What's the big deal with git?

What is it and why would I use it?

PAUL OLIVER

Farm Credit Services *of* America®

AGRICULTURE WORKS HERE.®

paul@enterprisemapper.com

@ItsPaultastic

BITCOIN DAY OMAHA

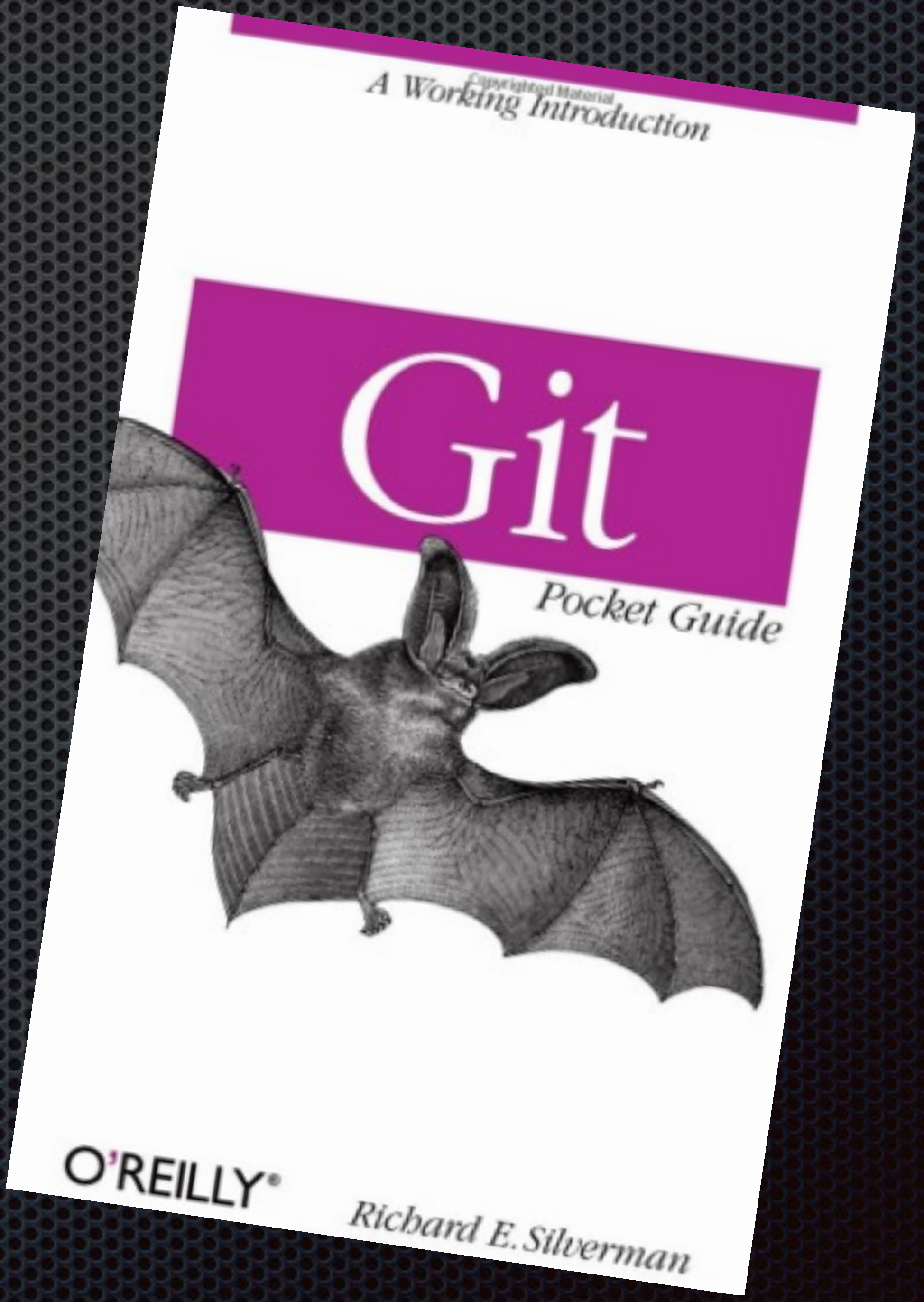
- SEPTEMBER 15
- 2:00 PM - 9:00 PM
- BLUE SUSHI SAKE GRILL
- 416 SOUTH 12TH ST

WHAT WE'LL TALK ABOUT

- WHAT IS GIT?
- WHY SHOULD I USE GIT?
- WHEN WOULD I NOT USE GIT?
- HOW CAN I LEARN MORE?

QUESTION 1

WHO CREATED GIT?



FIRST BEAT

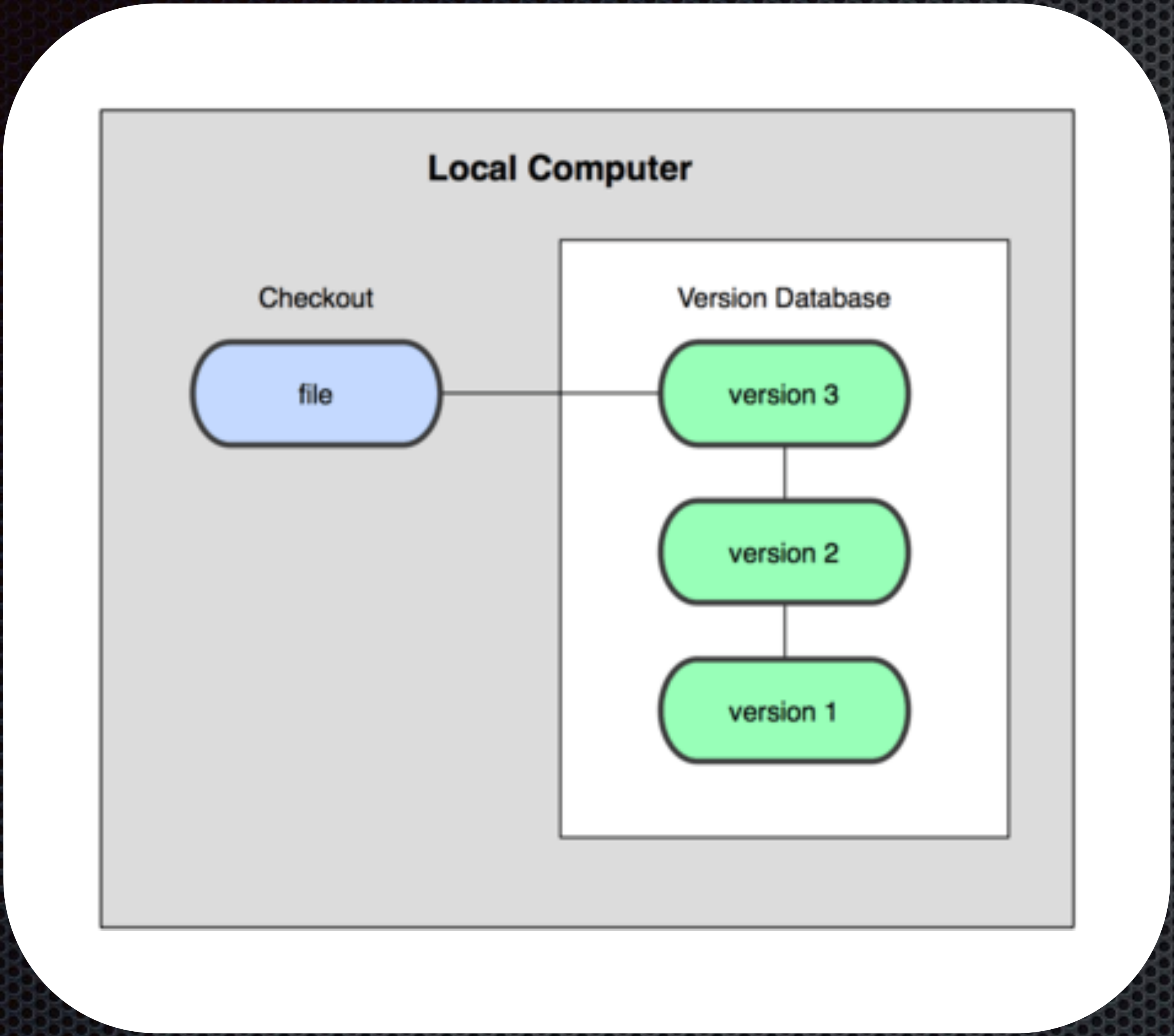
BOOTS

CUTS

WHAT IS GIT?

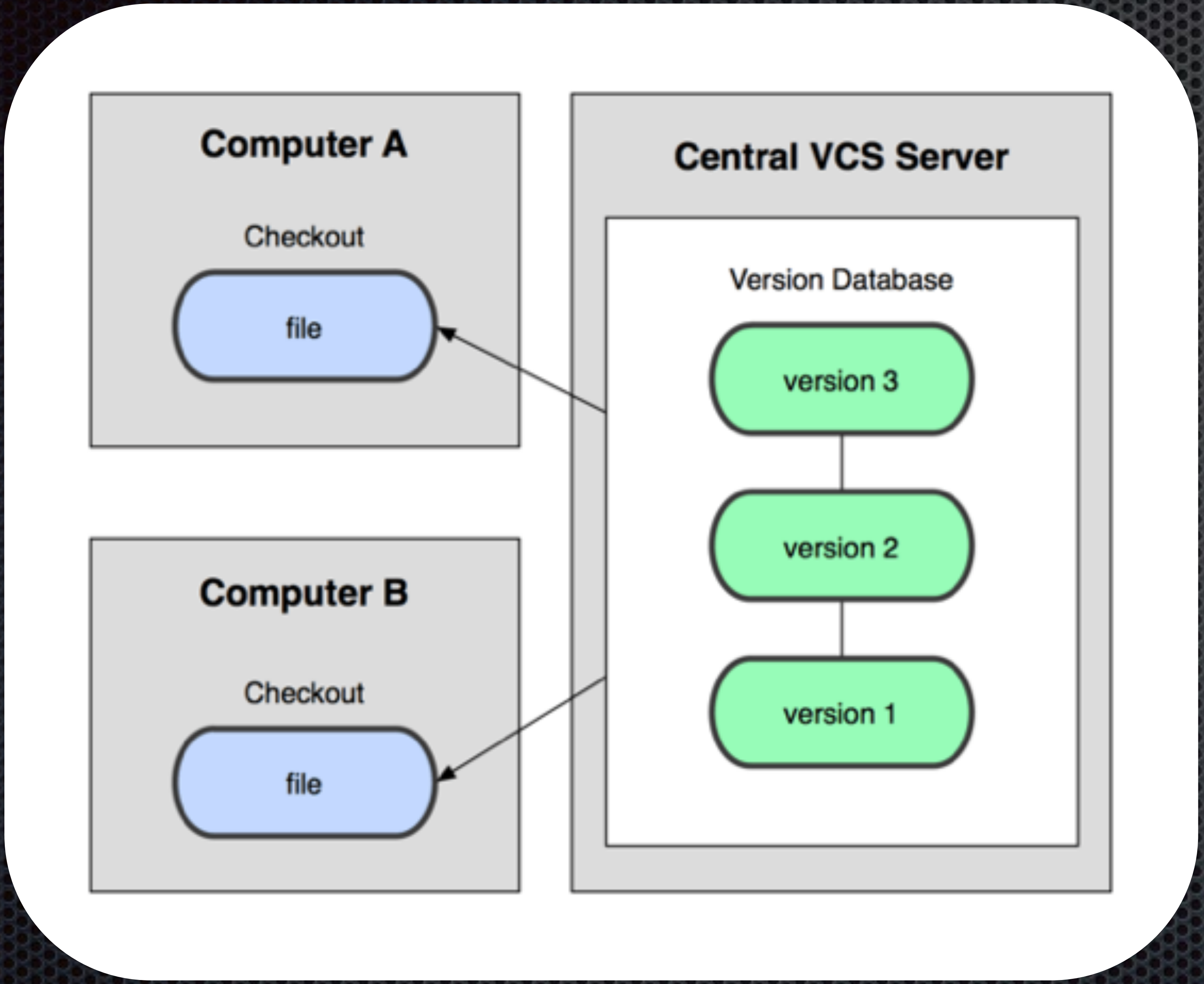
IS IT SOME SORT OF MAGIC?

LOCAL VERSION CONTROL



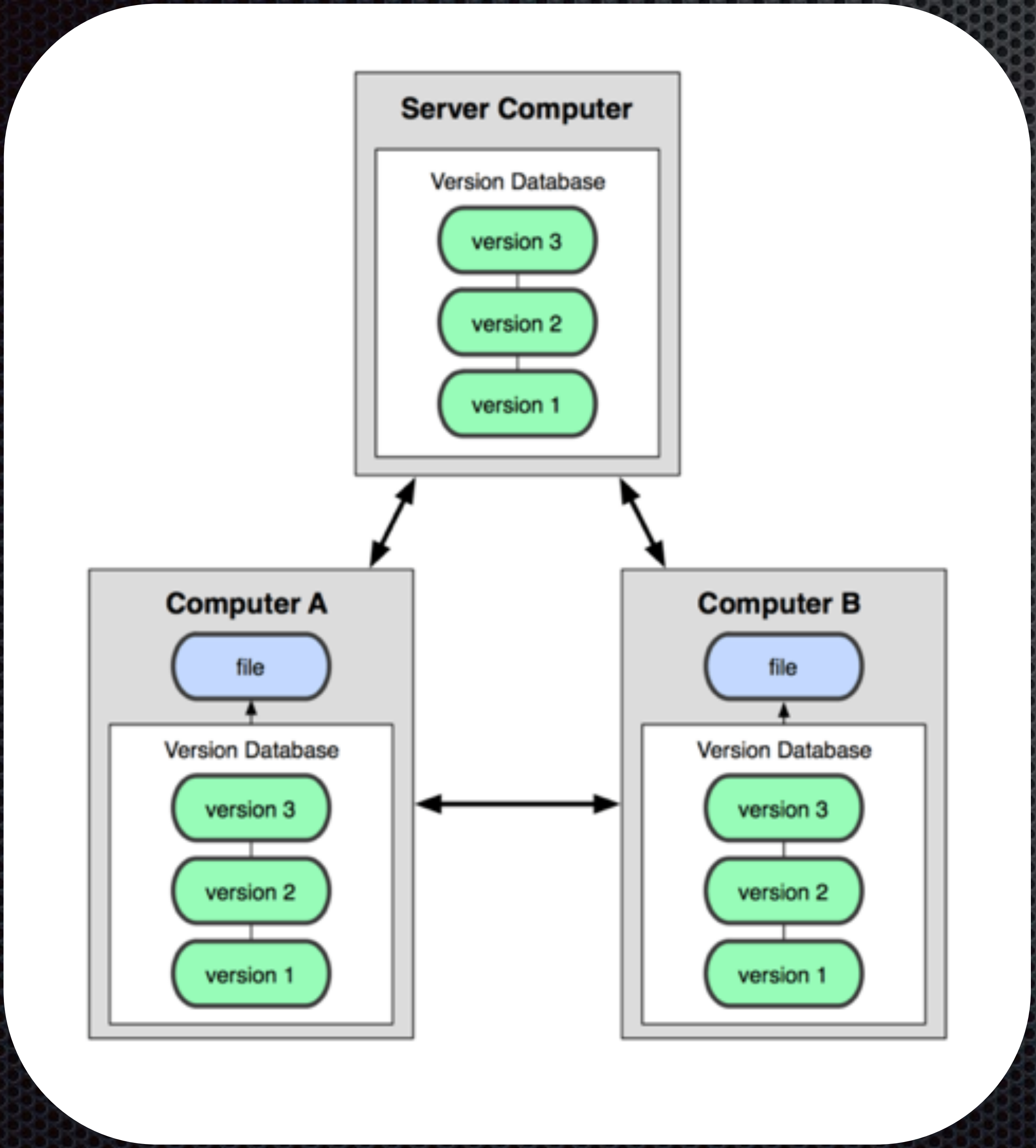
- COPY FILES INTO TIMESTAMPED FOLDERS
- REVISION CONTROL SYSTEM (RCS)

Centralized Version Control System



- CVS
- SVN
- PERFORCE
- TFS VERSION CONTROL

DISTRIBUTED VERSION CONTROL SYSTEM

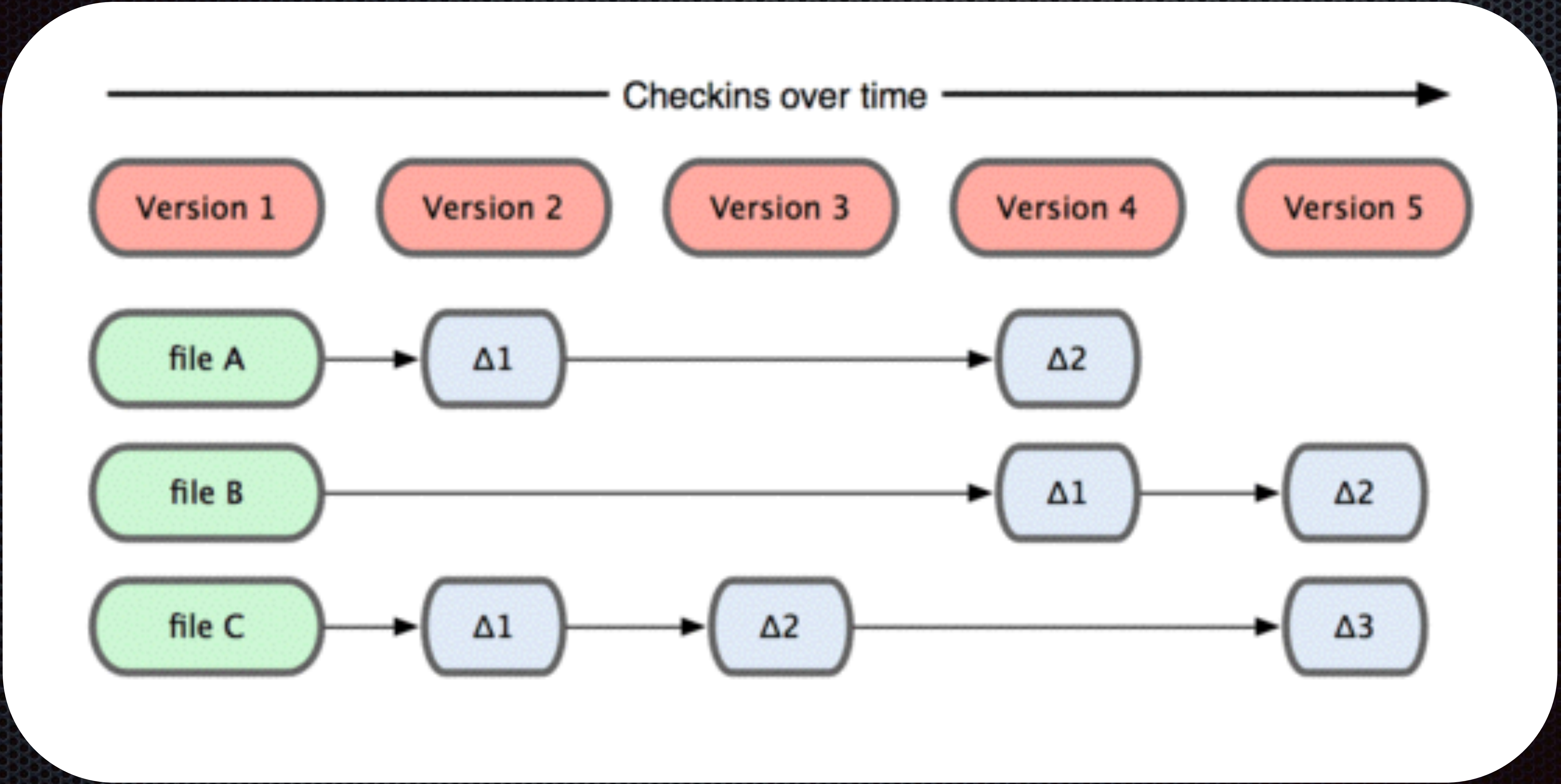


- MERCURIAL (HG)
- BAZAAR
- DARCS
- GIT

SHORT HISTORY OF GIT

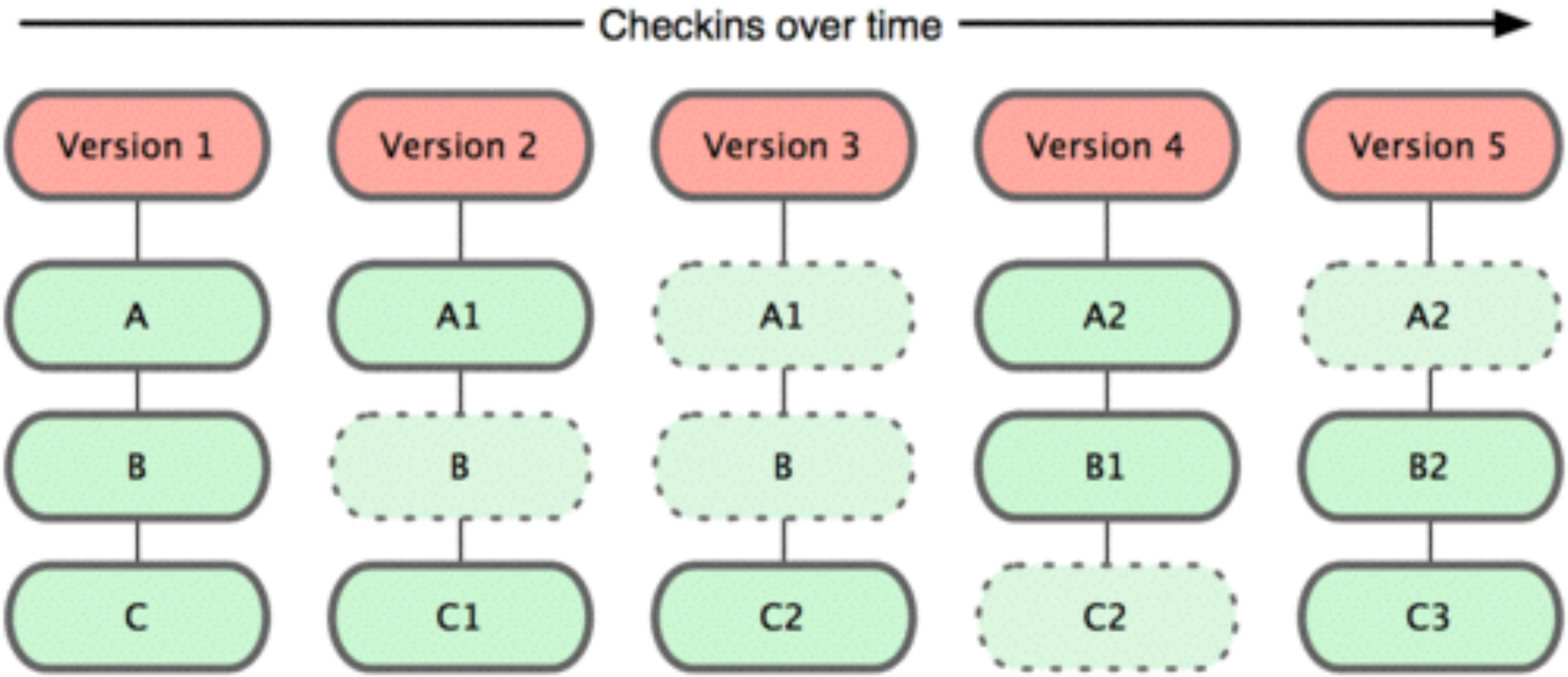
- 1991-2002 PATCH FILES
- 2002-2005 BITKEEPER
- 2005 LINUS TORVALDS CREATES GIT TO BE A BETTER DVCS SYSTEM, FOCUSES:
  - SPEED
  - SIMPLE DESIGN
  - THOUSANDS OF PARALLEL BRANCHES
  - ABILITY TO HANDLE LARGE PROJECTS LIKE LINUX (SPEED AND DATA SIZE!)

FILE HISTORY



SVN, TFS VC, PERFORCE, CVS

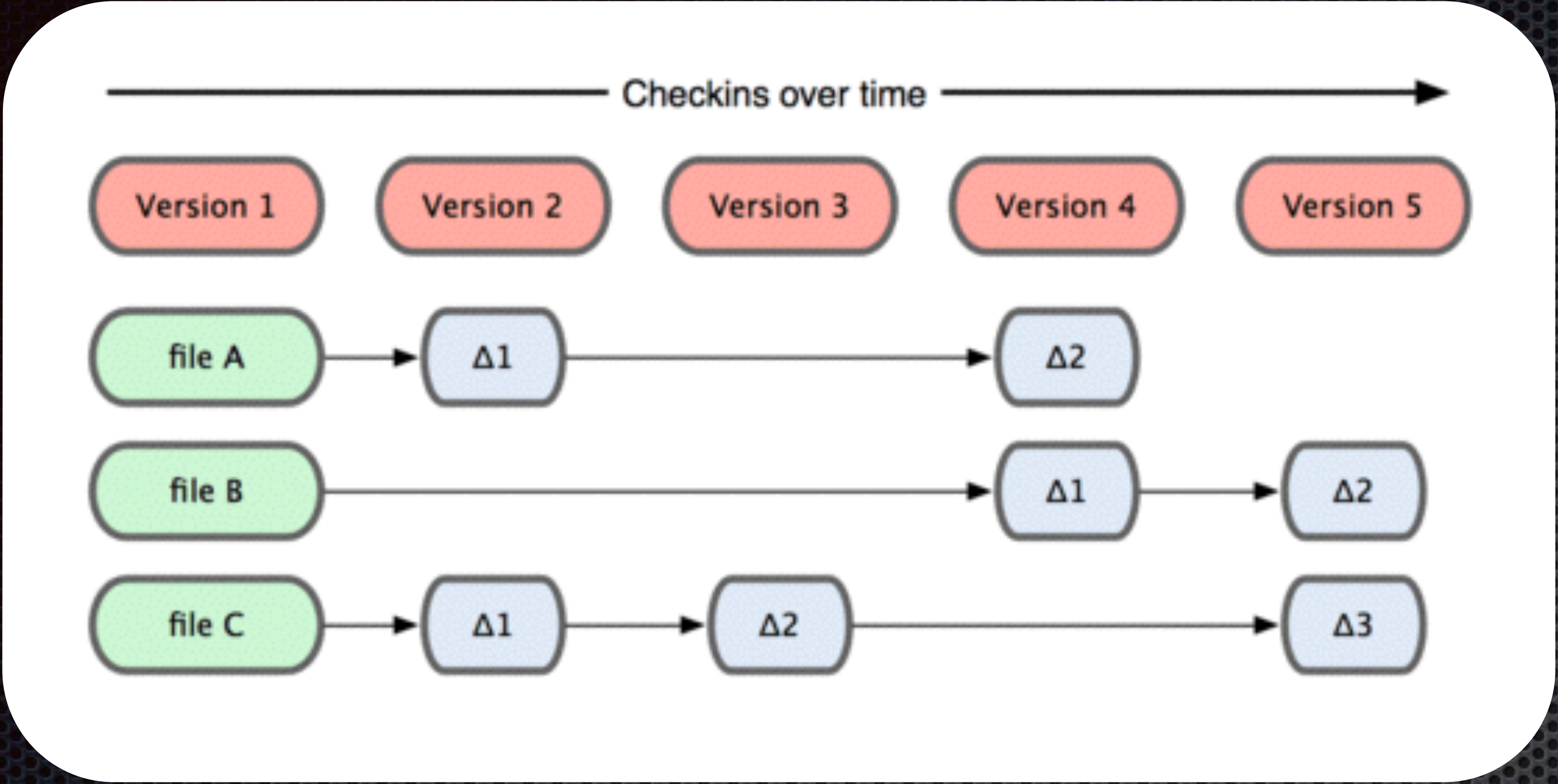
FILE HISTORY



Checkins over time

Version 1	Version 2	Version 3	Version 4	Version 5
A	A1	A1	A2	A2
B	B	B	B1	B2
C	C1	C2	C2	C3

GIT



Checkins over time

Version 1 Version 2 Version 3 Version 4 Version 5

file A → Δ1 → Δ2

file B → Δ1 → Δ2

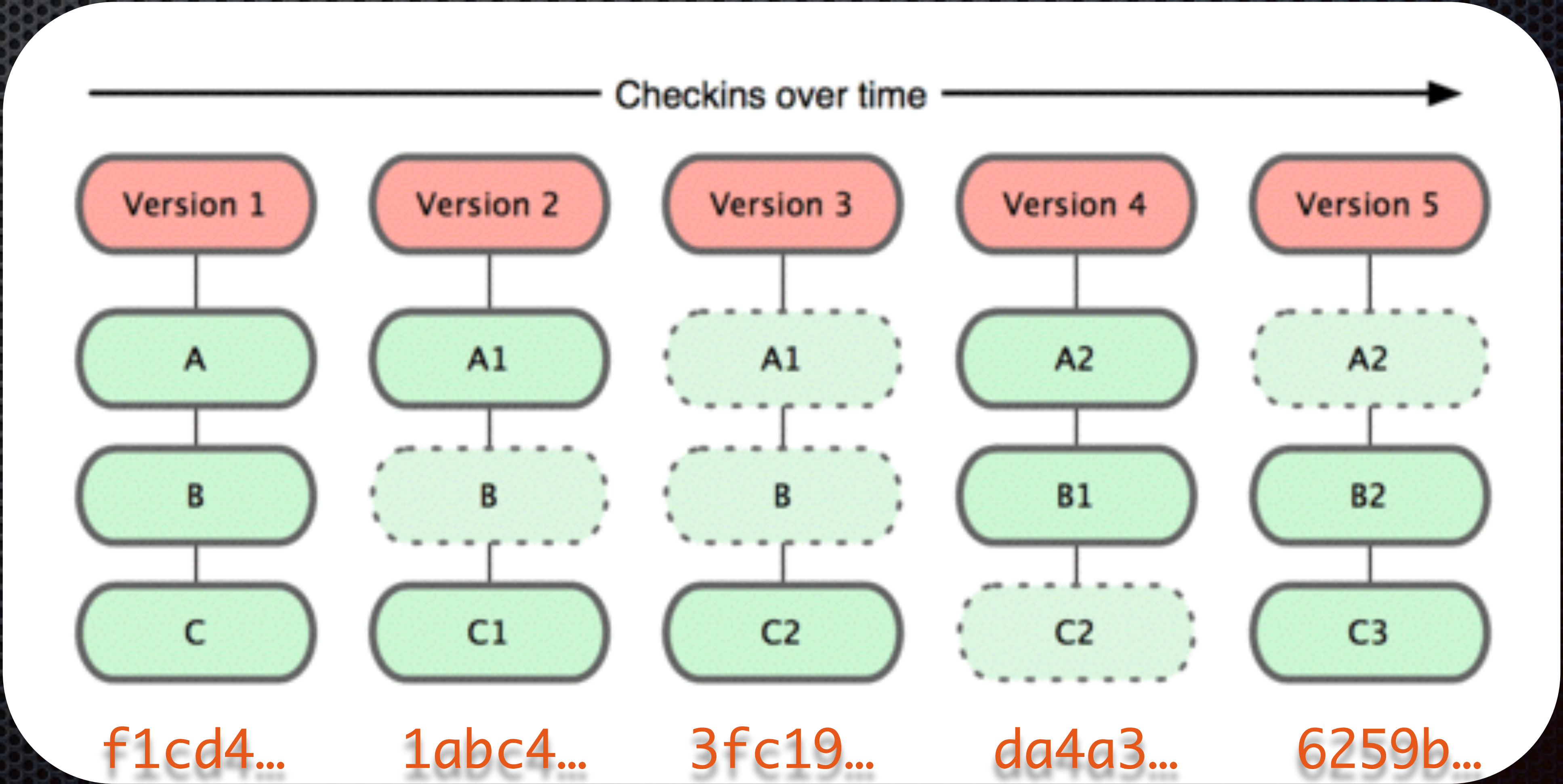
file C → Δ1 → Δ2 → Δ3

SUBVERSION

CVS

PERFORCE

BITKEEPER



Checkins over time

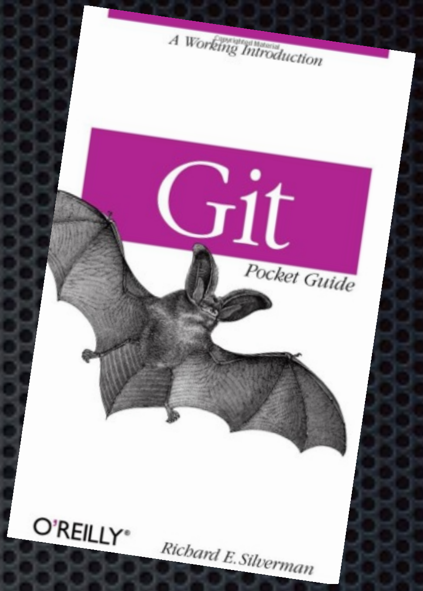
Version 1	Version 2	Version 3	Version 4	Version 5
A	A1	A1	A2	A2
B	B	B	B1	B2
C	C1	C2	C2	C3
f1cd4…	1abc4…	3fc19…	da4a3…	6259b…

git

GIT VOCABULARY

GIT ACTIONS	SVN COMMAND	TFS COMAND
CLONE	svn co	CREATE WORKSPACE AND GET LATEST
CHECKOUT	svn switch	SWITCH WORKSPACE / BRANCH
COMMIT	svn ci	CHECKIN / SHELVE
STATUS	svn info	PENDING CHANGES
PUSH	svn ci	CHECKIN
PULL	svn co; svn merge; svn ci	GET LATEST VERSION
STASH	svn diff > patch_name.patch; svn revert -R .	SHELVESET (KINDA)

QUESTION 2



TRUE OR FALSE:

GIT IS THE ONLY DISTRIBUTED SCM TOOL OUT THERE.

SECOND BEAT

BABOONS

PIGS

WHY SHOULD I USE GIT?

I LIKE WHAT I USE NOW

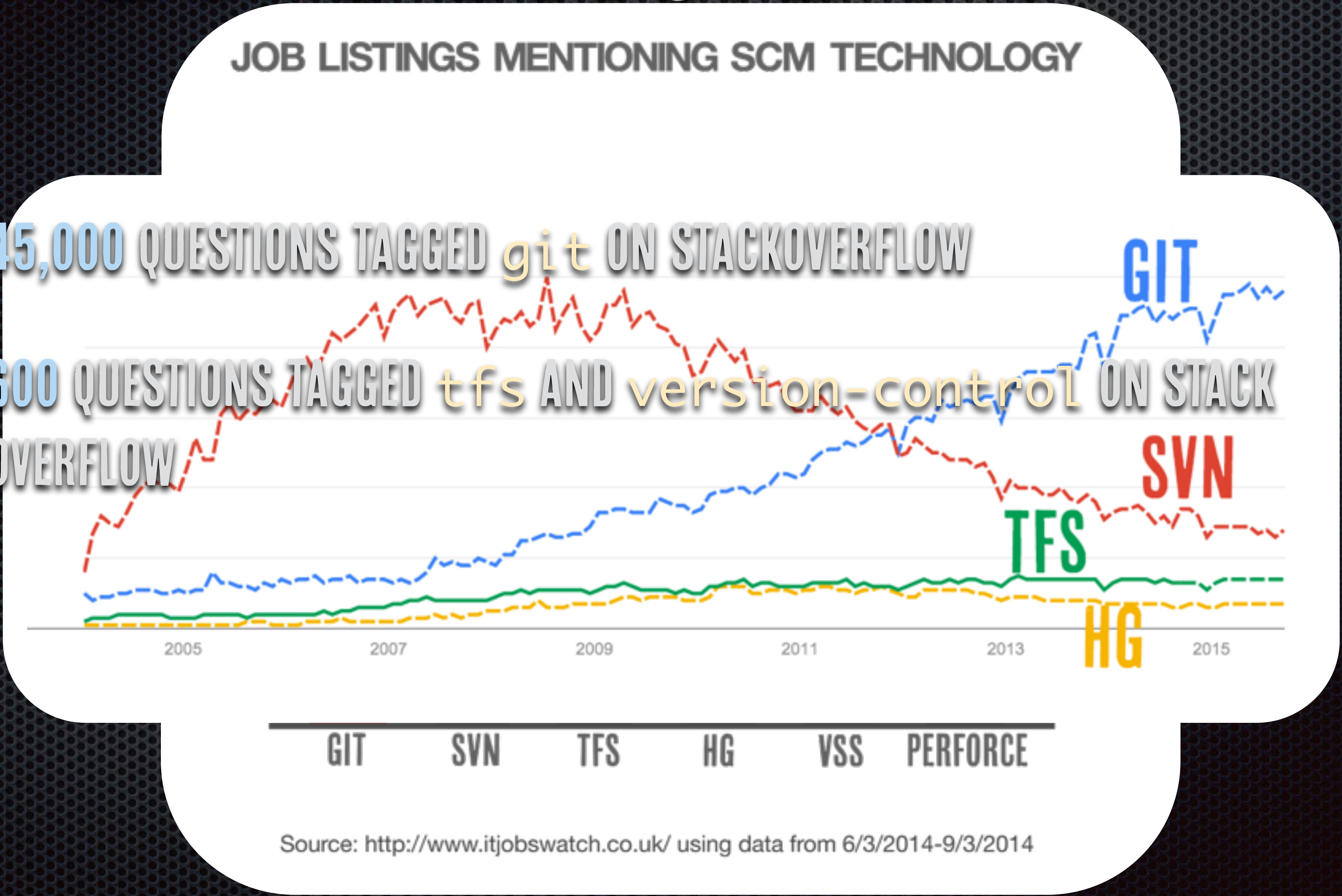
GIT'S STRENGTHS

- STRONG POPULARITY, STRONG COMMUNITY
- NO IMPACT WHEN SERVER OR NETWORK DOWN
- YOU CAN EXPERIMENT MUCH EASIER
- DON'T HAVE TO PLAN AHEAD FOR BRANCHES
- DATA INTEGRITY

POPULARITY

- 45,000 QUESTIONS TAGGED `git` ON STACKOVERFLOW
- 600 QUESTIONS TAGGED `tfs` AND `version-control` ON STACK OVERFLOW

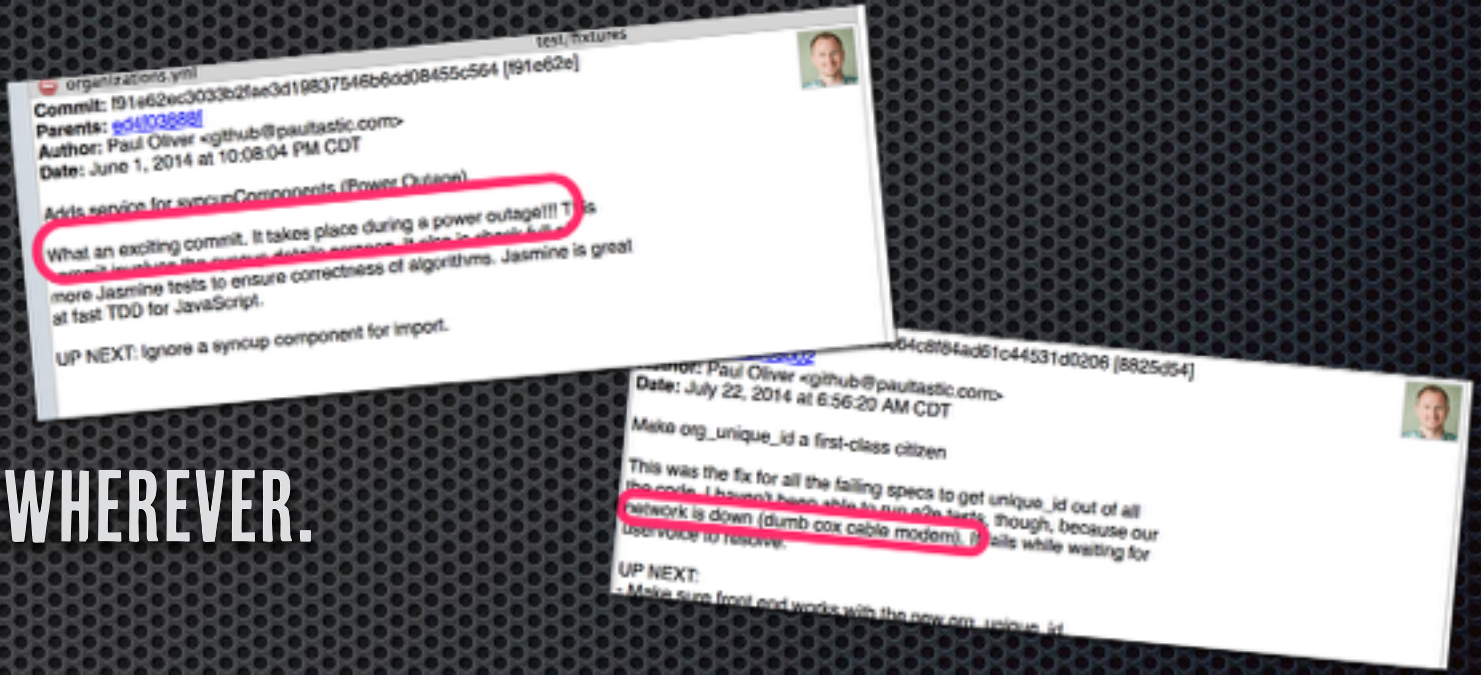
JOB LISTINGS MENTIONING SCM TECHNOLOGY



Source: http://www.itjobswatch.co.uk/ using data from 6/3/2014-9/3/2014

SERVER DOWN? NP!

- NO SERVER NECESSARY. EVER.
- **COMMIT:** WHENEVER, WHEREVER.
- **BRANCH AND MERGE:** WHENEVER, WHEREVER.
- YOU CAN USE MULTIPLE REMOTES.
  - VSO DOWN? PUSH TO BITBUCKET.
  - BITBUCKET DOWN? PUSH TO GITHUB.
  - INTERNET DOWN? PUSH TO NETWORK SHARE

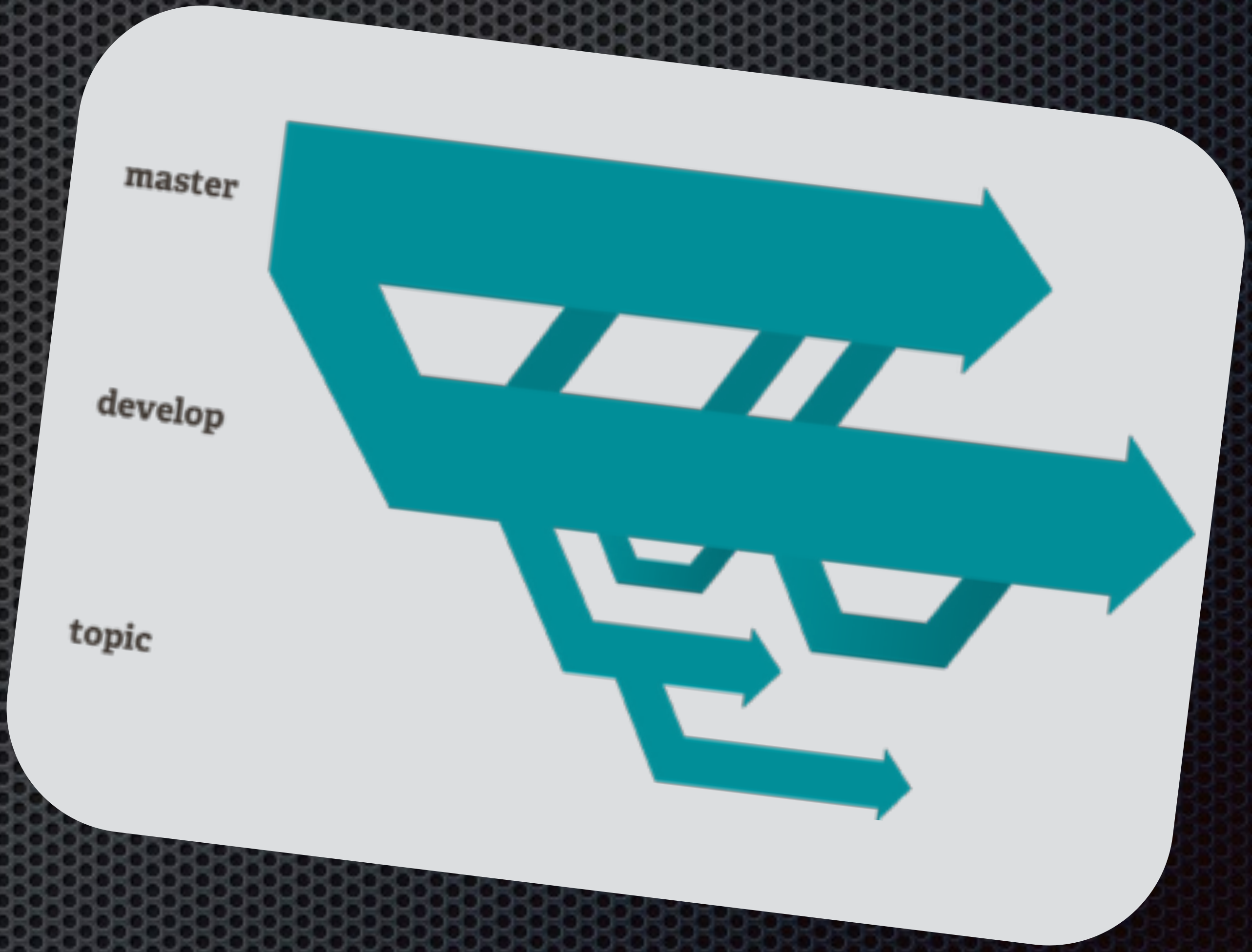


```
organizations.yml                                   test/fixtures
Commit: f91e62ec3033b2fae3d19837546b6dd08455c564 [f91e62e]
Parents: e04f03888f
Author: Paul Oliver <github@paultastic.com>
Date: June 1, 2014 at 10:08:04 PM CDT

Adds service for syncupComponents (Power Outage)

What an exciting commit. It takes place during a power outage!!! This
commit involves the syncup details screen. It also is [illegible]
more Jasmine tests to ensure correctness of algorithms. Jasmine is great
at fast TDD for JavaScript.

UP NEXT: Ignore a syncup component for import.
```

```
[illegible]04c8f84ad61c44531d0206 [8825d54]
Author: Paul Oliver <github@paultastic.com>
Date: July 22, 2014 at 6:56:20 AM CDT

Make org_unique_id a first-class citizen

This was the fix for all the failing specs to get unique_id out of all
the code. I haven't been able to run e2e tests, though, because our
network is down (dumb cox cable modem). It fails while waiting for
uservoice to resolve.

UP NEXT:
- Make sure front end works with the new org_unique_id
```

EXPERIMENT EASIER

- FRICTIONLESS CONTEXT SWITCHING
- FEATURE-BASED WORKFLOW
- DISPOSABLE EXPERIMENTATION
- “STASH” YOUR CHANGES IF YOU DON’T WANT TO COMMIT

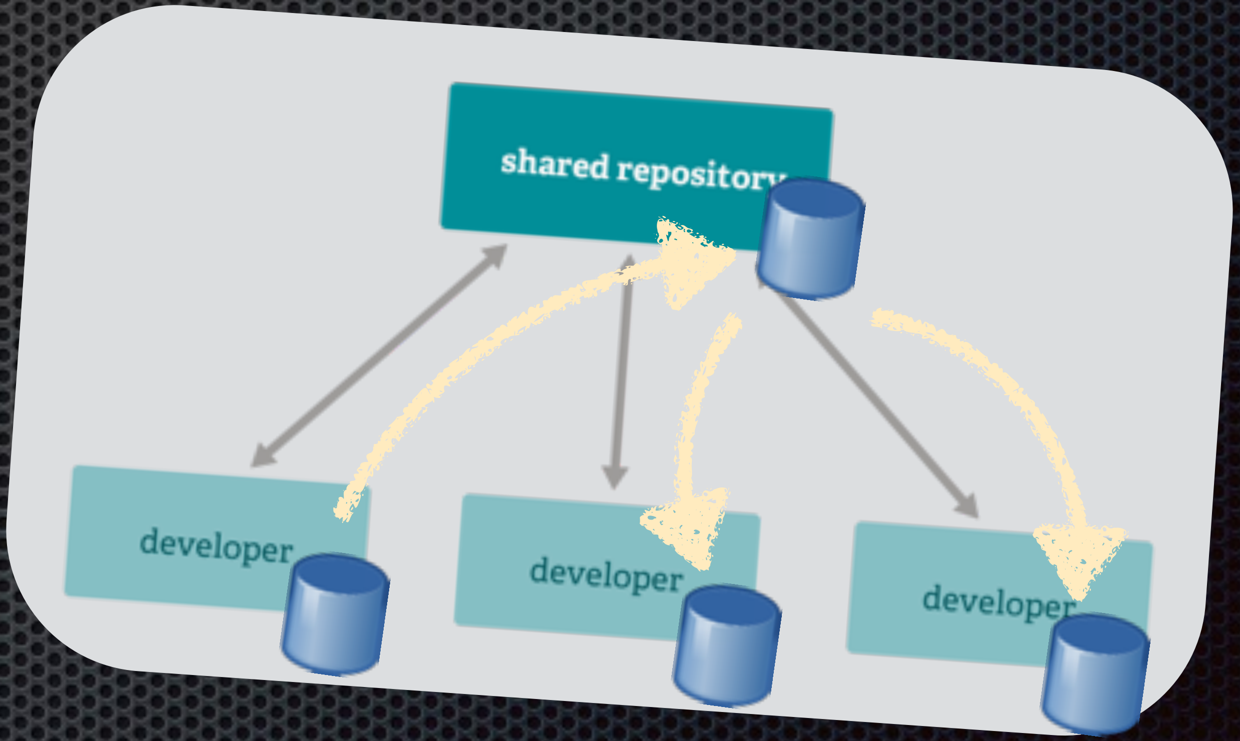


BRANCH WHENEVER

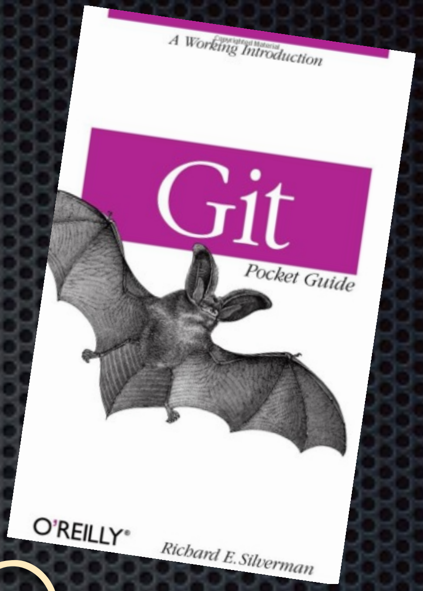
- CREATE A BRANCH **AFTER** YOU'VE CHANGED FILES
- BRANCHES ARE DONE LOCALLY, NO NEED TO SHARE WITH OTHERS

DATA INTEGRITY

- EACH SNAPSHOT OF THE SOURCE IS CHECKSUMMED WITH SHA-1
- COMMIT ID IS THE CALCULATED HASH
- WHEN GIT CHECKS OUT SNAPSHOT, IT VERIFIES THE INTEGRITY OF ALL FILES
- BACKUPS ARE ON EVERYONE'S MACHINE



QUESTION 3



WHICH IS TRUE OF GIT?

A. DIFFS ARE FASTER THAN ANY OTHER SCM

B. BRANCHES ARE CHEAPER THAN ANY OTHER SCM

C. FILE CORRUPTION IS RARE BUT DETECTED IMMEDIATELY

D. GIT DOESN'T REQUIRE A SERVER, BUT YOU CAN USE MULTIPLE "SERVERS" IF YOU WANT

E. ALL OF THE ABOVE

THIRD BEAT

BORN TO BE CLEVER

TOO CLEVER

TO BE TOO CLEVER TO BE...

When would I <u>not</u> use Git?

Always and forever?

LARGE BINARY FILES THAT CHANGE OFTEN

- ENTIRE HISTORY IS IN YOUR .GIT FOLDER
- ADD A FILE BUT THEN REMOVE IT THE NEXT COMMIT—IT'S STILL THERE.
- EVERY VERSION OF THE FILE IS STORED LOCALLY

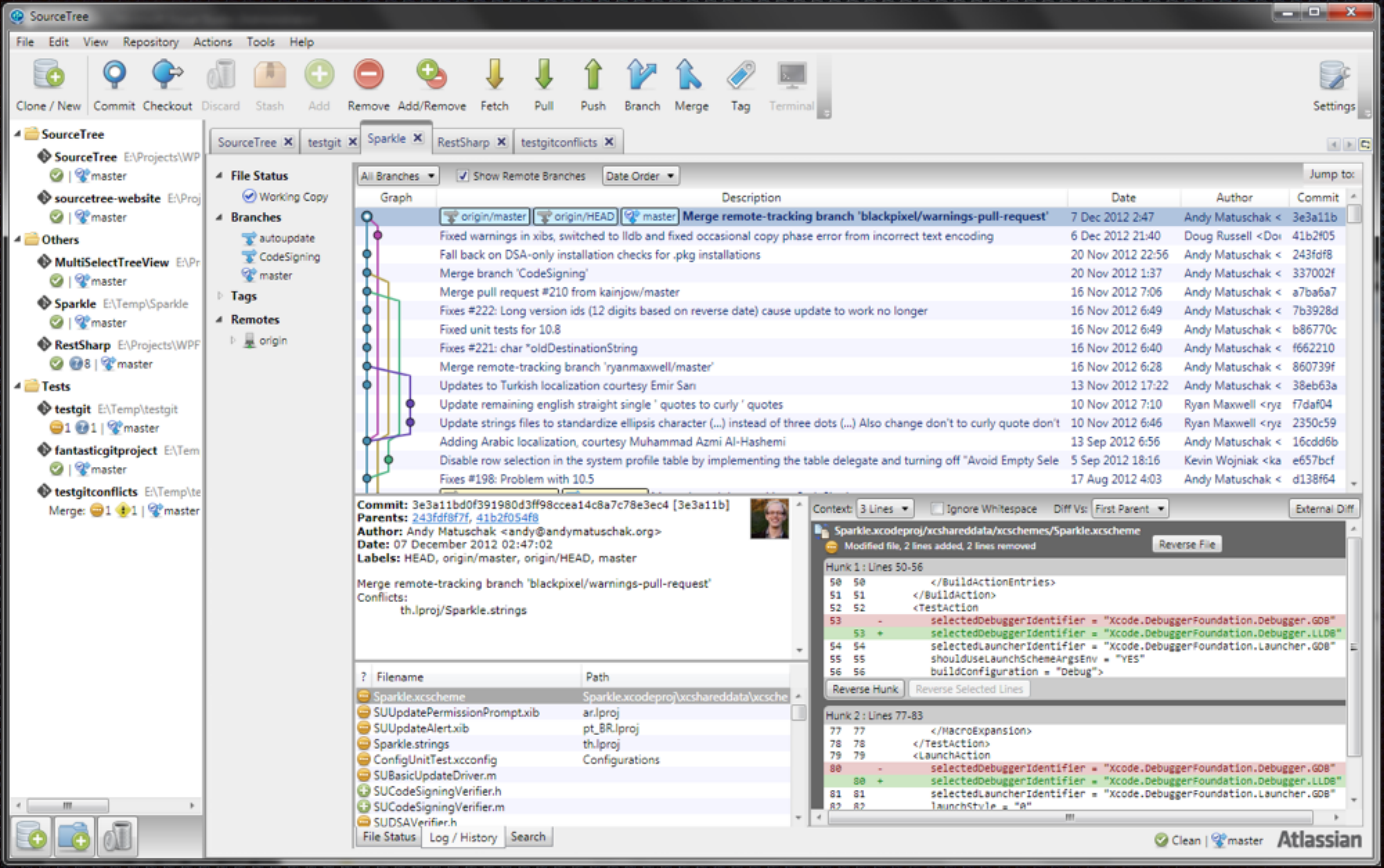
LOCKING FILES

- GIT IS DISTRIBUTED
- SOMETIMES YOU NEED TO LOCK:
  - BINARY FILES
  - FILES THAT ARE DIFFICULT TO MERGE
- LOCKS ARE A COMMUNICATION MECHANISM

IS IT ALL COMMAND-LINE?

WHAT IF I HATE TYPING?

ATLASSIAN SOURCETREE (FREE)



Graph	Description	Date	Author	Commit
	origin/master origin/HEAD master **Merge remote-tracking branch 'blackpixel/warnings-pull-request'**	7 Dec 2012 2:47	Andy Matuschak <	3e3a11b
	Fixed warnings in xibs, switched to lldb and fixed occasional copy phase error from incorrect text encoding	6 Dec 2012 21:40	Doug Russell <Do	41b2f05
	Fall back on DSA-only installation checks for .pkg installations	20 Nov 2012 22:56	Andy Matuschak <	243fdf8
	Merge branch 'CodeSigning'	20 Nov 2012 1:37	Andy Matuschak <	337002f
	Merge pull request #210 from kainjow/master	16 Nov 2012 7:06	Andy Matuschak <	a7ba6a7
	Fixes #222: Long version ids (12 digits based on reverse date) cause update to work no longer	16 Nov 2012 6:49	Andy Matuschak <	7b3928d
	Fixed unit tests for 10.8	16 Nov 2012 6:49	Andy Matuschak <	b86770c
	Fixes #221: char *oldDestinationString	16 Nov 2012 6:40	Andy Matuschak <	f662210
	Merge remote-tracking branch 'ryanmaxwell/master'	16 Nov 2012 6:28	Andy Matuschak <	860739f
	Updates to Turkish localization courtesy Emir Sarı	13 Nov 2012 17:22	Andy Matuschak <	38eb63a
	Update remaining english straight single ' quotes to curly ' quotes	10 Nov 2012 7:10	Ryan Maxwell <rya	f7daf04
	Update strings files to standardize ellipsis character (…) instead of three dots (...) Also change don't to curly quote don't	10 Nov 2012 6:46	Ryan Maxwell <rya	2350c59
	Adding Arabic localization, courtesy Muhammad Azmi Al-Hashemi	13 Sep 2012 6:56	Andy Matuschak <	16cdd6b
	Disable row selection in the system profile table by implementing the table delegate and turning off "Avoid Empty Sele	5 Sep 2012 18:16	Kevin Wojniak <ka	e657bcf
	Fixes #198: Problem with 10.5	17 Aug 2012 4:03	Andy Matuschak <	d138f64

Commit: 3e3a11bd0f391980d3ff98ccea14c8a7c78e3ec4 [3e3a11b]
Parents: 243fdf8f7f, 41b2f054f8
Author: Andy Matuschak <andy@andymatuschak.org>
Date: 07 December 2012 02:47:02
Labels: HEAD, origin/master, origin/HEAD, master

Merge remote-tracking branch 'blackpixel/warnings-pull-request'
Conflicts:
th.lproj/Sparkle.strings

?	Filename	Path
	Sparkle.xcscheme	Sparkle.xcodeproj\xcshareddata\xcsche
	SUUpdatePermissionPrompt.xib	ar.lproj
	SUUpdateAlert.xib	pt_BR.lproj
	Sparkle.strings	th.lproj
	ConfigUnitTest.xcconfig	Configurations
	SUBasicUpdateDriver.m	
	SUCodeSigningVerifier.h	
	SUCodeSigningVerifier.m	
	SUDSAVerifier.h	

Sparkle.xcodeproj/xcshareddata/xcschemes/Sparkle.xcscheme
Modified file, 2 lines added, 2 lines removed

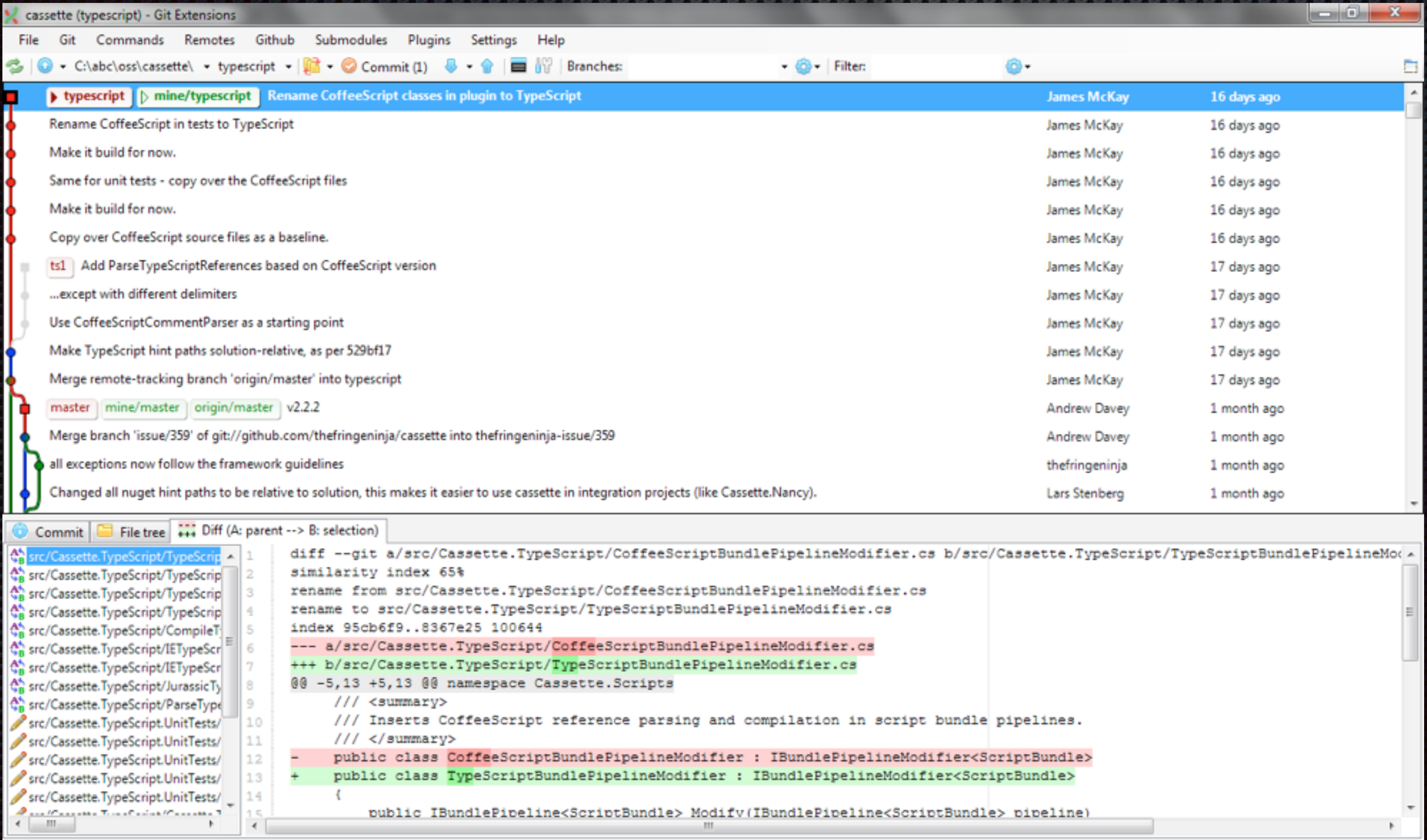
Hunk 1 : Lines 50-56

```
50  50              </BuildActionEntries>
51  51          </BuildAction>
52  52          <TestAction
53      -           selectedDebuggerIdentifier = "Xcode.DebuggerFoundation.Debugger.GDB"
    53  +           selectedDebuggerIdentifier = "Xcode.DebuggerFoundation.Debugger.LLDB"
54  54              selectedLauncherIdentifier = "Xcode.DebuggerFoundation.Launcher.GDB"
55  55              shouldUseLaunchSchemeArgsEnv = "YES"
56  56              buildConfiguration = "Debug">
```

Hunk 2 : Lines 77-83

```
77  77              </MacroExpansion>
78  78          </TestAction>
79  79          <LaunchAction
80      -           selectedDebuggerIdentifier = "Xcode.DebuggerFoundation.Debugger.GDB"
    80  +           selectedDebuggerIdentifier = "Xcode.DebuggerFoundation.Debugger.LLDB"
81  81              selectedLauncherIdentifier = "Xcode.DebuggerFoundation.Launcher.GDB"
82  82              launchStyle = "0"
```

GIT EXTENSIONS (FREE)

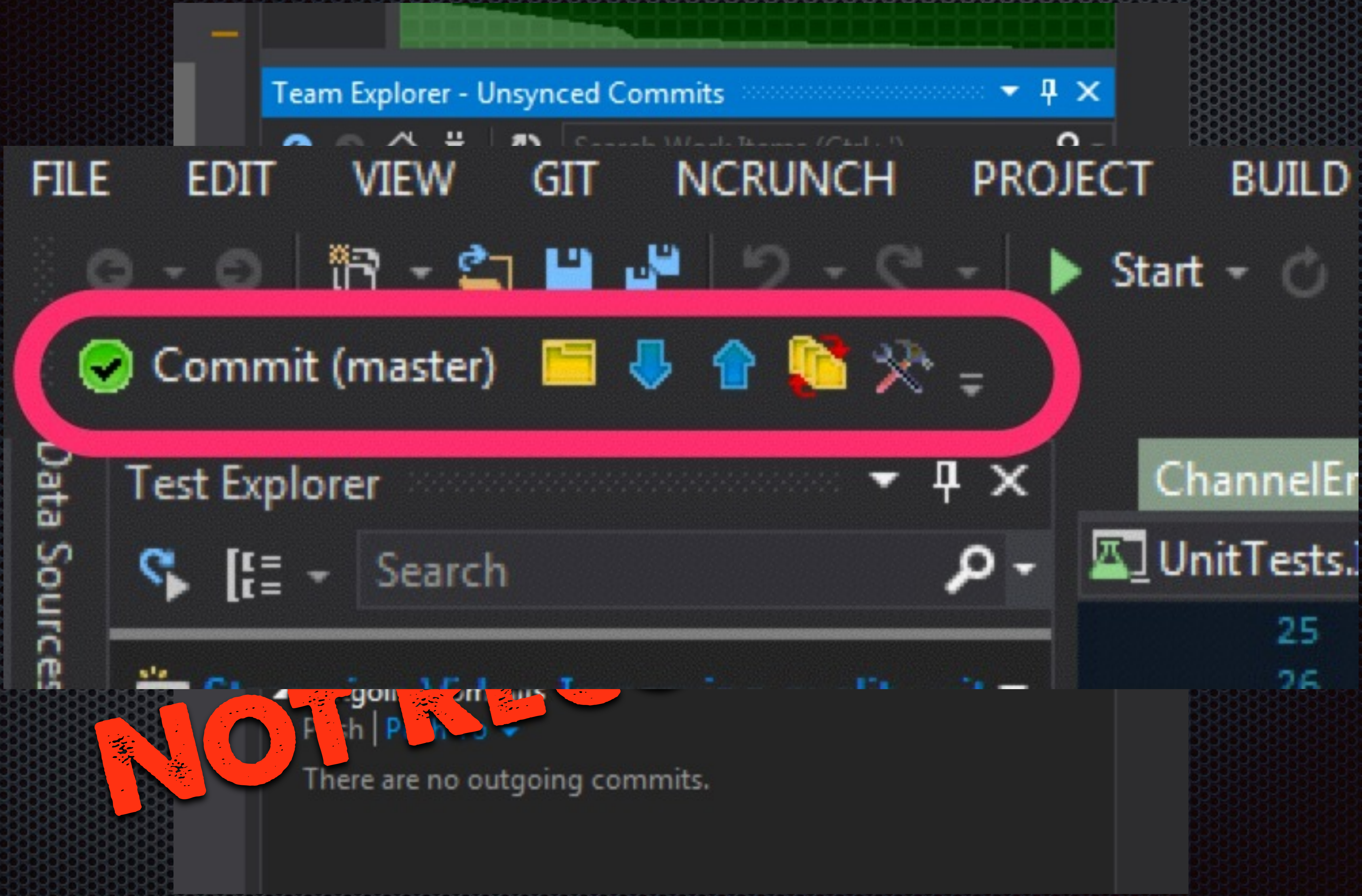


typescript mine/typescript Rename CoffeeScript classes in plugin to TypeScript	James McKay	16 days ago
Rename CoffeeScript in tests to TypeScript	James McKay	16 days ago
Make it build for now.	James McKay	16 days ago
Same for unit tests - copy over the CoffeeScript files	James McKay	16 days ago
Make it build for now.	James McKay	16 days ago
Copy over CoffeeScript source files as a baseline.	James McKay	16 days ago
ts1 Add ParseTypeScriptReferences based on CoffeeScript version	James McKay	17 days ago
...except with different delimiters	James McKay	17 days ago
Use CoffeeScriptCommentParser as a starting point	James McKay	17 days ago
Make TypeScript hint paths solution-relative, as per 529bf17	James McKay	17 days ago
Merge remote-tracking branch 'origin/master' into typescript	James McKay	17 days ago
master mine/master origin/master v2.2.2	Andrew Davey	1 month ago
Merge branch 'issue/359' of git://github.com/thefringeninja/cassette into thefringeninja-issue/359	Andrew Davey	1 month ago
all exceptions now follow the framework guidelines	thefringeninja	1 month ago
Changed all nuget hint paths to be relative to solution, this makes it easier to use cassette in integration projects (like Cassette.Nancy).	Lars Stenberg	1 month ago

src/Cassette.TypeScript/TypeScrip
src/Cassette.TypeScript/TypeScrip
src/Cassette.TypeScript/TypeScrip
src/Cassette.TypeScript/TypeScrip
src/Cassette.TypeScript/CompileT
src/Cassette.TypeScript/IETypeScr
src/Cassette.TypeScript/IETypeScr
src/Cassette.TypeScript/JurassicTy
src/Cassette.TypeScript/ParseType
src/Cassette.TypeScript.UnitTests/
src/Cassette.TypeScript.UnitTests/
src/Cassette.TypeScript.UnitTests/
src/Cassette.TypeScript.UnitTests/
src/Cassette.TypeScript.UnitTests/

```
diff --git a/src/Cassette.TypeScript/CoffeeScriptBundlePipelineModifier.cs b/src/Cassette.TypeScript/TypeScriptBundlePipelineMod
similarity index 65%
rename from src/Cassette.TypeScript/CoffeeScriptBundlePipelineModifier.cs
rename to src/Cassette.TypeScript/TypeScriptBundlePipelineModifier.cs
index 95cb6f9..8367e25 100644
--- a/src/Cassette.TypeScript/CoffeeScriptBundlePipelineModifier.cs
+++ b/src/Cassette.TypeScript/TypeScriptBundlePipelineModifier.cs
@@ -5,13 +5,13 @@ namespace Cassette.Scripts
     /// <summary>
     /// Inserts CoffeeScript reference parsing and compilation in script bundle pipelines.
     /// </summary>
-    public class CoffeeScriptBundlePipelineModifier : IBundlePipelineModifier<ScriptBundle>
+    public class TypeScriptBundlePipelineModifier : IBundlePipelineModifier<ScriptBundle>
     {
         public IBundlePipeline<ScriptBundle> Modify(IBundlePipeline<ScriptBundle> pipeline)
```

VISUAL STUDIO 2012 AND 2013



There are no outgoing commits.

HOW CAN WE TRANSITION?

WILL I LOSE HISTORY?

FOURTH BEAT (REGGAE)

BORN TOO CLEVER

TOO CLEVER

FROM TFS...

- USE A TOOL CALLED `git-tf`
- SEE MORE AT http://tinyurl.com/git2tfs

```
$> git-tf clone https://myaccount.visualstudio.com/
DefaultCollection $/MyBigProject/MyMainBranch --deep
```

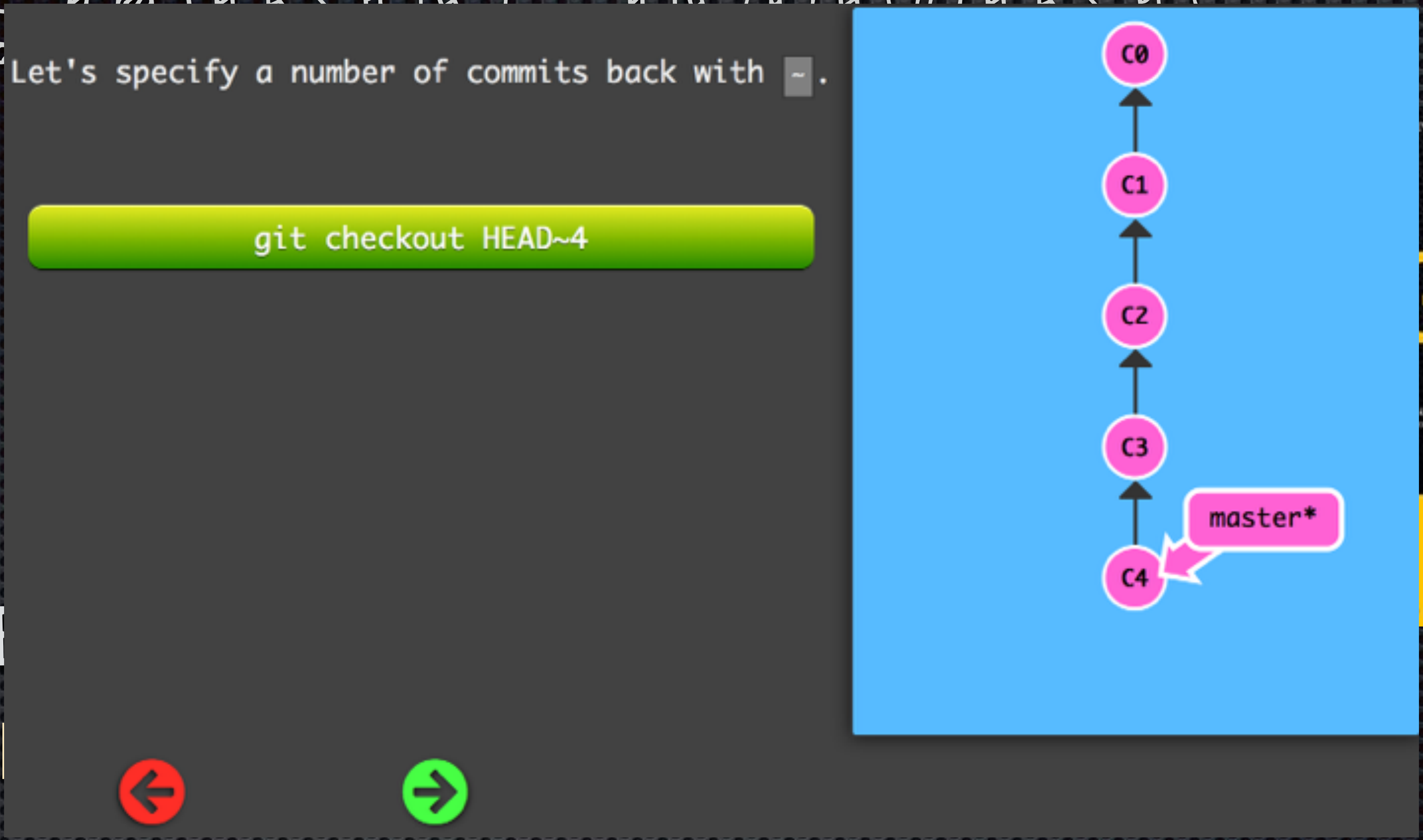
FROM SVN...

- USE ATLASSIAN'S SVN MIGRATION SCRIPTS AND THE `git svn` COMMAND

- SEE MORE AT http://tinyurl.com/svn2git

```
$> git svn clone --stdlayout --authors-file=authors.txt
  https://svn.atlassian.com/Confluence ConfluenceAsGit
```

LEARN MORE



Let's specify a number of commits back with ~.

```
git checkout HEAD~4
```

- GIT F
  http

- LEARNING ABOUT BRANCHING:
  http://pcottle.github.io/learnGitBranching/

TEAM OPINION

git

DEVELOPER	PRIOR GIT EXPERTISE BEFORE SWITCH	HOW LONG TO GET COMFY
A	INTERMEDIATE	1 WEEK
B	NONE	1-2 WEEKS
C	EXPERT	3-4 WEEKS
D	NONE	<
E	INTERMEDIATE	<
F	NONE	1 WEEK
G	NONE	2-3 WEEKS
H	NONE	1-2 WEEKS
I	NONE	1-2 WEEKS

TEAM OPINION

DEVELOPER	GO BACK TO TFVC?
A	NO
B	NO
C	NO
D	NO
E	NO
F	NO
G	NO
H	NO
I	NO

PAUL OLIVER

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paul@enterprisemapper.com

@ItsPaultastic