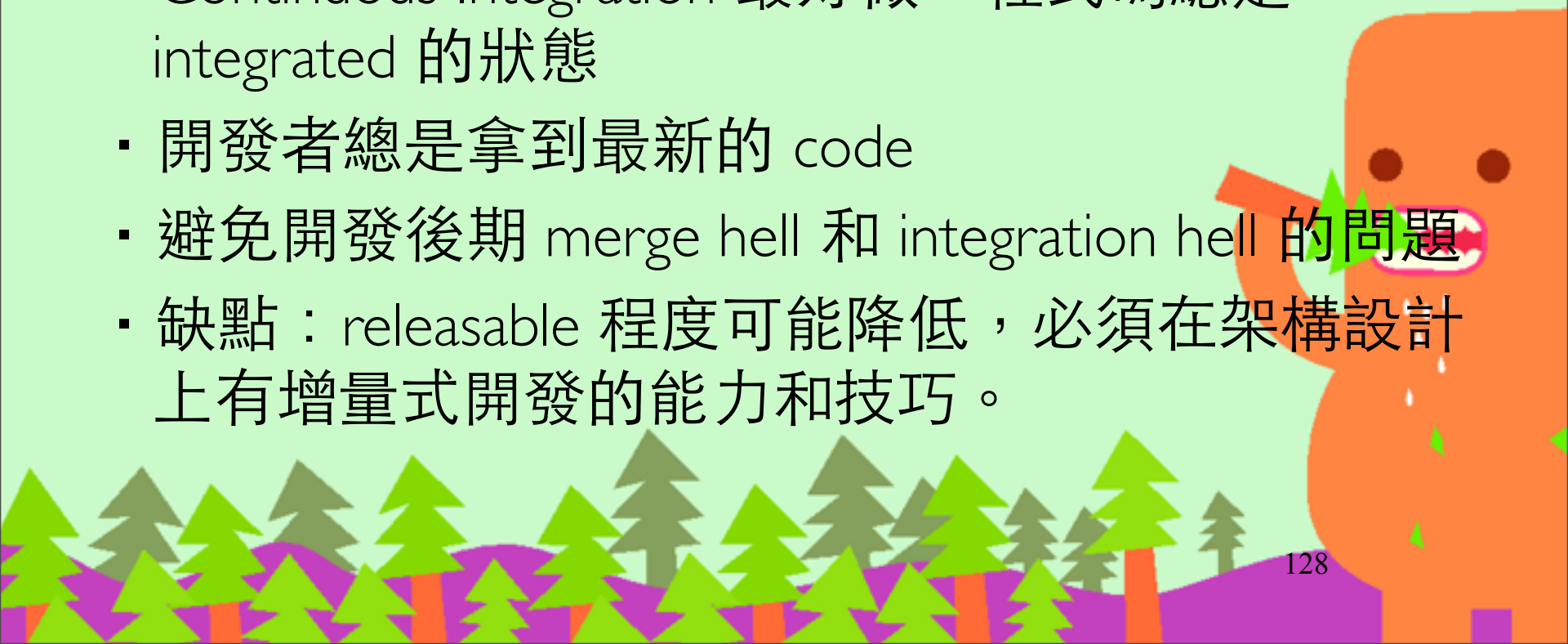
分支模式

by Continuous Delivery ch.14

- Develop on Mainline
- Branch for Release
- Branch by Feature
- Branch by Team

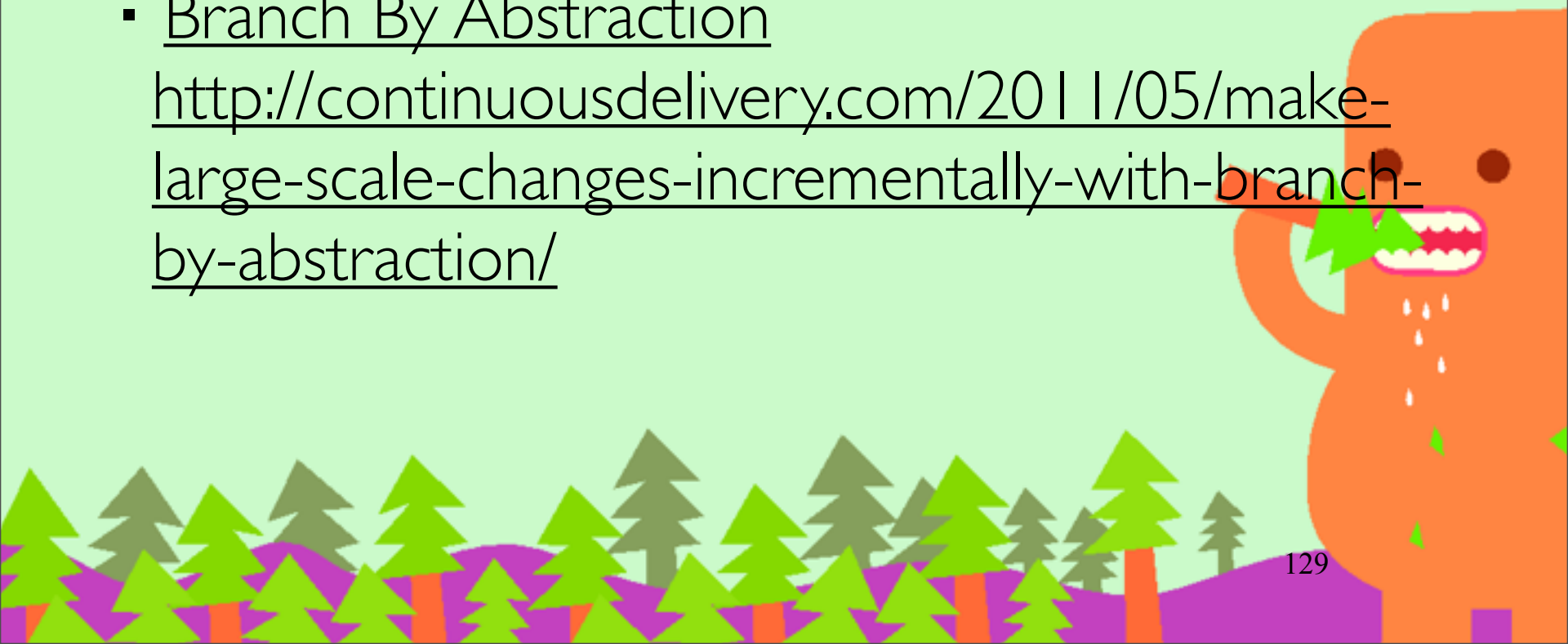
Develop on Mainline

- 以唯一的 Mainline 作為開發用途
  - 還是可以開以不合併為前提的 branch，例如 release branch 或 spike 實驗
- Continuous Integration 最好做，程式碼總是 integrated 的狀態
- 開發者總是拿到最新的 code
- 避免開發後期 merge hell 和 integration hell 的問題
- 缺點：releasable 程度可能降低，必須在架構設計上有增量式開發的能力和技巧。



在單一Branch 上做增量式開發的技巧?

- Feature Toggle
  http://martinfowler.com/bliki/FeatureToggle.html
- Branch By Abstraction
  http://continuousdelivery.com/2011/05/make-large-scale-changes-incrementally-with-branch-by-abstraction/



Branch for Release

- 功能開發完成，準備釋出時建立這個 release branch。而同時間還會在主幹繼續開發新功能。
- 在 release branch 上只 commit bugfixes (這個 bugfixes同時commit進主幹)
- 不要在 release branch 上又開 branch，避免階梯狀的 branch 結構，會很難知道哪些 code 在哪些 branch 有。

以 Ruby on Rails 為例

- 例如：Rails 目前的版本是 3.2
- master 是開發版本，開發下一次的主要版本 4.0
- stable branches，用 cherry-pick 做 backporting
  - 2-2-stable 已停止維護
  - 2-3-stable bug fixes
  - 3-1-stable bug fixes

Branch by Feature

- 根據 Feature 或 User Story 來建立 Branch 開發，直到 Branch 驗收完成才合併回主幹
- 可讓主幹總是 releasable
- 缺點是與主幹的分歧造成合併問題和不利於 CI
  - 主幹如果有更新，Feature Branch 必須每日合併回來
  - Feature Branch 週期越短越好，幾天到不超過一個開發週期 (Iteration)
  - 不要同時開太多 Feature Branch (避免半成品)
  - 需要一個Tech Lead 來負責主幹的合併

Feature Branch 的問題

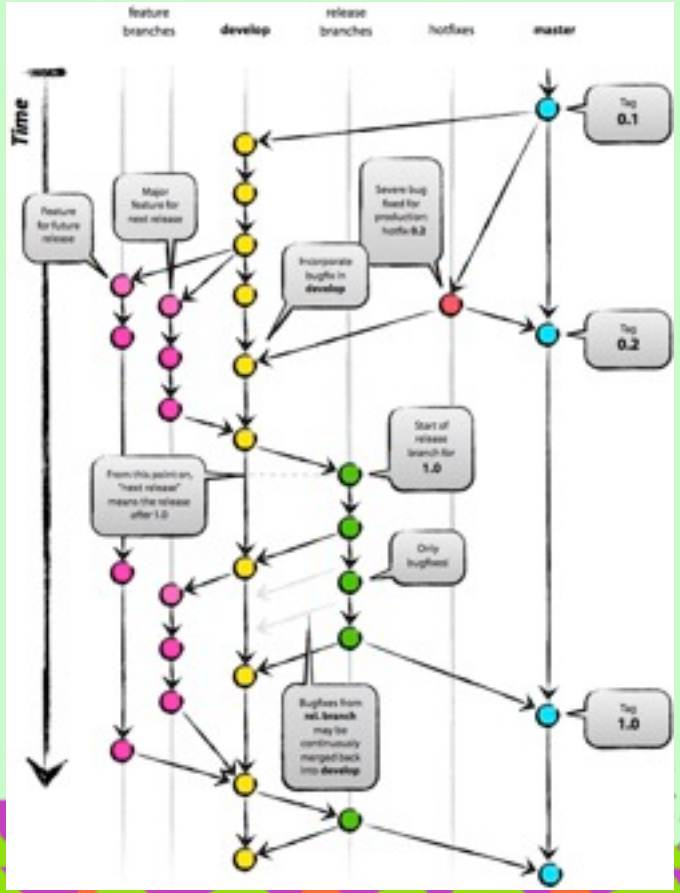
- 對 Open Source Project 來說非常有效率
  - Small core team 可以主導要不要接受 patch
  - Release date 不固定，可以慢慢考慮 patch
- 但對大型商業團隊來說，容易變成 Anti-pattern (超長 branch 合併不回來)。團隊需要良好紀律：
  - codebase 需要良好模組化
  - 大家都乖乖定期更新主幹的 code，並且經常 commit 程式到主幹
  - Delivery team 不會因為時程壓力而胡亂 merge

Branch by Team

- 適合多團隊同時開發相對獨立的功能
- 根據 Team 來切分
- 主幹總是 releasable
- 當 Team 的 Branch 穩定時合併回主幹
- 主幹有更新時要馬上要合併回來

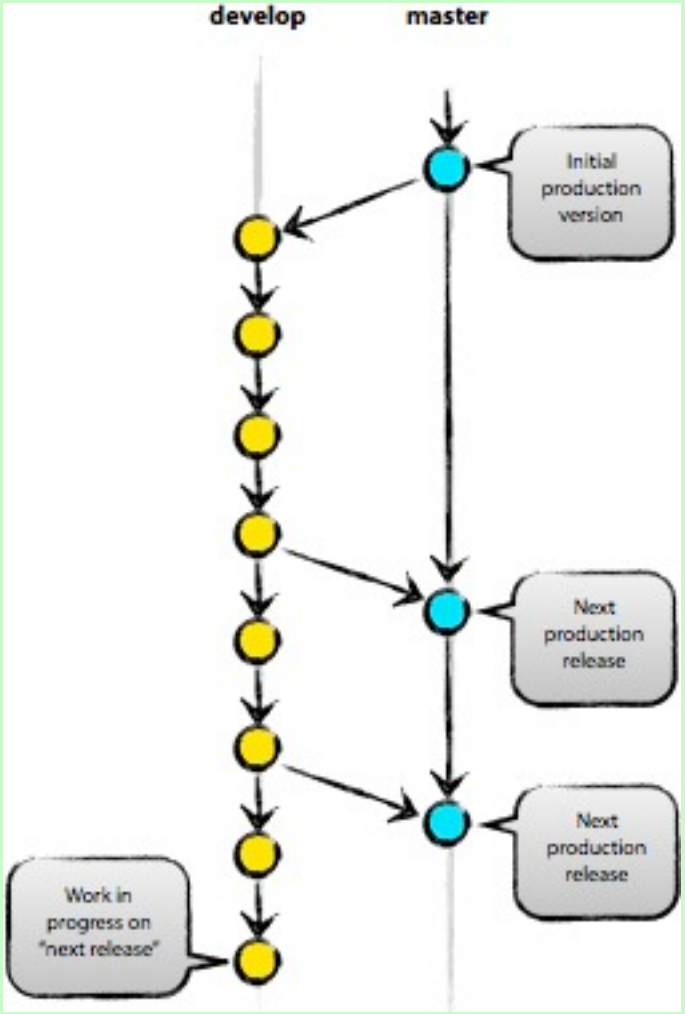
Git flow: 一套如何管理 branches 的操作實務

http://nvie.com/posts/a-successful-git-branching-model/
http://ihower.tw/blog/archives/5140



兩個主要分支

- master: 永遠處在 production-ready 穩定狀態
- develop: 最新的下次發佈開發狀態

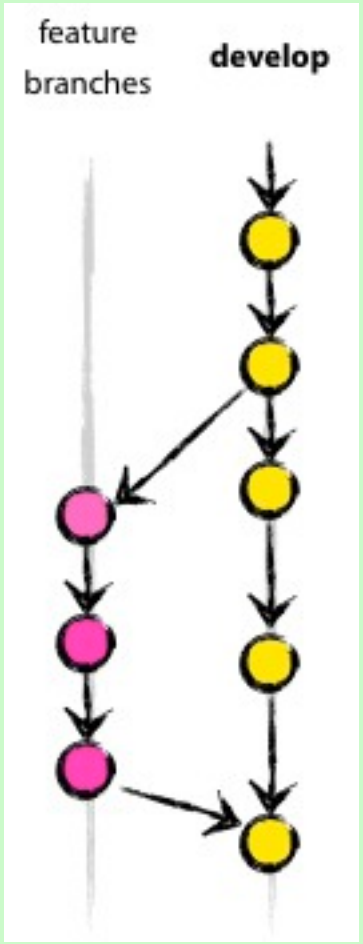

develop
master
Initial production version
Next production release
Next production release
Work in progress on "next release"

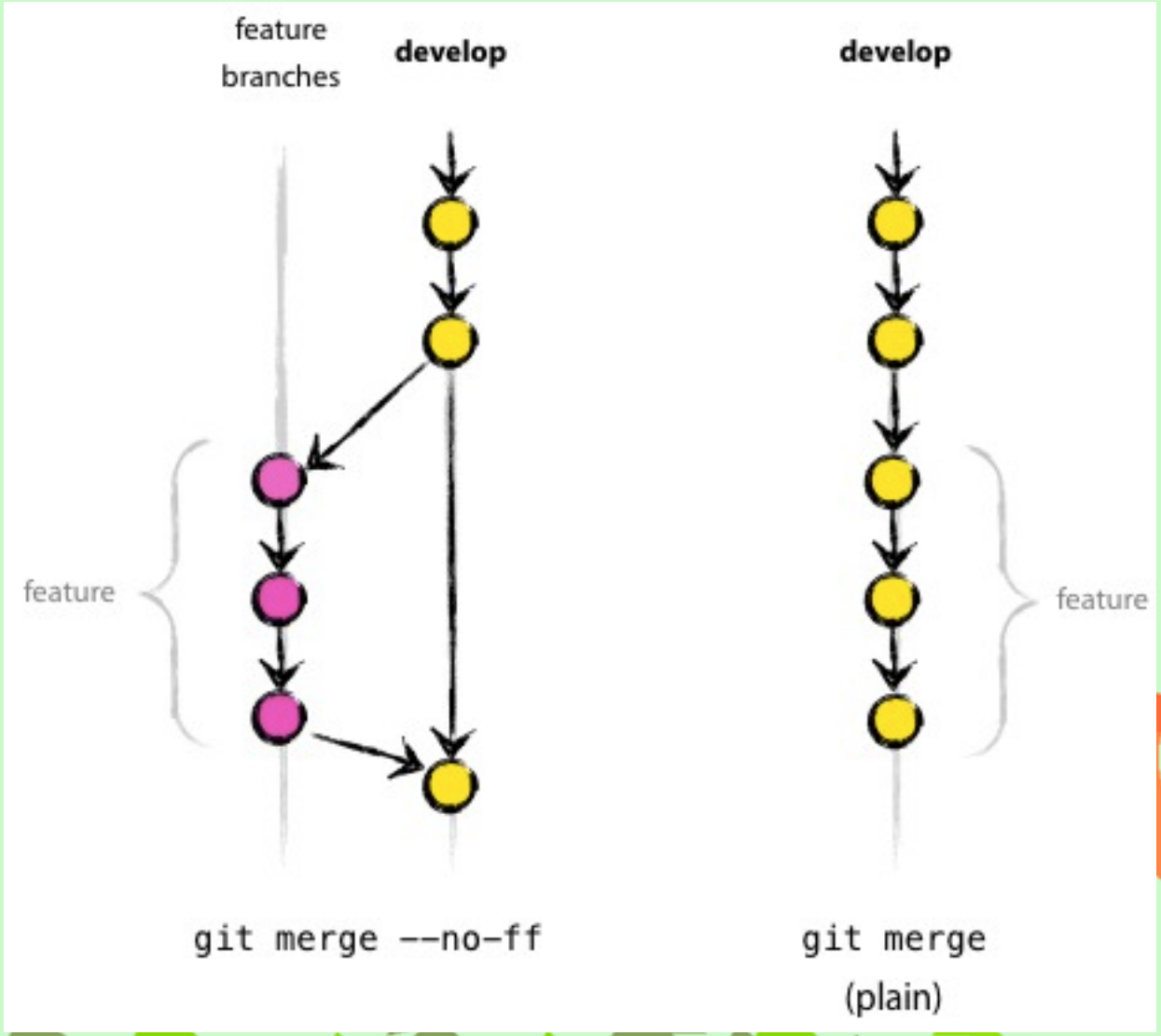
三種支援性分支(1)

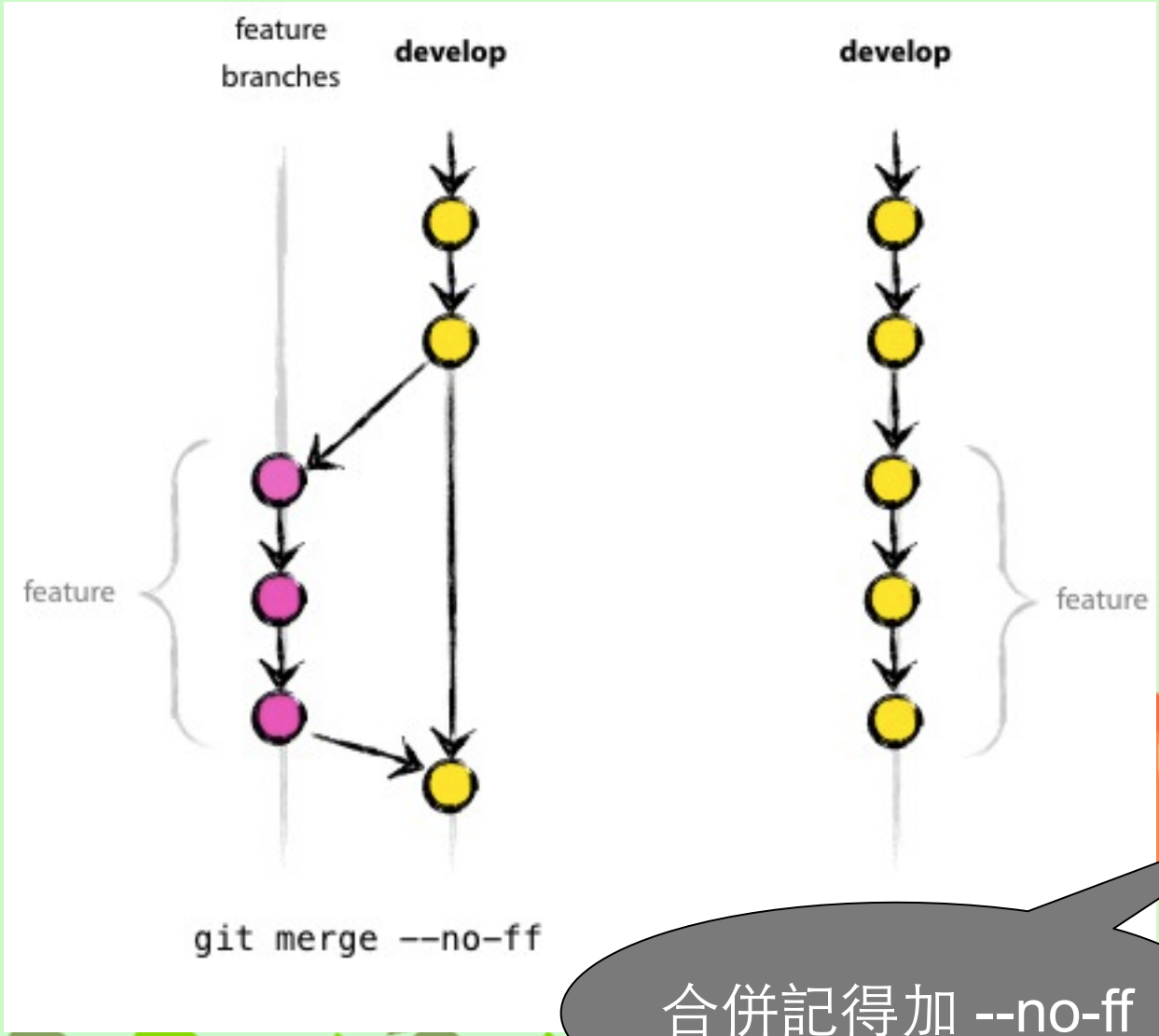
- Feature branches
  - 開發新功能或修 bugs
  - 從 develop 分支出來
  - 完成後 merge 回 develop
  - 如果開發時間較長，則需定期同步 develop 主幹的程式(初學可用 merge，建議改用 rebase)，不然最後會合併不回去。

三種支援性分支(1)

- Feature branches
  - 開發新功能或修 bugs
  - 從 develop 分支出來
  - 完成後 merge 回 develop
  - 如果開發時間較長，則需定期同步 develop 主幹的程式(初學可用 merge，建議改用 rebase)，不然最後會合併不回去。


feature
branches
develop


feature
branches
develop
develop
feature
feature
git merge --no-ff
git merge
(plain)


feature
branches
develop
develop
feature
feature
git merge --no-ff

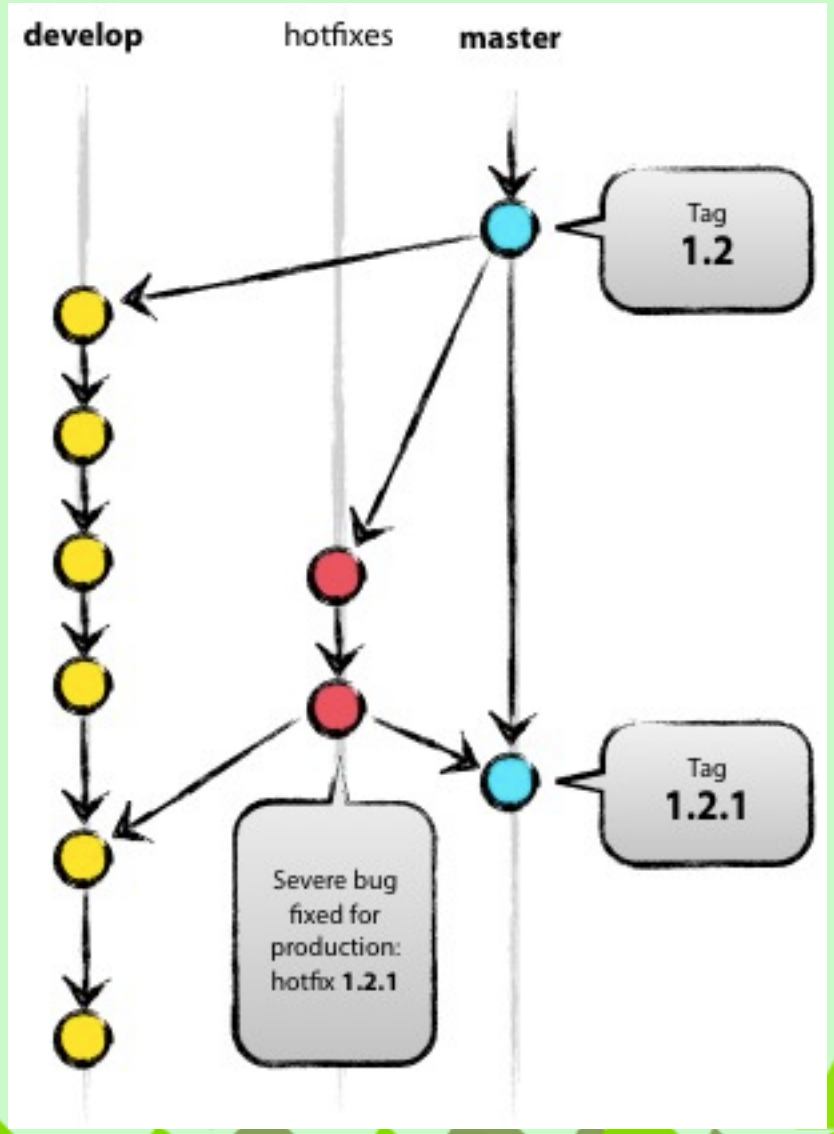
合併記得加 --no-ff

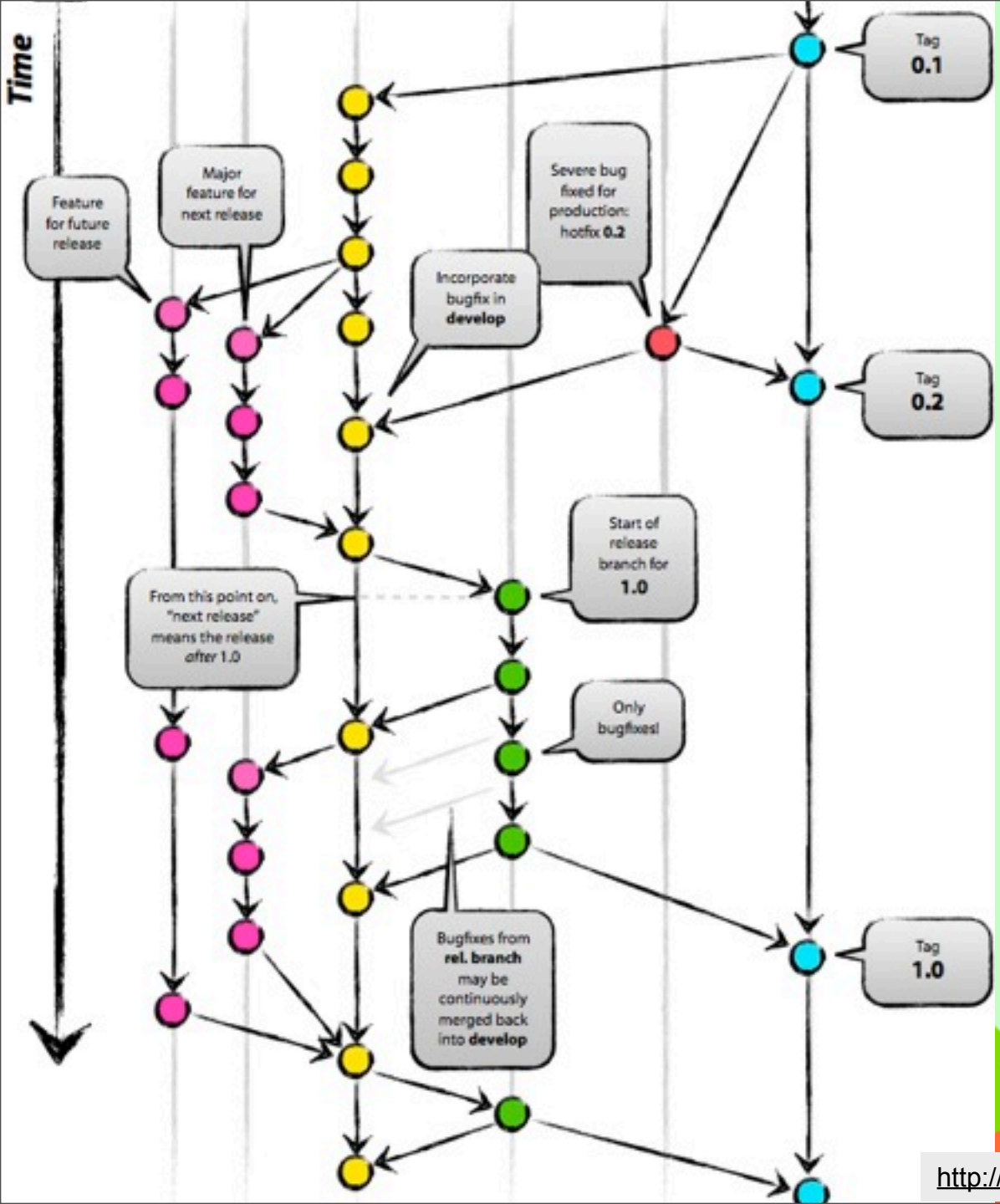
三種支援性分支(2)

- Release branches
  - 準備要 release 的版本，只修 bugs
  - 從 develop 分支出來
  - 完成後 merge 回 master 和 develop

三種支援性分支(3)

- Hotfix branches
  - 等不及 release 版本就必須馬上修 master 趕著上線
  - 會從 master 分支出來
  - 完成後 merge 回 master 和 develop


develop
hotfixes
master
Tag
1.2
Tag
1.2.1
Severe bug
fixed for
production:
hotfix 1.2.1

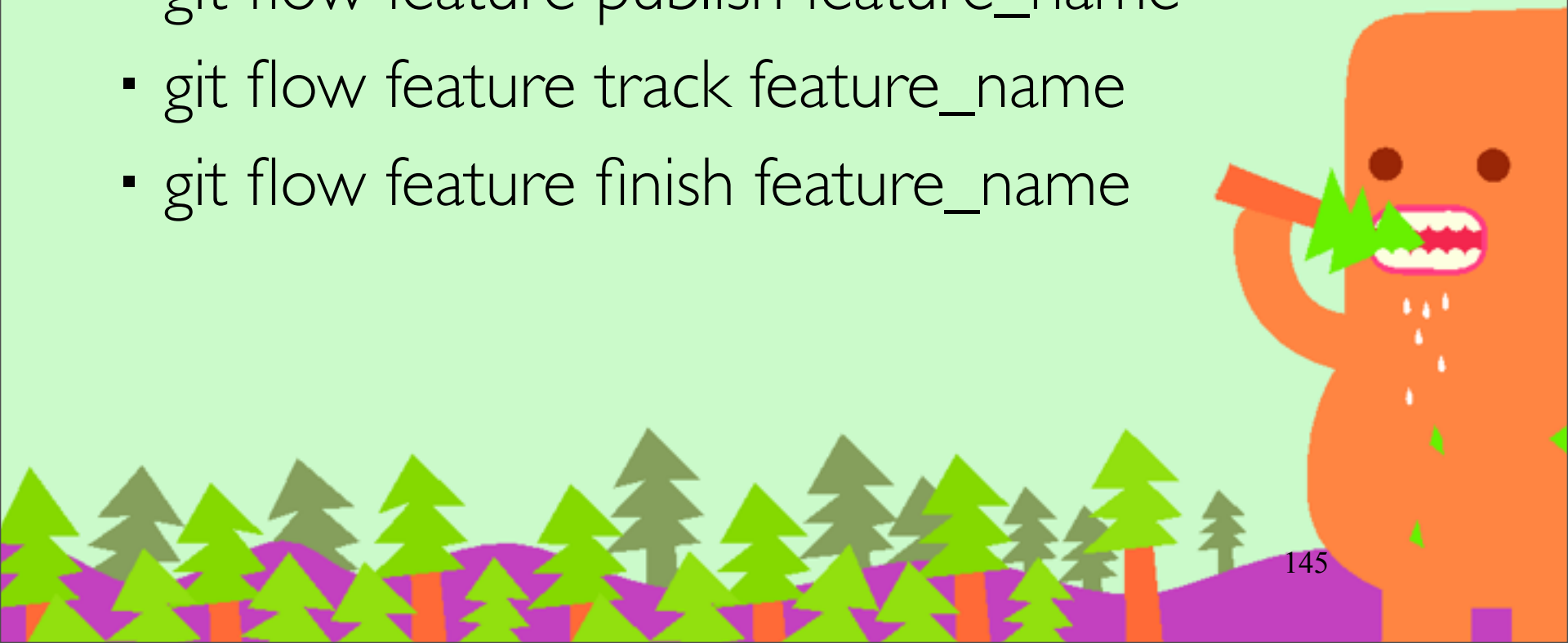


粉紅色: Feature branches
黃色: develop
綠色 release branches
紅色: hotfix branches
藍色: master

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

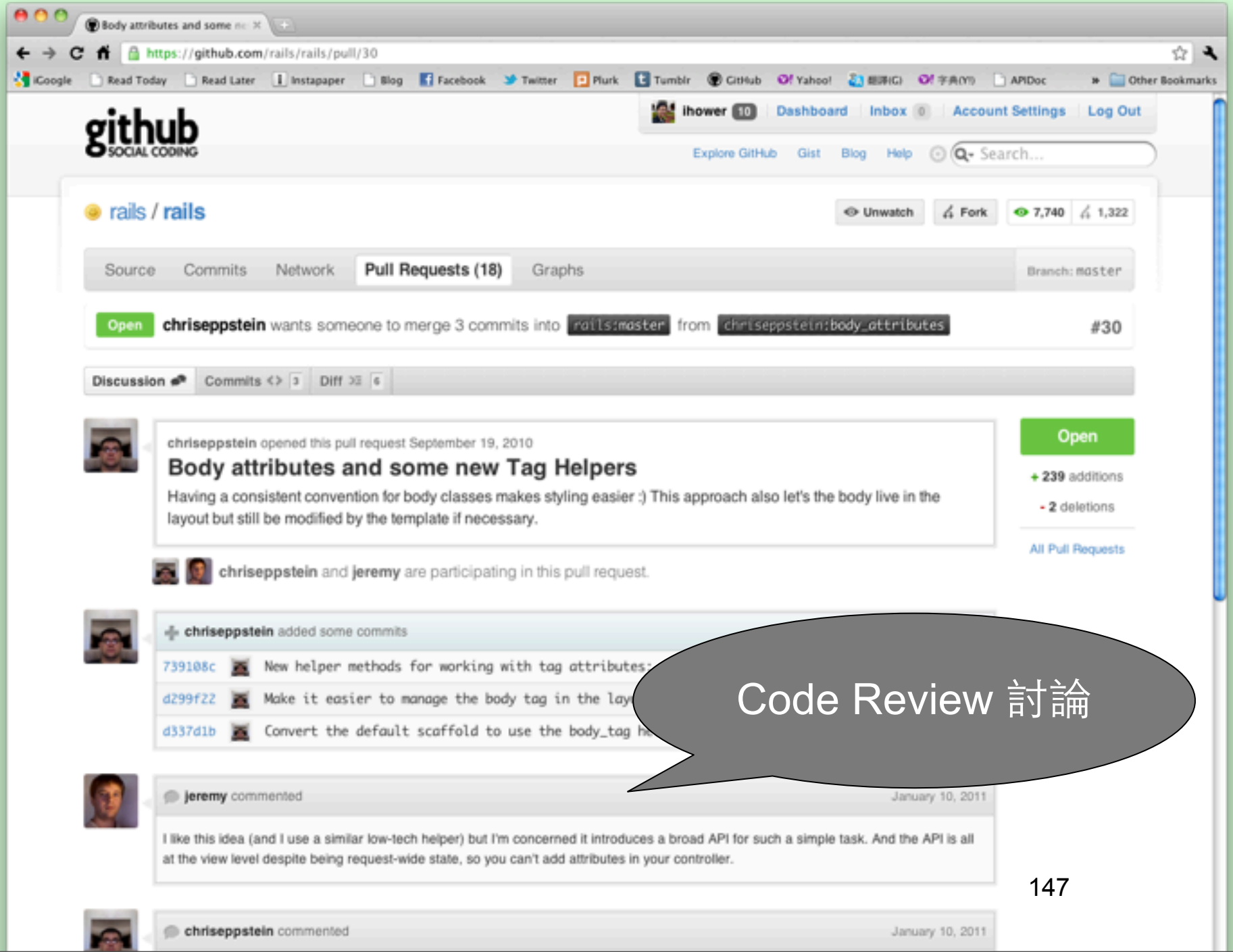
git-flow 工具

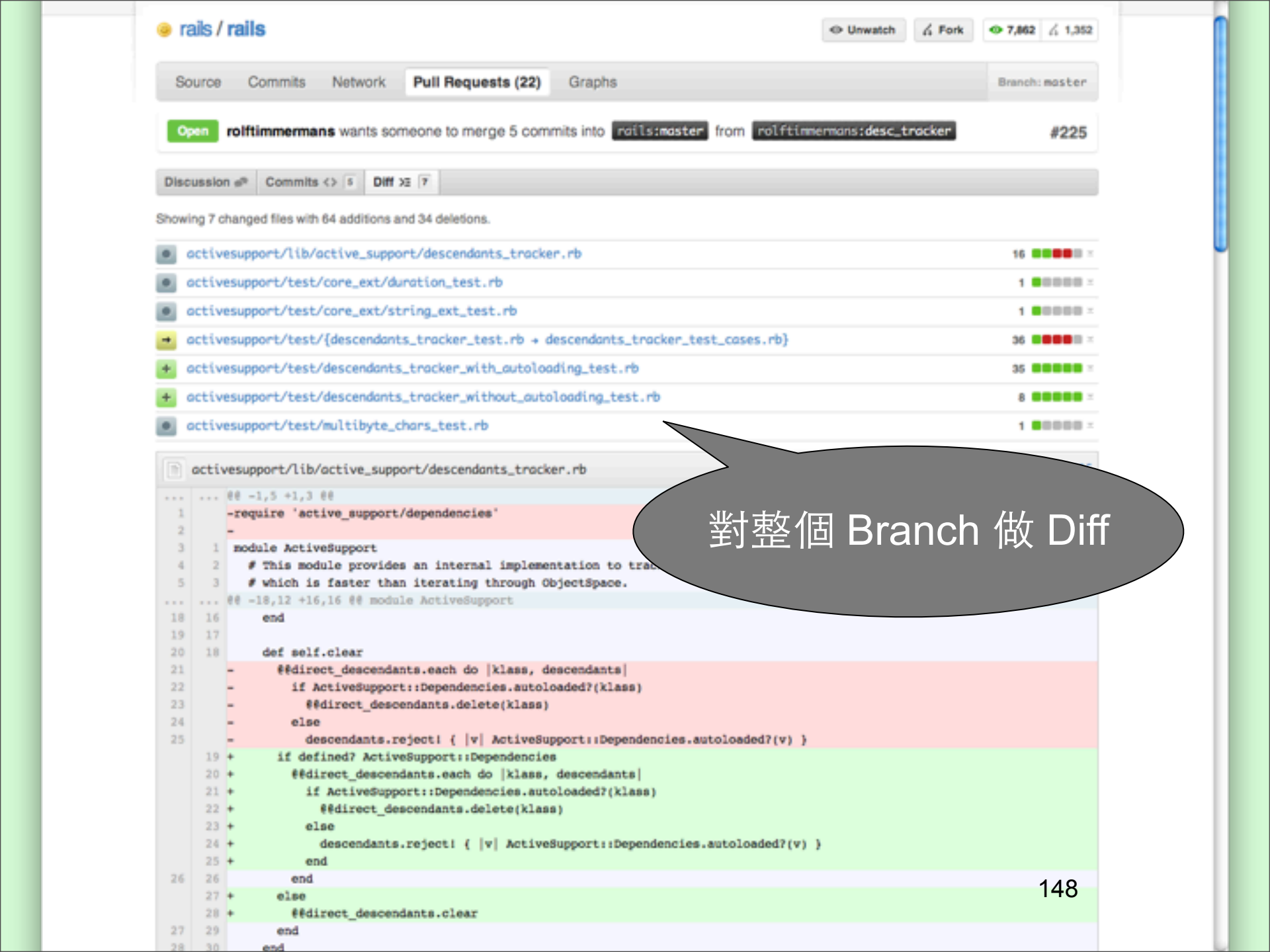
- git flow init
- git flow feature finish feature_name
- git flow feature publish feature_name
- git flow feature track feature_name
- git flow feature finish feature_name



Branch-Owner Policy

- 規定只有 project leaders 可以 commit/merge 進 develop branch。
- 規定只有 release team 可以管理 master branch。
- 其他開發者都開 topic branches，完成後發 pull request，大家做 code review 後，沒問題才 merge 進 develop。
- GitHub 的 pull request 功能推薦


Body attributes and some
https://github.com/rails/rails/pull/30
iGoogle
Read Today
Read Later
Instapaper
Blog
Facebook
Twitter
Plurk
Tumblr
GitHub
Yahoo!
APIDoc
Other Bookmarks
github
SOCIAL CODING
ihower 10
Dashboard
Inbox 0
Account Settings
Log Out
Explore GitHub
Gist
Blog
Help
Search...
rails / rails
Unwatch
Fork
7,740
1,322
Source
Commits
Network
Pull Requests (18)
Graphs
Branch: master
Open
chriseppstein wants someone to merge 3 commits into rails:master from chriseppstein:body_attributes
#30
Discussion
Commits 3
Diff 6
chriseppstein opened this pull request September 19, 2010
Body attributes and some new Tag Helpers
Having a consistent convention for body classes makes styling easier :) This approach also let's the body live in the layout but still be modified by the template if necessary.
chriseppstein and jeremy are participating in this pull request.
Open
+ 239 additions
- 2 deletions
All Pull Requests
chriseppstein added some commits
739108c New helper methods for working with tag attributes
d299f22 Make it easier to manage the body tag in the lay
d337d1b Convert the default scaffold to use the body_tag h
Code Review 討論
jeremy commented
January 10, 2011
I like this idea (and I use a similar low-tech helper) but I'm concerned it introduces a broad API for such a simple task. And the API is all at the view level despite being request-wide state, so you can't add attributes in your controller.
chriseppstein commented
January 10, 2011


rails / rails
Unwatch
Fork
7,862
1,352
Source
Commits
Network
Pull Requests (22)
Graphs
Branch: master
Open
rolftimmermans wants someone to merge 5 commits into rails:master from rolftimmermans:desc_tracker
#225
Discussion
Commits 5
Diff 7
Showing 7 changed files with 64 additions and 34 deletions.
activesupport/lib/active_support/descendants_tracker.rb 16
activesupport/test/core_ext/duration_test.rb 1
activesupport/test/core_ext/string_ext_test.rb 1
activesupport/test/{descendants_tracker_test.rb → descendants_tracker_test_cases.rb} 36
activesupport/test/descendants_tracker_with_autoloading_test.rb 35
activesupport/test/descendants_tracker_without_autoloading_test.rb 8
activesupport/test/multibyte_chars_test.rb 1
activesupport/lib/active_support/descendants_tracker.rb
@@ -1,5 +1,3 @@
-require 'active_support/dependencies'
-
module ActiveSupport
This module provides an internal implementation to tra
which is faster than iterating through ObjectSpace.
@@ -18,12 +16,16 @@ module ActiveSupport
end
def self.clear
-@@direct_descendants.each do |klass, descendants|
-if ActiveSupport::Dependencies.autoloaded?(klass)
-@@direct_descendants.delete(klass)
-else
-descendants.reject! { |v| ActiveSupport::Dependencies.autoloaded?(v) }
+if defined? ActiveSupport::Dependencies
+@@direct_descendants.each do |klass, descendants|
+if ActiveSupport::Dependencies.autoloaded?(klass)
+@@direct_descendants.delete(klass)
+else
+descendants.reject! { |v| ActiveSupport::Dependencies.autoloaded?(v) }
+end
end
+else
+@@direct_descendants.clear
end
end
end
對整個 Branch 做 Diff

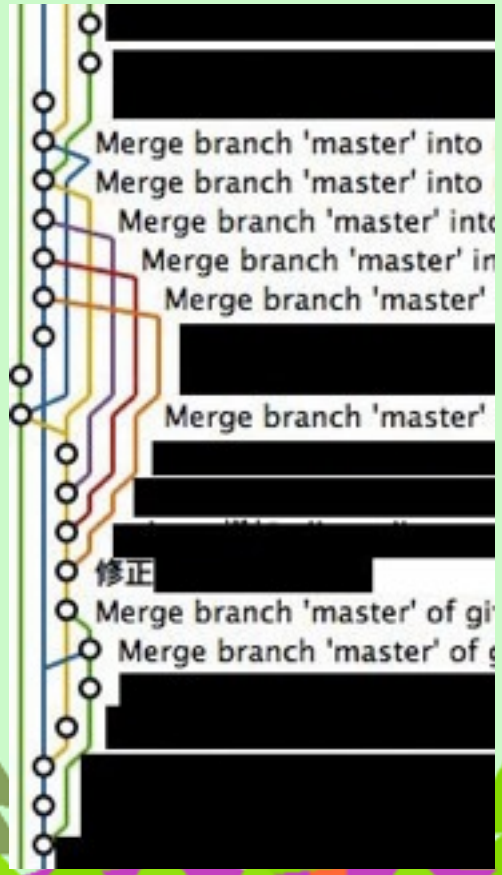
6. 更多 Git Tips

其他更多指令

- git archive
- git bisect
- git blame
- git grep
- git show
- git gc
- git format-patch, send-email, am

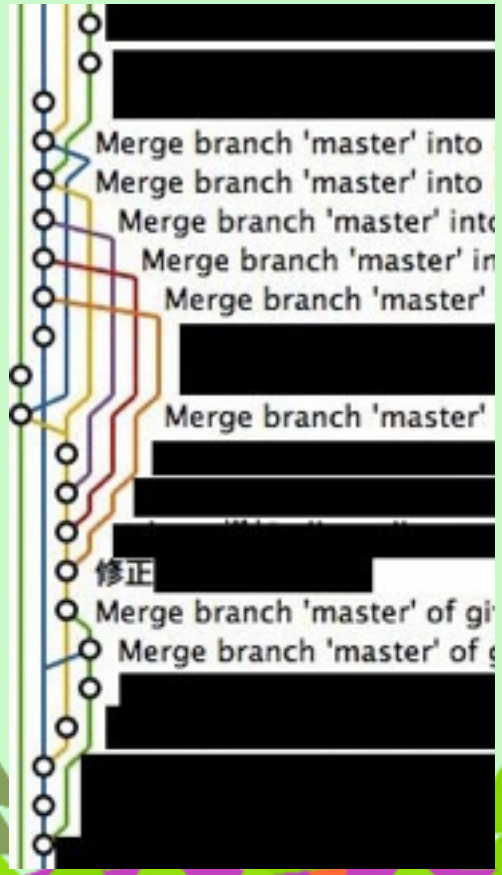
使用 git pull --rebase 可以避免無謂的 merge 節點，讓線圖變乾淨

http://ihower.tw/blog/archives/3843



使用 git pull --rebase 可以避免無謂的 merge 節點，讓線圖變乾淨

http://ihower.tw/blog/archives/3843



特別是很多人在同一個 branch 同時開發，例如主幹 master，容易發生這種情況!

git pull 何時用 merge? 何時用 rebase?

- 修改比較多，預期會有 conflict，用 merge
  - 是不是一開始就應該開 feature branch 來做呢?
- 修改範圍較小，不太預期有 conflict，建議可以用 --rebase

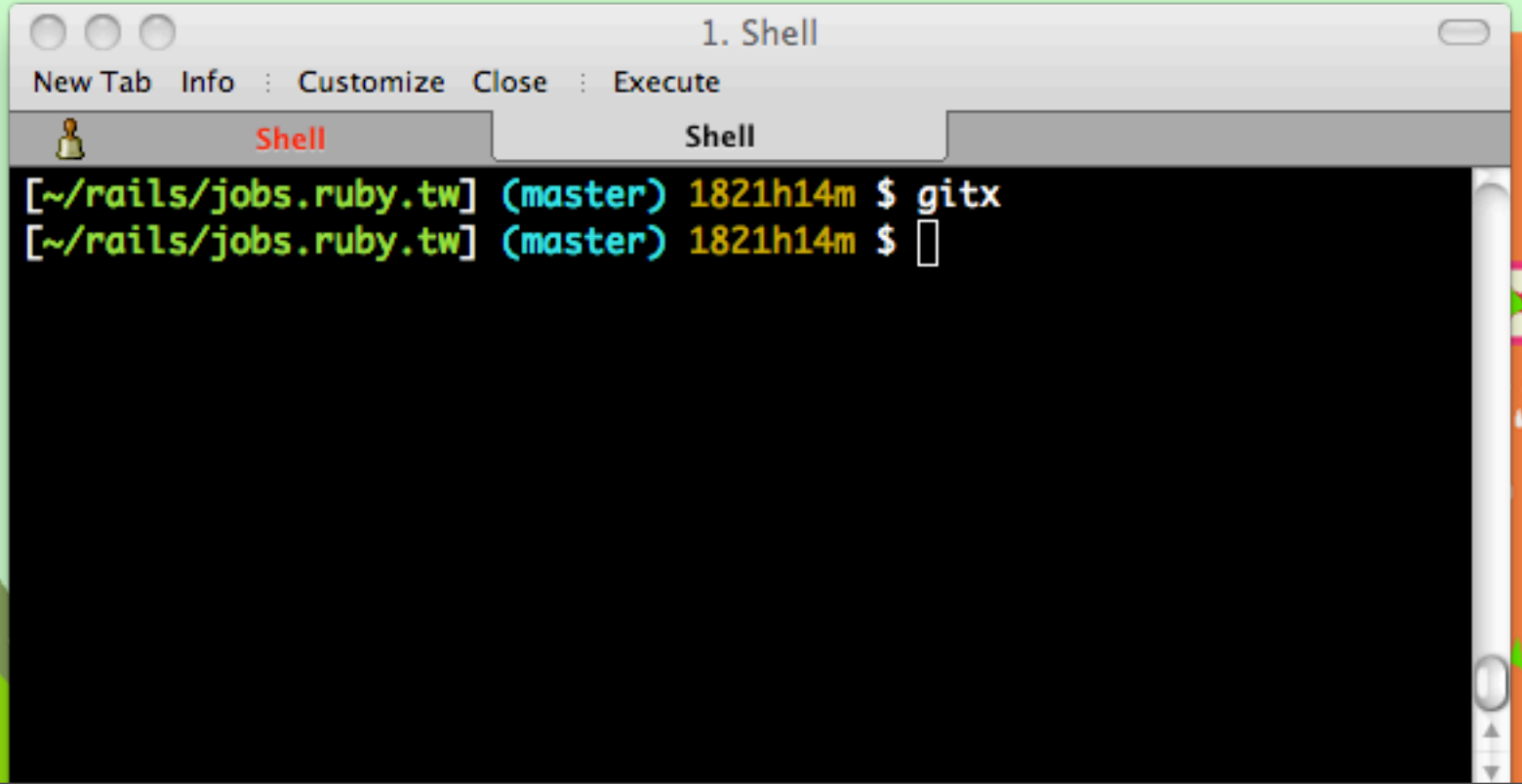
git pull 何時用 merge? 何時用 rebase?

- 修改比較多，預期會有 conflict，用 merge
  - 是不是一開始就應該開 feature branch 來做呢?
- 修改範圍較小，不太預期有 conflict，建議可以用 --rebase

Bash Prompt

http://ihower.tw/blog/archives/5436/

- 顯示目前在哪一個 branch
- 顯示距離上次 commit 有多久了



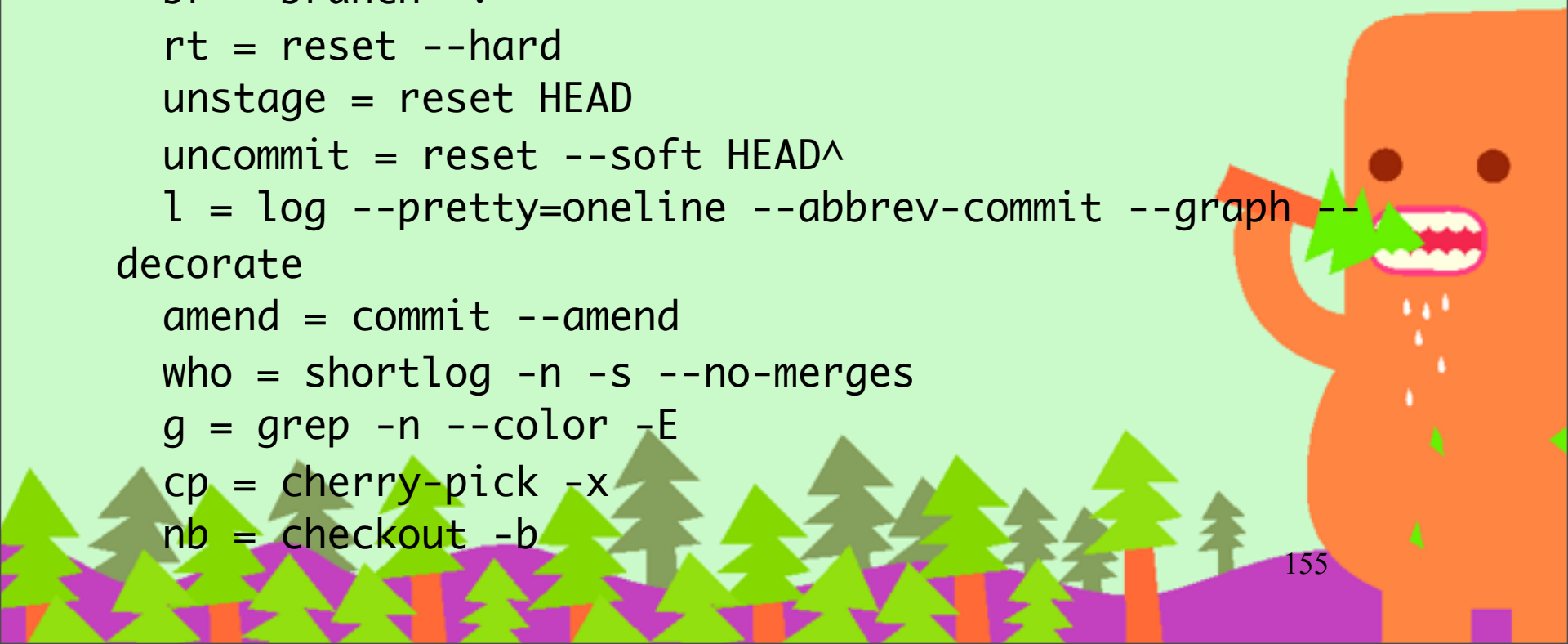
bash-completion

- http://bash-completion.alioth.debian.org/
- Install via Homebrew (Mac only)
  - brew install bash-completion
  - cp /usr/local/etc/bash_completion.d/git-completion.bash ~/.git-bash-completion.sh
  - 編輯 ~/.bash_profile 加入
    [-f ~/.git-bash-completion.sh] && . ~/.git-bash-completion.sh

Useful alias

編輯 ~/.gitconfig

```
[alias]
  co = checkout
  ci = commit
  st = status
  br = branch -v
  rt = reset --hard
  unstage = reset HEAD
  uncommit = reset --soft HEAD^
  l = log --pretty=oneline --abbrev-commit --graph --
decorate
  amend = commit --amend
  who = shortlog -n -s --no-merges
  g = grep -n --color -E
  cp = cherry-pick -x
  nb = checkout -b
```



Useful alias

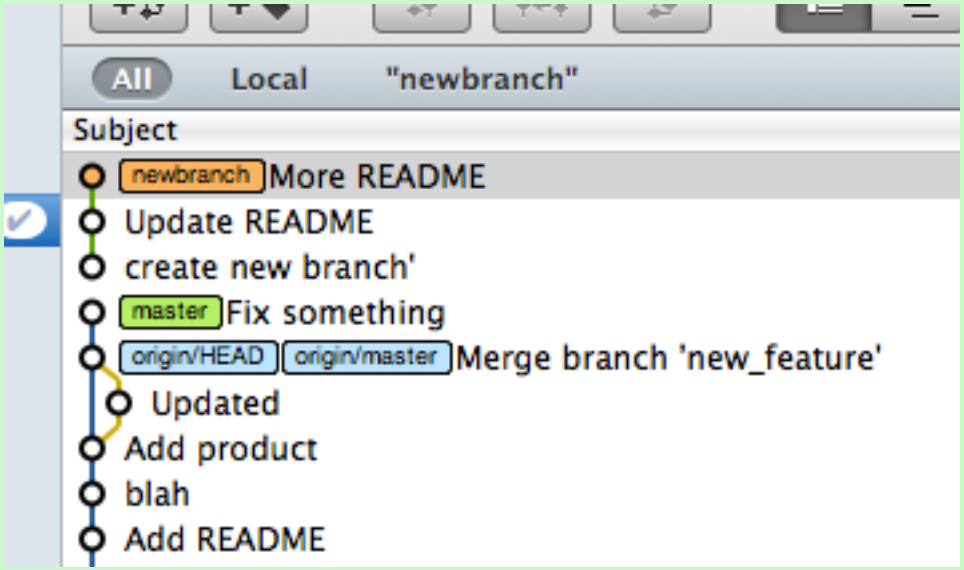
編輯 ~/.gitconfig

```
[alias]

  # 'git add -u' 只包含刪除的檔案，不包含新增檔案
  # 'git add .' 包含修改和新增的檔案，但是不包含刪除
  # 'git addall' 通通加到 staging

  addall = !sh -c 'git add . && git add -u'
```

建立沒有 parent 的獨立 branch

- 建立毫不相關的分支，用來保存其他資訊，就像目錄一樣。不需要被 merge 回主幹。
- 用途範例：Github page
- git checkout --orphan new_branch
  - git rm -rf . # 砍掉重練
  - 加新檔案
  - git add .
  - git commit -m “new branch”

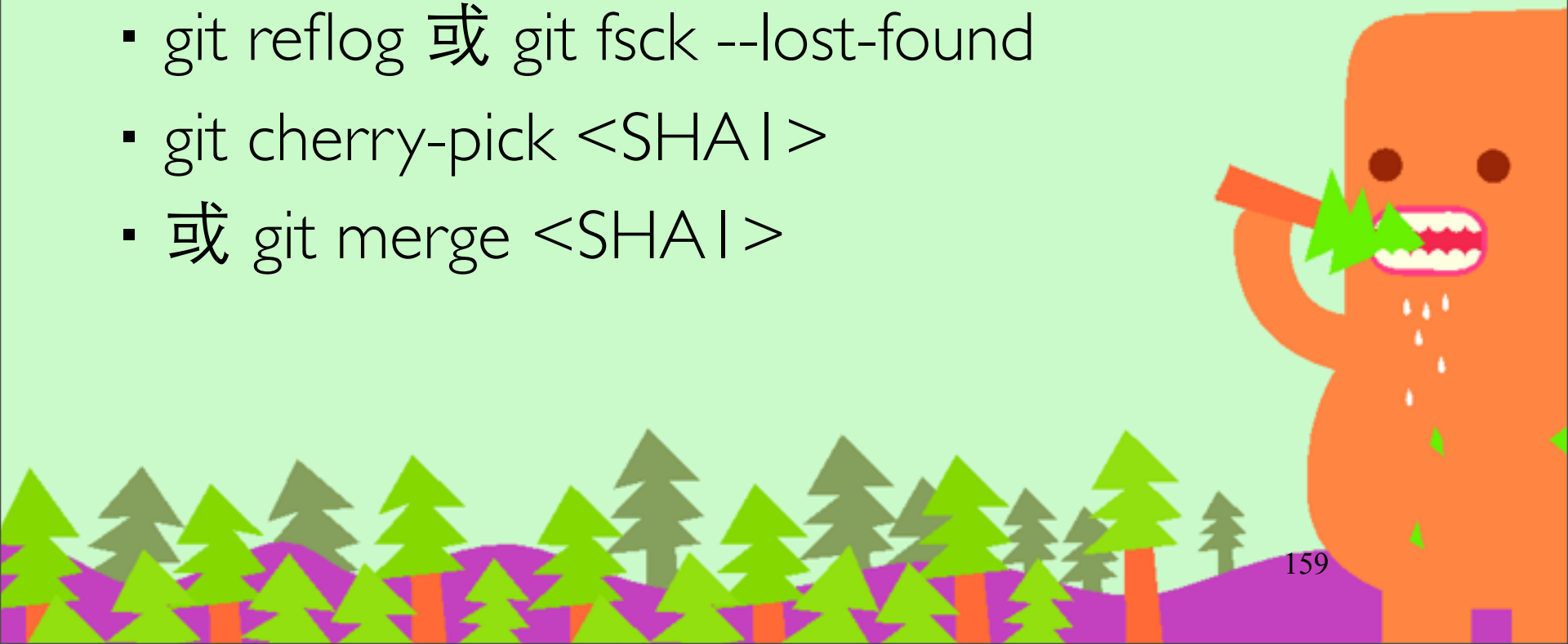
Orphan branch example



弄丟 commit 和 branch 怎麼辦?

http://www.programblings.com/2008/06/07/the-illustrated-guide-to-recovering-lost-commits-with-git/

- 例如搞砸了 git reset, rebase 或誤刪 branch
- 在 git gc 前都還有機會救回來 (預設會保留孤兒 commits 90天)
- git reflog 或 git fsck --lost-found
- git cherry-pick <SHA1>
- 或 git merge <SHA1>



git-filter-branch 過濾

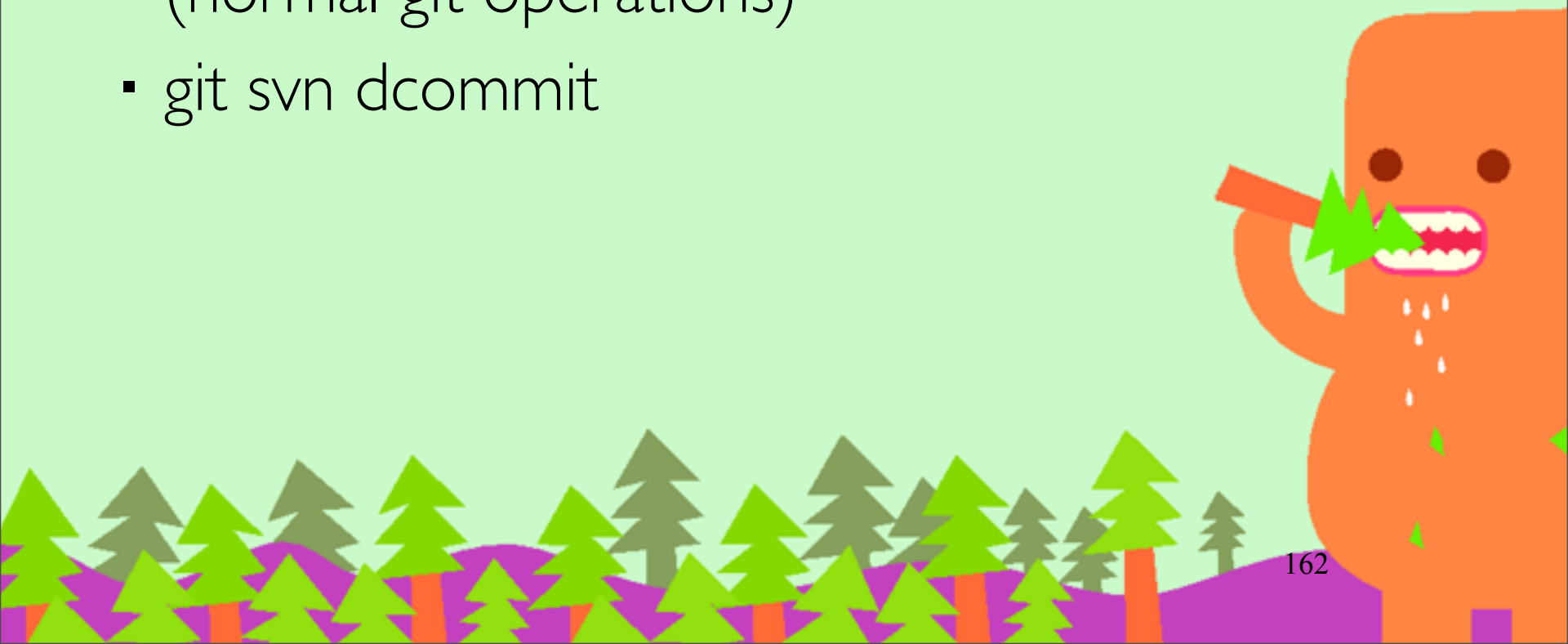
- 只取特定目錄
  http://gugod.org/2012/07/split-a-git-repository/
- 刪除特定敏感檔案
  https://help.github.com/articles/remove-sensitive-data

Git Submodule 或 Subtree

- Git 不像 SVN 可以只取出其中的子目錄
- 如何將第三方程式碼加進來? 像 SVN Externals?
- Submodule
  - http://josephjiang.com/entry.php?id=342
  - http://josephjiang.com/entry.php?id=357
- Subtree
  - http://git-scm.com/book/ch6-7.html
- 我沒用到
  - 因為 Ruby/Rails Develops 用不太到 XD
  - Ruby 用 Bundler 工具來管理 dependencies，可以確保大家都跑相同的套件版本，又可以解決套件相依性問題

git svn

- git 可以吃 SVN repository
- git svn clone http://url/svn/trunk/ project_name
- (normal git operations)
- git svn dcommit



自行架設 Git Server

- git --bare via SSH
- Gitosis
- Gitolite
- Gitlab 基於 Gitolite 的 Web 介面
  - http://gitlabhq.com/

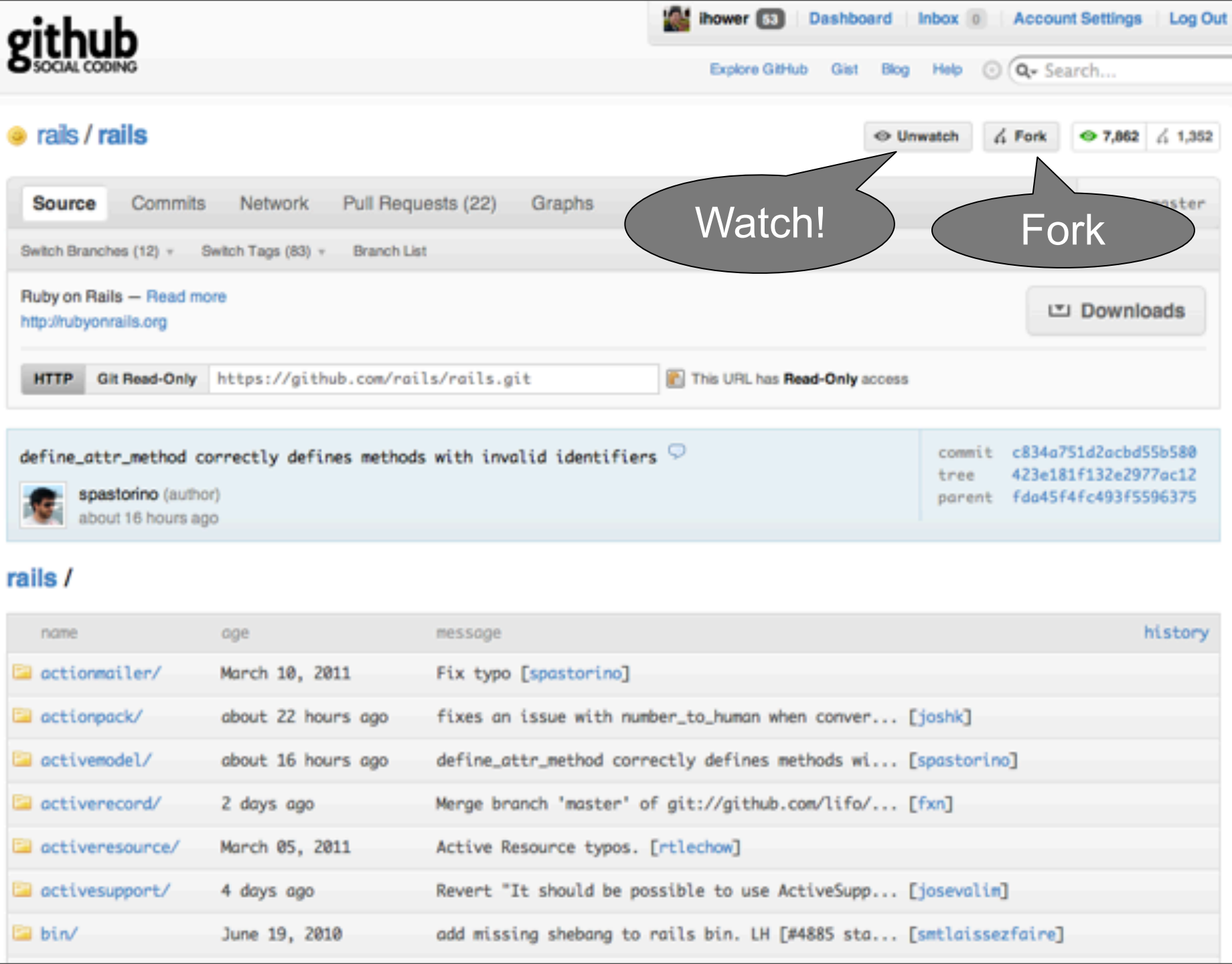
7. Github 簡介

= github

SOCIAL CODE HOSTING

誰在用 GitHub?

- twitter
- facebook
- rackspace
- digg
- Yahoo!
- shopify
- EMI
- six apart
- jQuery
- YUI 3
- mootools
- Ruby on Rails
- node.js
- symfony
- mongodb
- Erlang


github
SOCIAL CODING
ihower 53
Dashboard
Inbox 0
Account Settings
Log Out
Explore GitHub
Gist
Blog
Help
Search...
rails / rails
Unwatch
Fork
7,862
1,352
Watch!
Fork
Source
Commits
Network
Pull Requests (22)
Graphs
Switch Branches (12)
Switch Tags (83)
Branch List
Ruby on Rails — Read more
http://rubyonrails.org
Downloads
HTTP
Git Read-Only
https://github.com/rails/rails.git
This URL has Read-Only access
define_attr_method correctly defines methods with invalid identifiers
spastorino (author)
about 16 hours ago
commit c834a751d2acbd55b580
tree 423e181f132e2977ac12
parent fda45f4fc493f5596375
rails /
name
age
message
history
actionmailer/ March 10, 2011 Fix typo [spastorino]
actionpack/ about 22 hours ago fixes an issue with number_to_human when conver... [joshk]
activemodel/ about 16 hours ago define_attr_method correctly defines methods wi... [spastorino]
activerecord/ 2 days ago Merge branch 'master' of git://github.com/lifo/... [fxn]
activeresource/ March 05, 2011 Active Resource typos. [rtlechow]
activesupport/ 4 days ago Revert "It should be possible to use ActiveSupp... [josevalim]
bin/ June 19, 2010 add missing shebang to rails bin. LH [#4885 sta... [smtlaissezfaire]

Ruby is the #2 most popular language on GitHub

Explore | Repositories | **Languages** | Timeline | Search | Tips

Ruby | Recently Created | Recently Updated

Most Watched Today

- wbailey / **kata**
- injekt / **slop**
- apneadiving / **Google-Maps-for-Rails**
- codegram / **resort**
- shuber / **attr_encrypted**

Most Forked Today

- mxcl / **homebrew**
- thoughtbot / **capybara-webkit**
- opscode / **cookbooks**
- edavis10 / **redmine**
- drbrain / **meme**

Most Watched This Week

- injekt / **slop**
- mxcl / **homebrew**
- rails / **rails**
- NoamB / **sorcery**
- diaspora / **diaspora**

Most Forked This Week

- mxcl / **homebrew**
- rails / **rails**
- diaspora / **diaspora**
- chicagoruby / **booksiebot7000**
- drbrain / **meme**

Most Watched This Month

- postrank-labs / **goliath**
- mxcl / **homebrew**
- rails / **rails**
- meskyanichi / **backup**
- diaspora / **diaspora**

Most Forked This Month

- mxcl / **homebrew**
- rails / **rails**
- diaspora / **diaspora**
- mojombo / **jekyll**
- plataformatec / **devise**

Most Watched Overall

- rails / **rails**
- mxcl / **homebrew**
- diaspora / **diaspora**
- joshuaclayton / **blueprint-css**
- plataformatec / **devise**

Most Forked Overall

- mxcl / **homebrew**
- rails / **rails**
- diaspora / **diaspora**
- thoughtbot / **paperclip**
- Shopify / **active_merchant**

All Languages

ActionScript
Ada
Arc
ASP
Assembly
Boo
C
C#
C++
Clojure
CoffeeScript
ColdFusion
Common Lisp
D
Delphi
Duby
Eiffel
Emacs Lisp
Erlang
F#
Factor
FORTRAN
Go
Groovy
Haskell
HaXe
Io
Java
JavaScript

Fork network

The rails network graph

All branches in the network using **rails/rails** as the reference point. Read our blog post about how it works.

Show Help

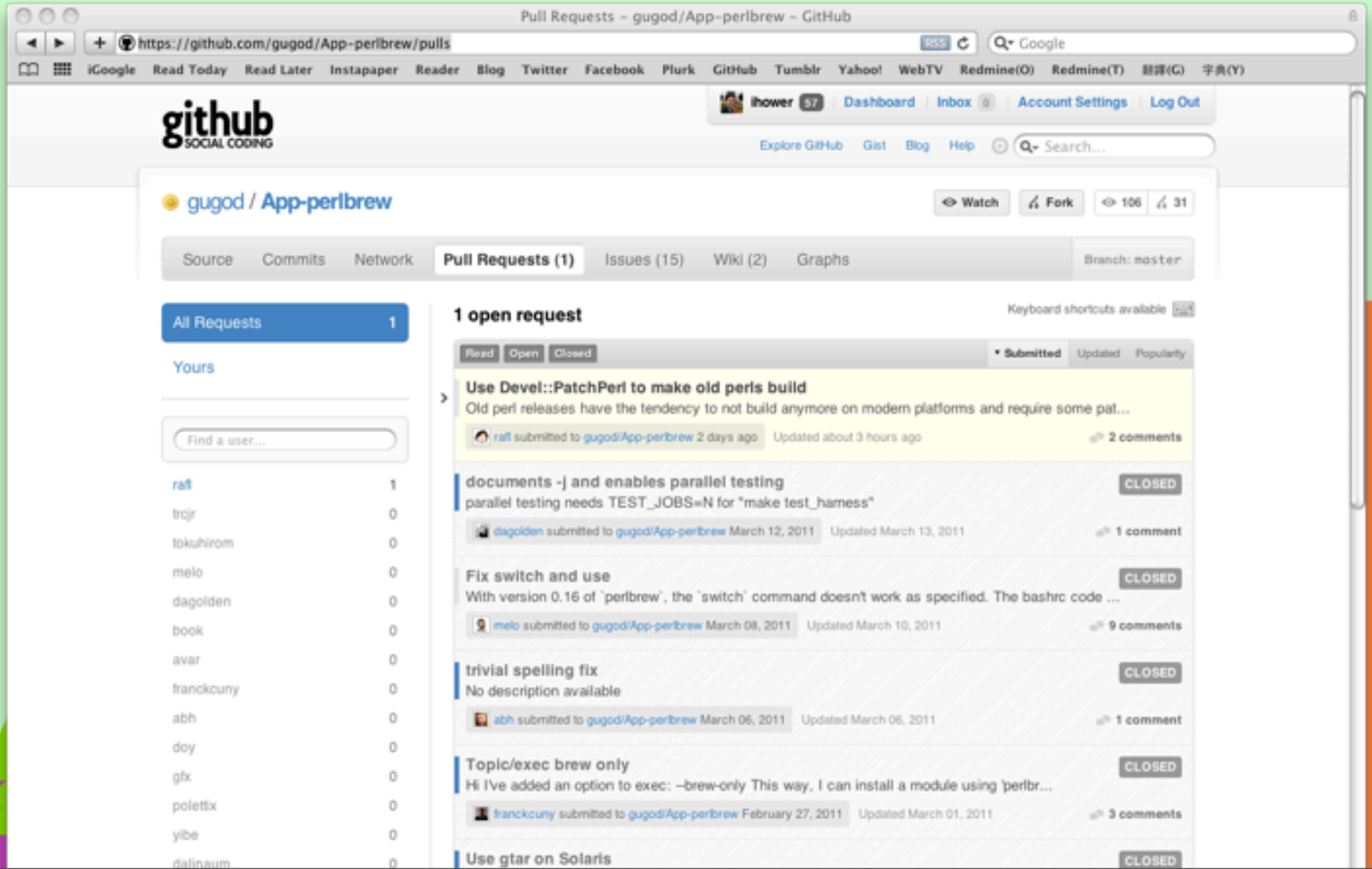
如何送 Patch 給開源專案?

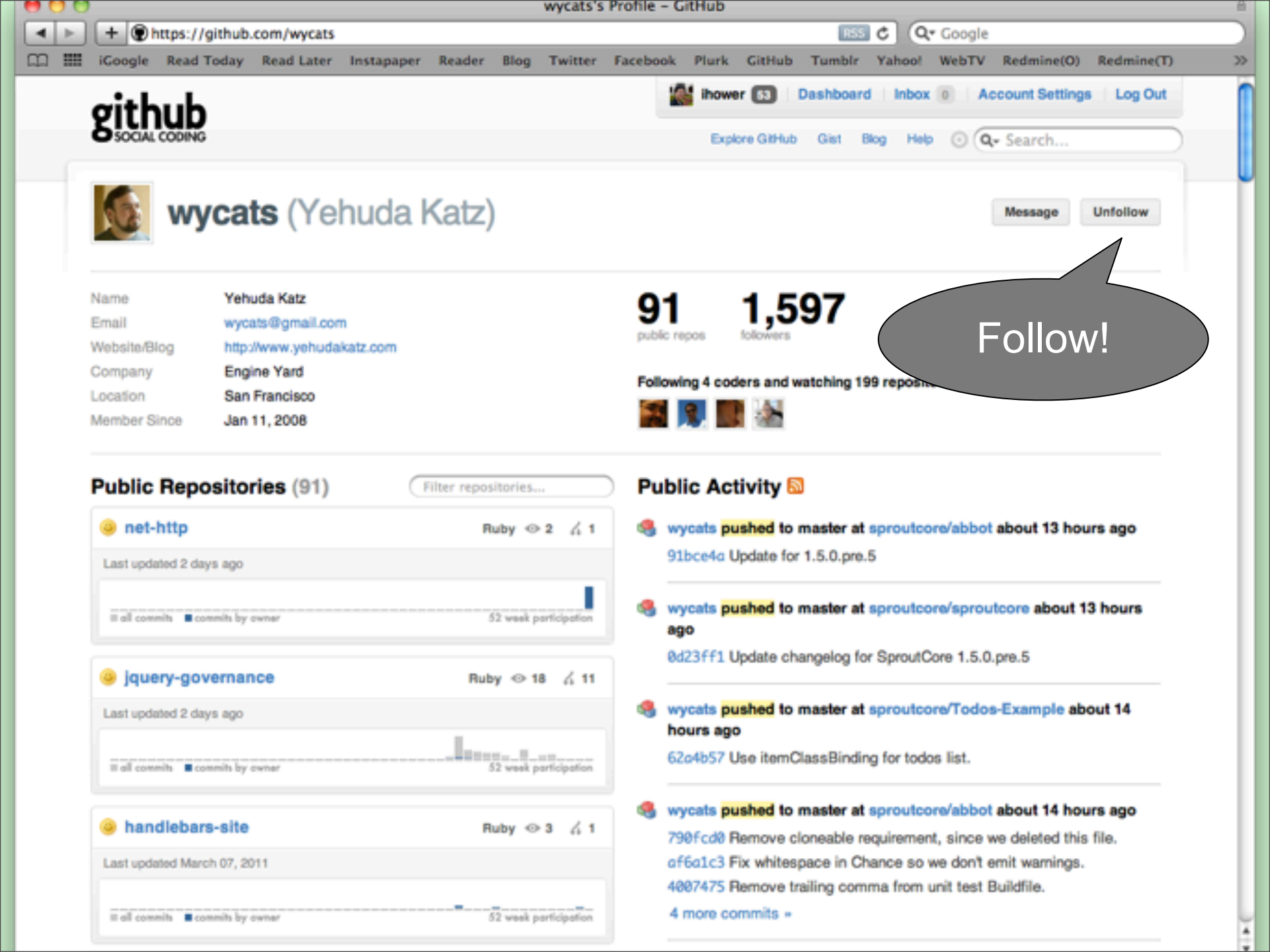
- Fork 成我的遠端 Repository
- Clone
- Fix bugs 或 Enhance features
- Push
- 送 Pull request 給原作者，請他合併

Fork & Pull Requests

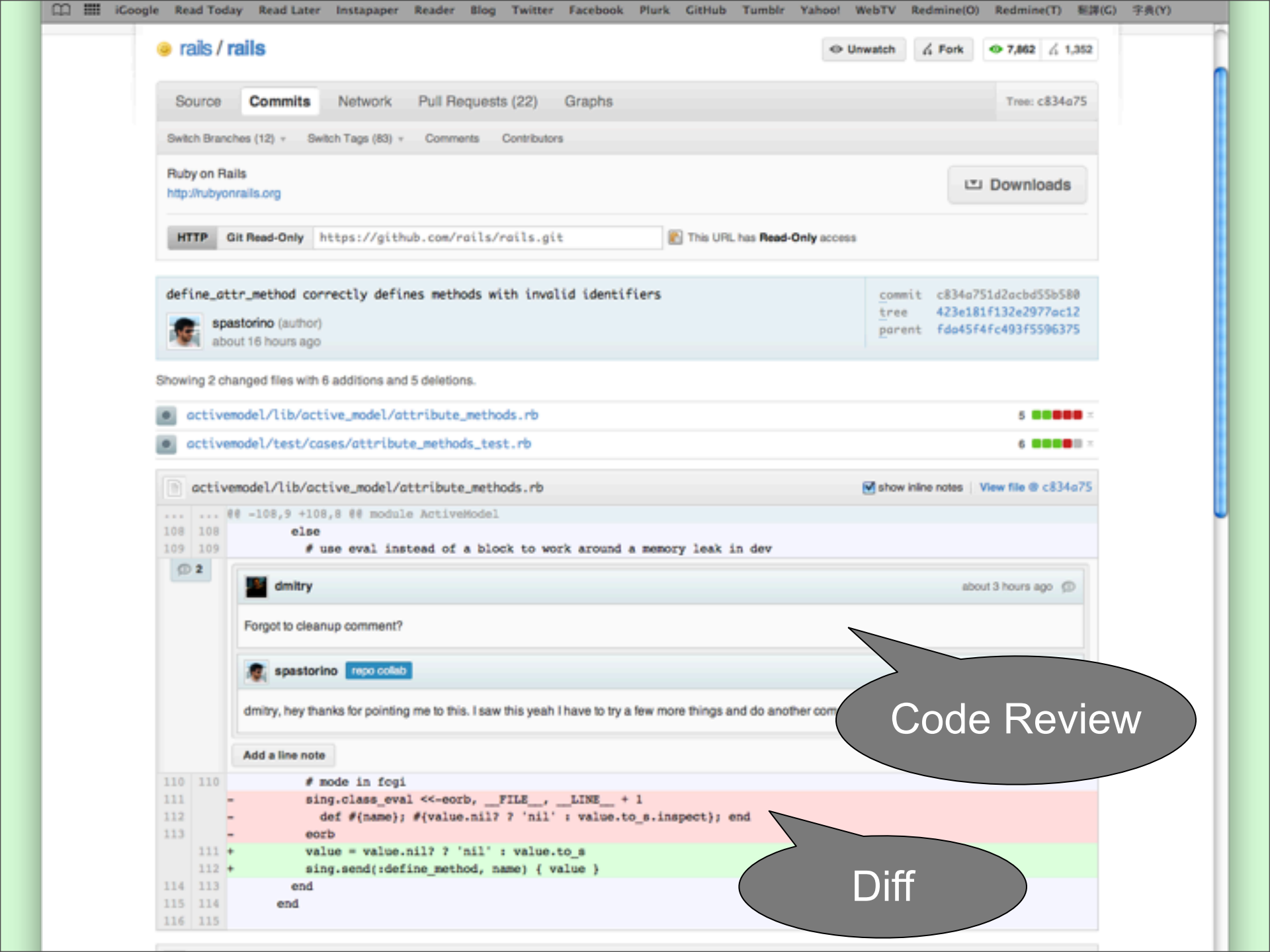
有 75% 的被 fork 開源專案，有 outside merge 回來的記錄!!

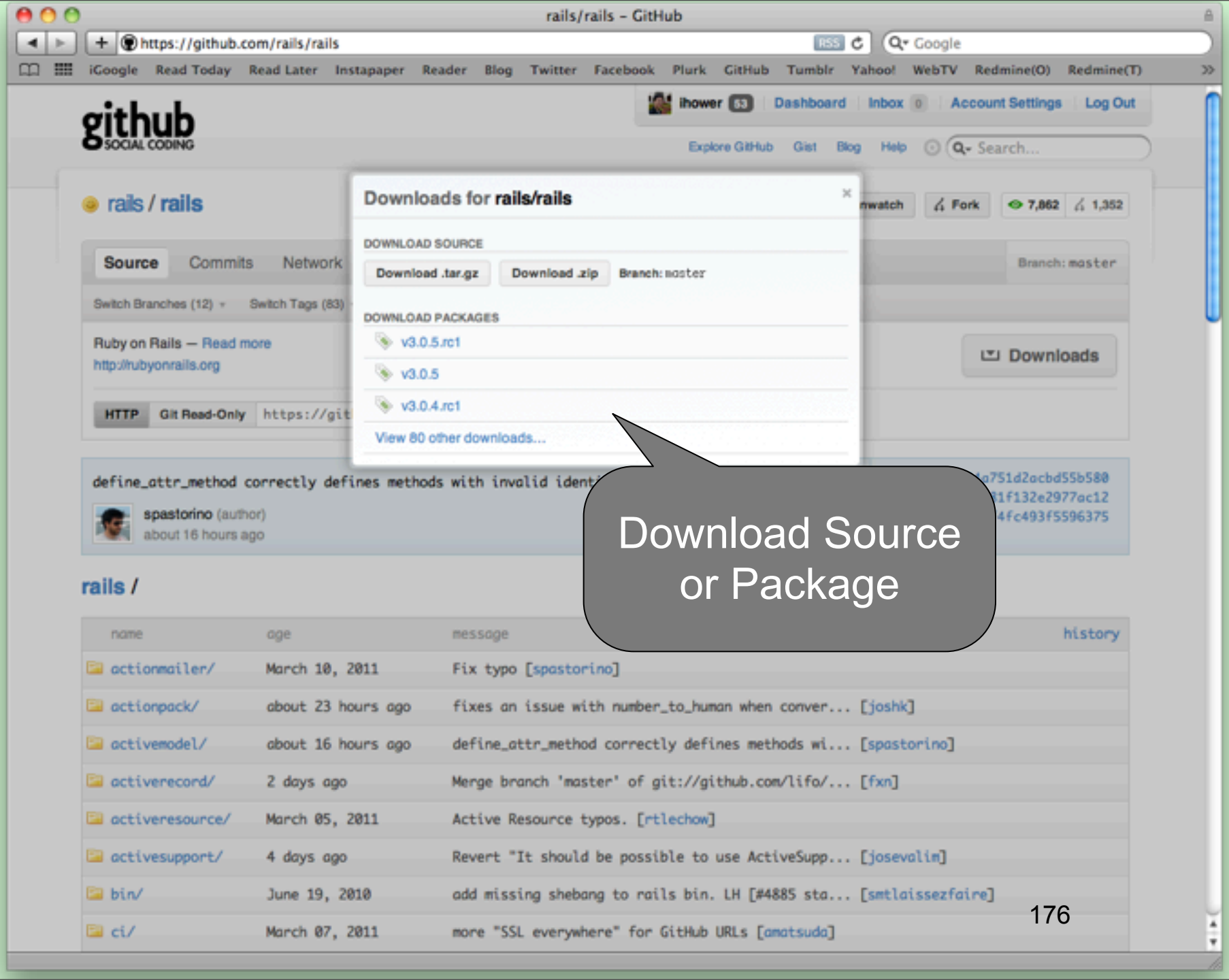
被 watch 超過一人以上的開源專案，有 25% 有 outside contributions 紀錄!!




wycats's Profile – GitHub
https://github.com/wycats
Google
iGoogle Read Today Read Later Instapaper Reader Blog Twitter Facebook Plurk GitHub Tumblr Yahoo! WebTV Redmine(O) Redmine(T)
github
SOCIAL CODING
ihower 63 Dashboard Inbox 0 Account Settings Log Out
Explore GitHub Gist Blog Help Search...
wycats (Yehuda Katz)
Message Unfollow
Follow!
Name Yehuda Katz
Email wycats@gmail.com
Website/Blog http://www.yehudakatz.com
Company Engine Yard
Location San Francisco
Member Since Jan 11, 2008
91 public repos
1,597 followers
Following 4 coders and watching 199 repos
Public Repositories (91)
Filter repositories...
net-http Ruby 2 1
Last updated 2 days ago
all commits commits by owner 52 week participation
jquery-governance Ruby 18 11
Last updated 2 days ago
all commits commits by owner 52 week participation
handlebars-site Ruby 3 1
Last updated March 07, 2011
all commits commits by owner 52 week participation
Public Activity
wycats pushed to master at sproutcore/abbot about 13 hours ago
91bce4a Update for 1.5.0.pre.5
wycats pushed to master at sproutcore/sproutcore about 13 hours ago
0d23ff1 Update changelog for SproutCore 1.5.0.pre.5
wycats pushed to master at sproutcore/Todos-Example about 14 hours ago
62a4b57 Use itemClassBinding for todos list.
wycats pushed to master at sproutcore/abbot about 14 hours ago
790fcd0 Remove cloneable requirement, since we deleted this file.
af6a1c3 Fix whitespace in Chance so we don't emit warnings.
4007475 Remove trailing comma from unit test Buildfile.
4 more commits »


Gem.refresh to reload the gemfile - GitHub
https://github.com/carlhuda/bundler/wiki/Gem.refresh-to-reload-the-gemfile
Reader
Google
iGoogle Read Today Read Later Instapaper Reader Blog Twitter Facebook Plurk GitHub Tumblr Yahoo! WebTV Redmine(O) Redmine(T)
github
SOCIAL CODING
ihower 63 Dashboard Inbox 0 Account Settings Log Out
Explore GitHub Gist Blog Help Search...
carlhuda / bundler
Watch Fork 1,064 196
Source Commits Network Pull Requests (19) Issues (147) Wiki (14) Graphs Branch: 1-0-stable
Home Pages Wiki History Git Access
Gem.refresh to reload the gemfile
New Page Edit Page Page History
From issue 739:
Hi guys,
For working unicorn you introduced Gem.refresh (back in f0a65fea). And it looks like this:
gem_class.send(:define_method, :refresh) { }
The problem is it's in the unicorn for a reason. Unicorn offers zero-downtime restarts. When you send it USR2 it forks and reloads rails/rack and then starts responding to users requests.
When Gemfile is changed it doesn't pick up changes. For example, I have working unicorn instance, then I add a gem, I deploy, send USR2, and unicorn couldn't restart. Because it loaded old Gemfile and have no idea about new gem. Practically it dumps this backtrace (https://gist.github.com/5c27d25d134e1cfa0eae) to the unicorn.stderr.log and continues to run old instance with the new current directory.
I propose Gem.refresh should reload Gemfile. What do you guys think?
elucid says:
I don't think this is actually a problem with Bundler. I've put up a simple repo at https://github.com/elucid/unicorn-reload to demonstrate how USR2 reloads with Unicorn work. If the old Gemfile is being reloaded after an upgrade, I think this probably has to do with the way that Unicorn was started in the first place. In particular, new Unicorn master processes will be started in the exact same directory that the original was. If you update your app code in place and nothing else changes, that should be fine. However if each deploy has its own directory you could be pointing at an old one. You can manually set this to something stable (e.g. a symlink that gets updated on each release) by calling working_directory somedir in your Unicorn config file.
Wiki
174


rails / rails
Unwatch
Fork
7,862
1,352
Source
Commits
Network
Pull Requests (22)
Graphs
Tree: c834a75
Switch Branches (12)
Switch Tags (83)
Comments
Contributors
Ruby on Rails
http://rubyonrails.org
Downloads
HTTP
Git Read-Only
https://github.com/rails/rails.git
This URL has Read-Only access
define_attr_method correctly defines methods with invalid identifiers
spastorino (author)
about 16 hours ago
commit c834a751d2acbd55b580
tree 423e181f132e2977ac12
parent fda45f4fc493f5596375
Showing 2 changed files with 6 additions and 5 deletions.
activemodel/lib/active_model/attribute_methods.rb
activemodel/test/cases/attribute_methods_test.rb
activemodel/lib/active_model/attribute_methods.rb
show inline notes
View file @ c834a75
@@ -108,9 +108,8 @@ module ActiveModel
else
# use eval instead of a block to work around a memory leak in dev
2
dmitry
about 3 hours ago
Forgot to cleanup comment?
spastorino
repo collab
dmitry, hey thanks for pointing me to this. I saw this yeah I have to try a few more things and do another com
Add a line note
mode in fcgi
- sing.class_eval <<-eorb, __FILE__, __LINE__ + 1
- def #{name}; #{value.nil? ? 'nil' : value.to_s.inspect}; end
- eorb
+ value = value.nil? ? 'nil' : value.to_s
+ sing.send(:define_method, name) { value }
end
end
Code Review
Diff


rails/rails - GitHub
https://github.com/rails/rails
github
rails / rails
Downloads for rails/rails
DOWNLOAD SOURCE
Download .tar.gz
Download .zip
Branch: master
DOWNLOAD PACKAGES
v3.0.5.rc1
v3.0.5
v3.0.4.rc1
View 80 other downloads...
Source
Commits
Network
Downloads
Ruby on Rails — Read more
http://rubyonrails.org
HTTP
Git Read-Only
define_attr_method correctly defines methods with invalid ident
spastorino (author)
about 16 hours ago
rails /
name
age
message
history
actionmailer/ March 10, 2011 Fix typo [spastorino]
actionpack/ about 23 hours ago fixes an issue with number_to_human when conver... [joshk]
activemodel/ about 16 hours ago define_attr_method correctly defines methods wi... [spastorino]
activerecord/ 2 days ago Merge branch 'master' of git://github.com/lifo/... [fxn]
activeresource/ March 05, 2011 Active Resource typos. [rtlechow]
activesupport/ 4 days ago Revert "It should be possible to use ActiveSupp... [josevalim]
bin/ June 19, 2010 add missing shebang to rails bin. LH [#4885 sta... [smtlaissezfaire]
ci/ March 07, 2011 more "SSL everywhere" for GitHub URLs [amatsuda]
Download Source or Package

Github pages

http://pages.github.com/

- 叫做 your.github.com 的 repository，Github 會自動建立 http://your.github.com 的靜態網頁。
- 擁有 gh-pages 的分支的 your_project，Github 會自動建立 http://your.github.com/your_project 靜態網頁。

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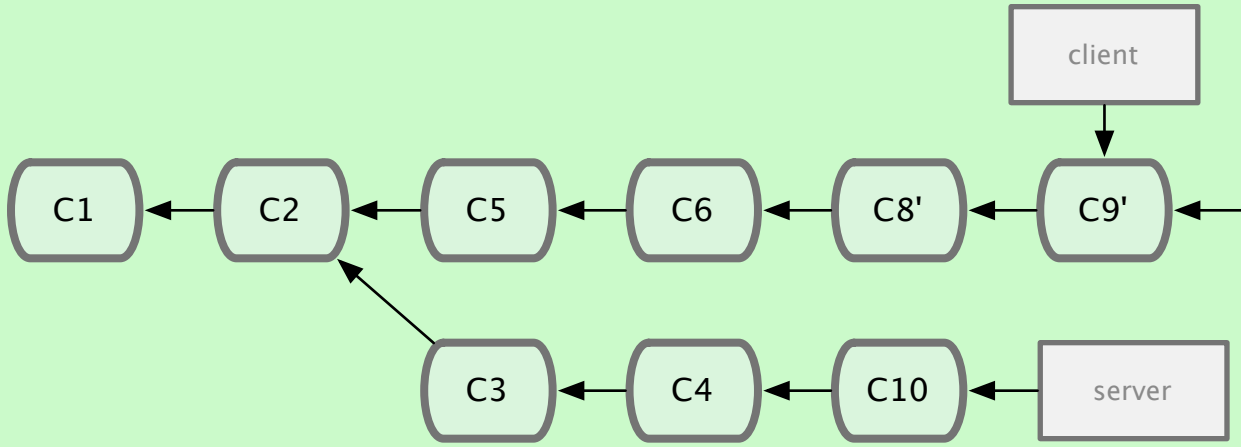
- 擁有 gh-pages 的分支的 your_project，Github 會自動建立 http://your.github.com/your_project 靜態網頁。

Thank you.

請 google “ihower” 就可以找到我及這份投影片。

特別感謝

- Scott Chacon 公開的 OmniGraffle diagram 圖檔
  https://github.com/schacon/git-presentations



參考書籍和影片

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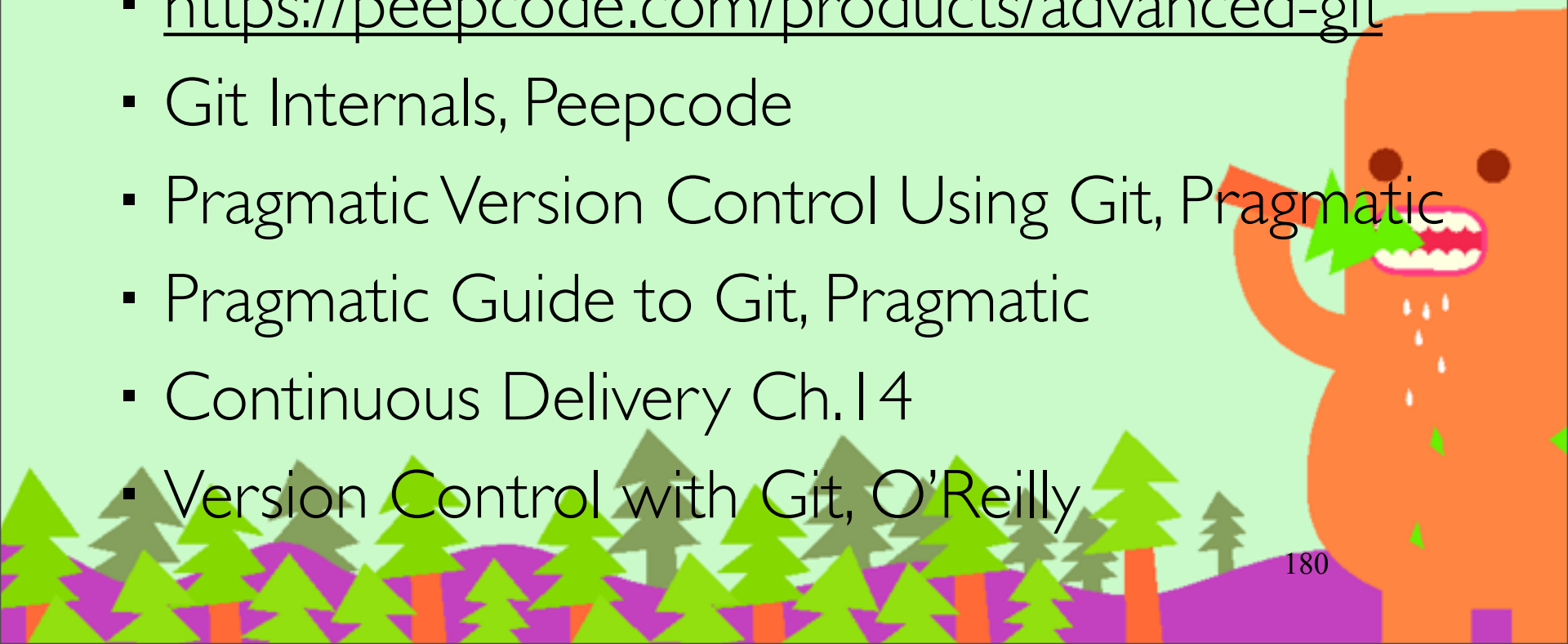
- https://peepcode.com/products/git
- https://peepcode.com/products/advanced-git
- Git Internals, Peepcode
- Pragmatic Version Control Using Git, Pragmatic
- Pragmatic Guide to Git, Pragmatic
- Continuous Delivery Ch.14
- Version Control with Git, O'Reilly



參考資料

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- http://yanpritzker.com/git-book/
- http://progit.org/book/
- http://git-scm.com
- http://help.github.com/
- http://gitimmersion.com
- http://www.gitready.com/
- http://gitref.org
- http://try.github.com