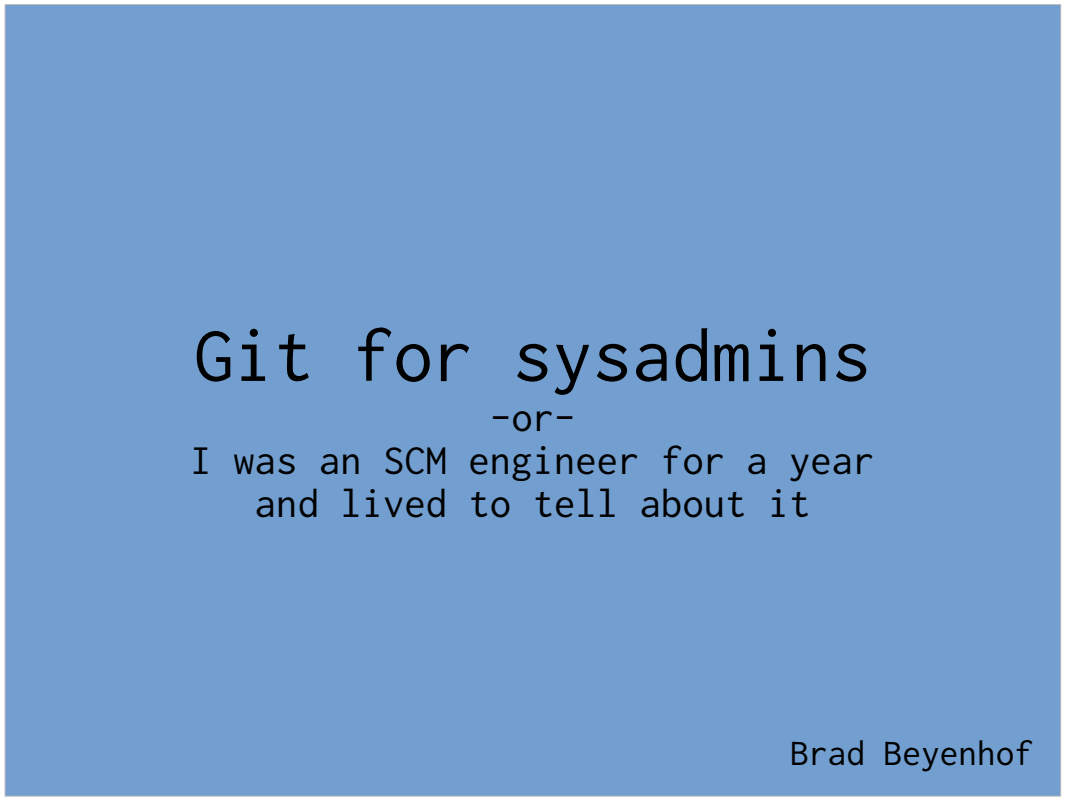
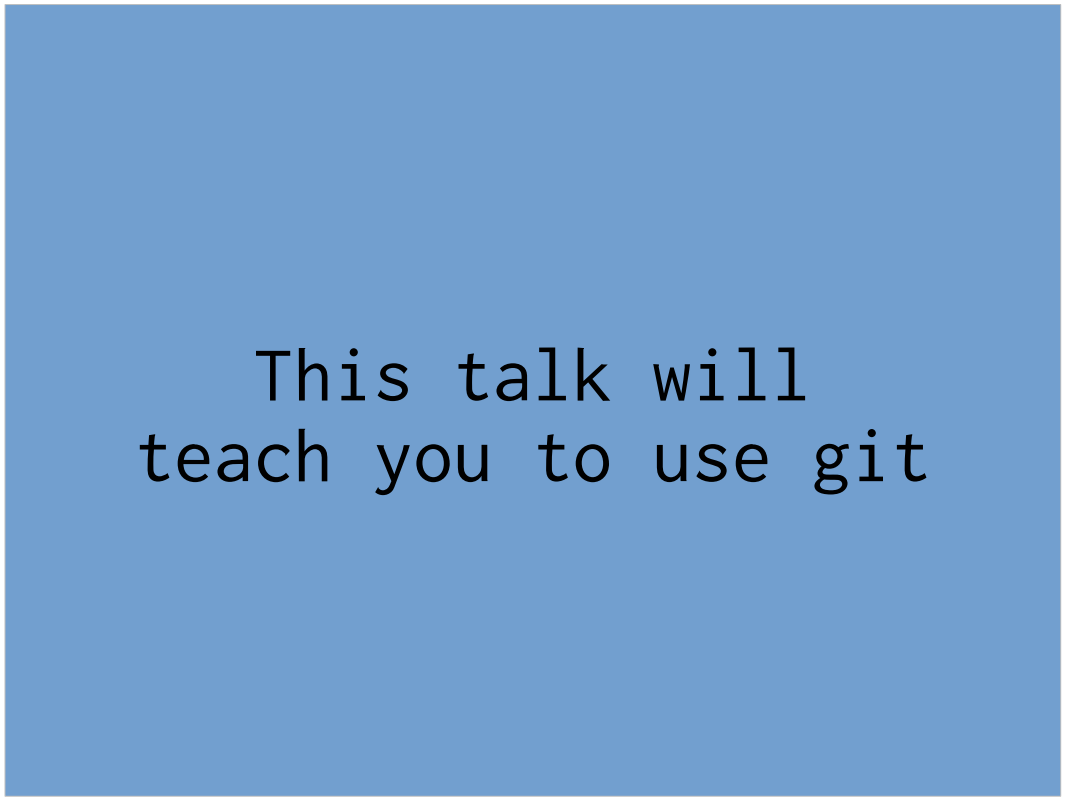
Git for sysadmins

Brad Beyenhof



I was placed in a new SCM group, not of my own accord

Git is an opaque system with a steep learning curve
But it's the “new hotness” everybody needs to know
I bet that's why a lot of you are here
Most of you probably want to see a slide that says...



You know you need version control, and you want to use git, so you want to know how to use it. Unfortunately, this is kind of a lie, because...

Don Marti at ScaLE 12x

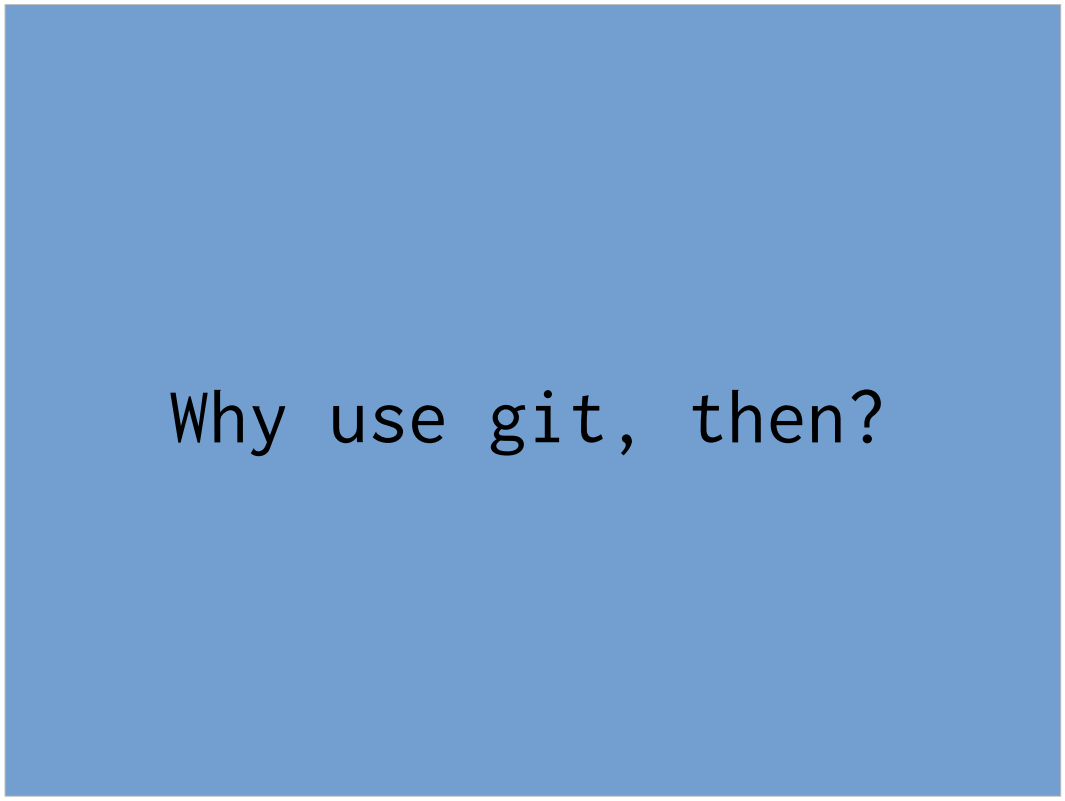
Anecdote with Chris a few years ago

I've given git tutorials
- to developers
- and cleaned up later

Commands don't actually tell you what you're doing
- cd,ls,mv,rm without file/directory structure?

You need to just do it... but I'll share vocabulary & concepts to help
If you know what you want, you can look up cmds

Also, every talk on git I've given has lots of Q&A
- Feel free to ask questions as we go along

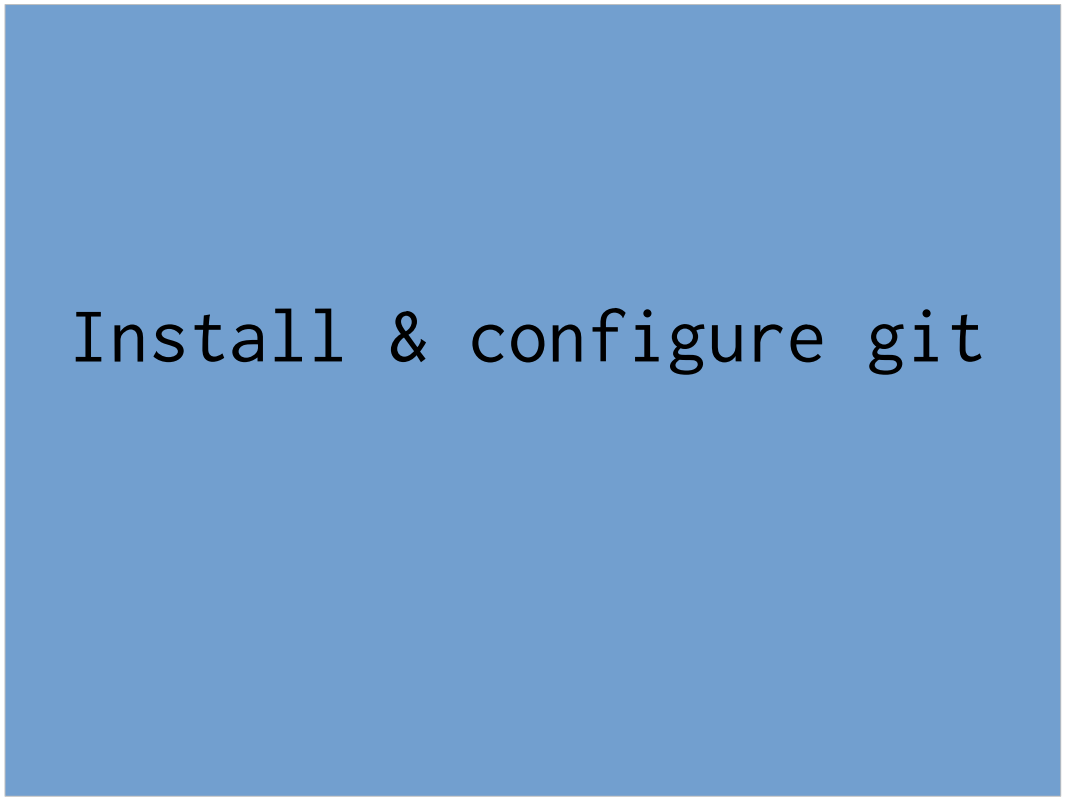


Track changes to any directory
Journal of your work - documentation-ish
No central server required
Collaboration features are awesome

You might not see a need to collaborate now, but learning it on your own means you'll be able to use it to work with others

I'll be focusing here on:

- Configuration basics
- Frontend basics
- Backend basics



From your local package repo (Debian default, CentOS rpmforge) or...

OS X has it built in, but older. Homebrew is up-to-date

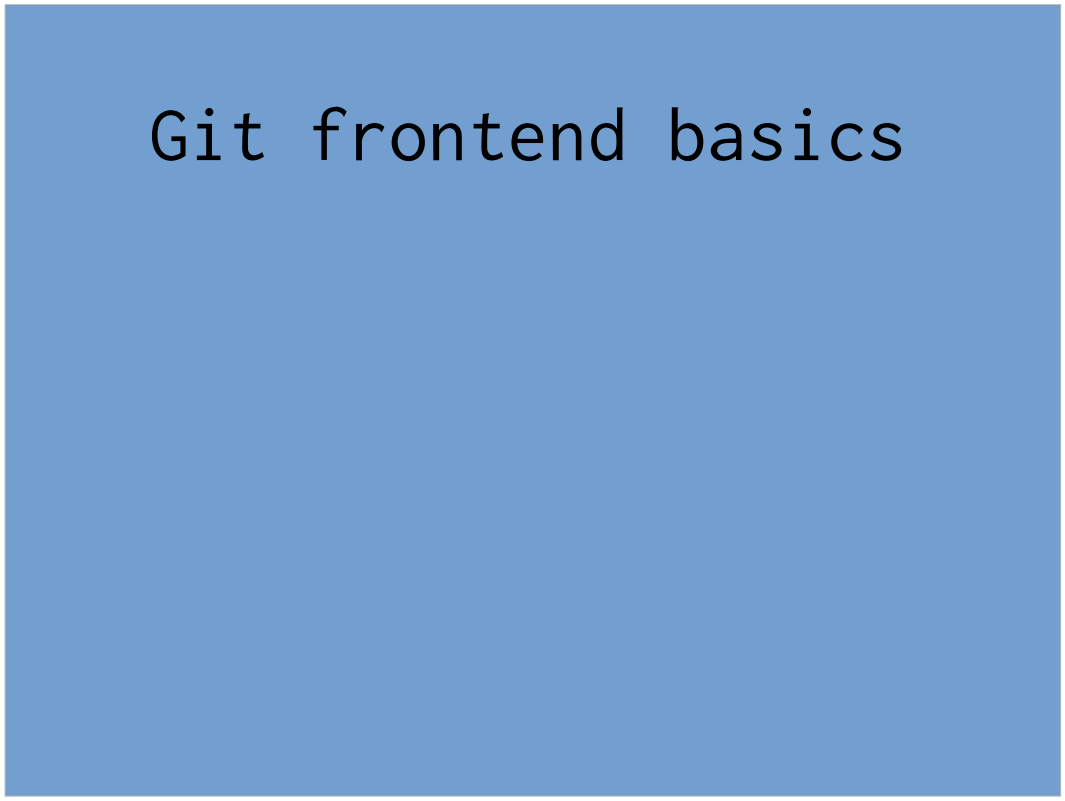
Version 1.9 came out just a couple weeks ago, on VALENTINE’S DAY!

Either in a GUI git client, or at the command line:

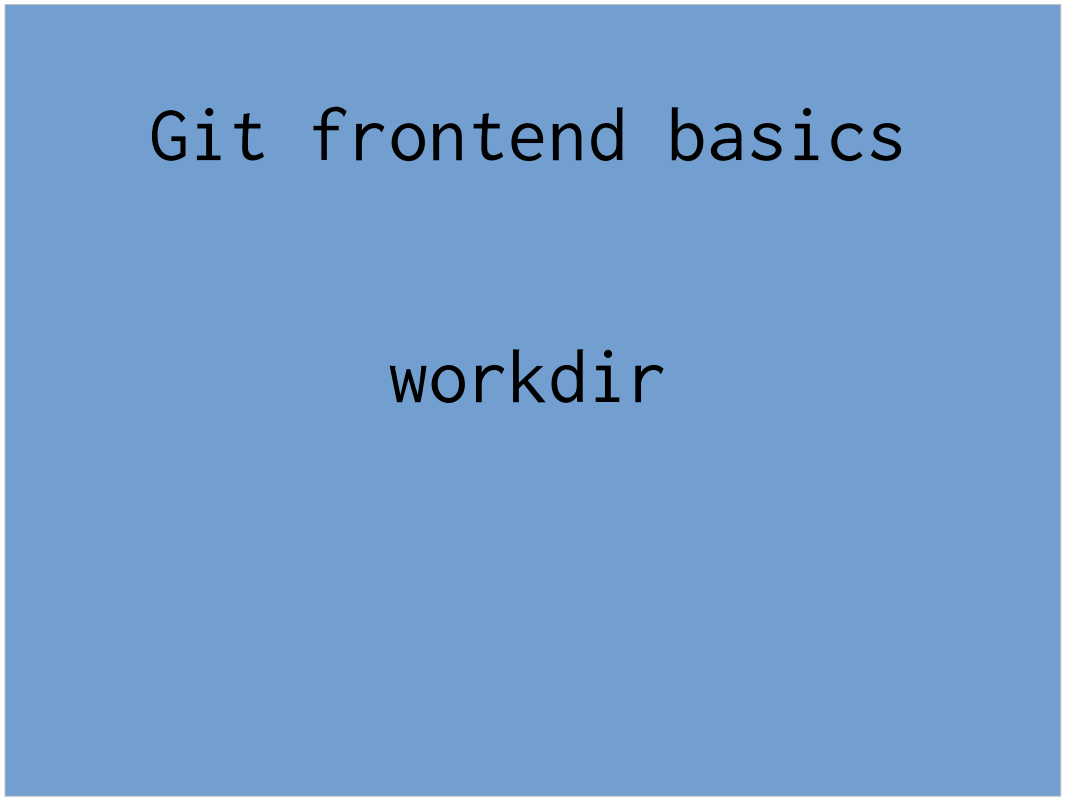
The --global will change your configuration on this machine (in ~/.gitconfig), and will apply to all git repos you use here

Also, if you're at the command line, you'll want CLI colors:

And that's it. We're ready to start our first git repo.



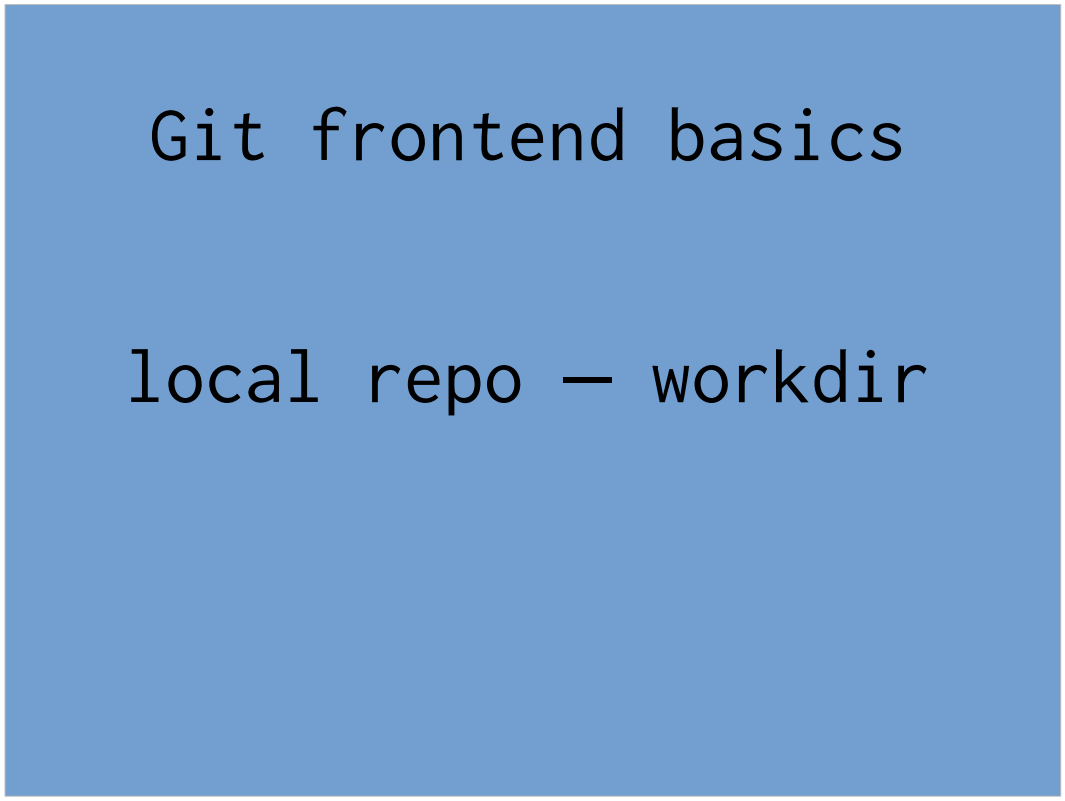
I'm going to foabout the same stuffnerally have cus on CLI git commands; GUIs generally include just about the same stuff.


Git frontend basics
workdir

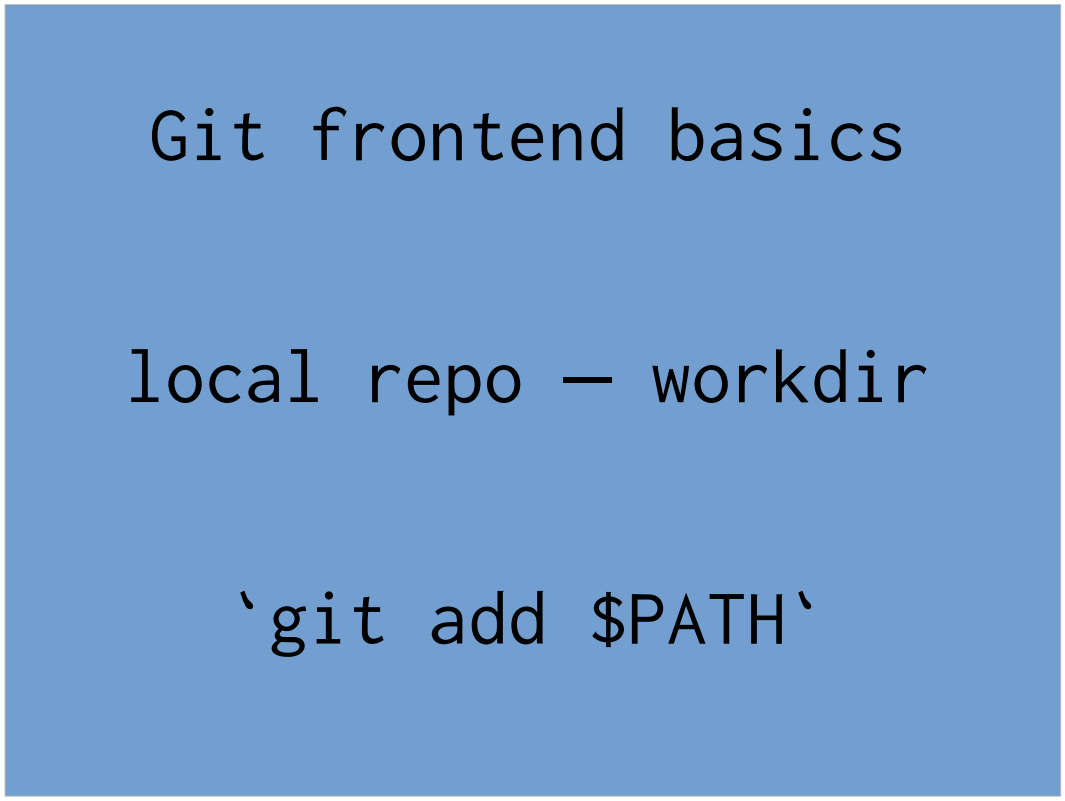
Git frontend basics

workdir

`git init`

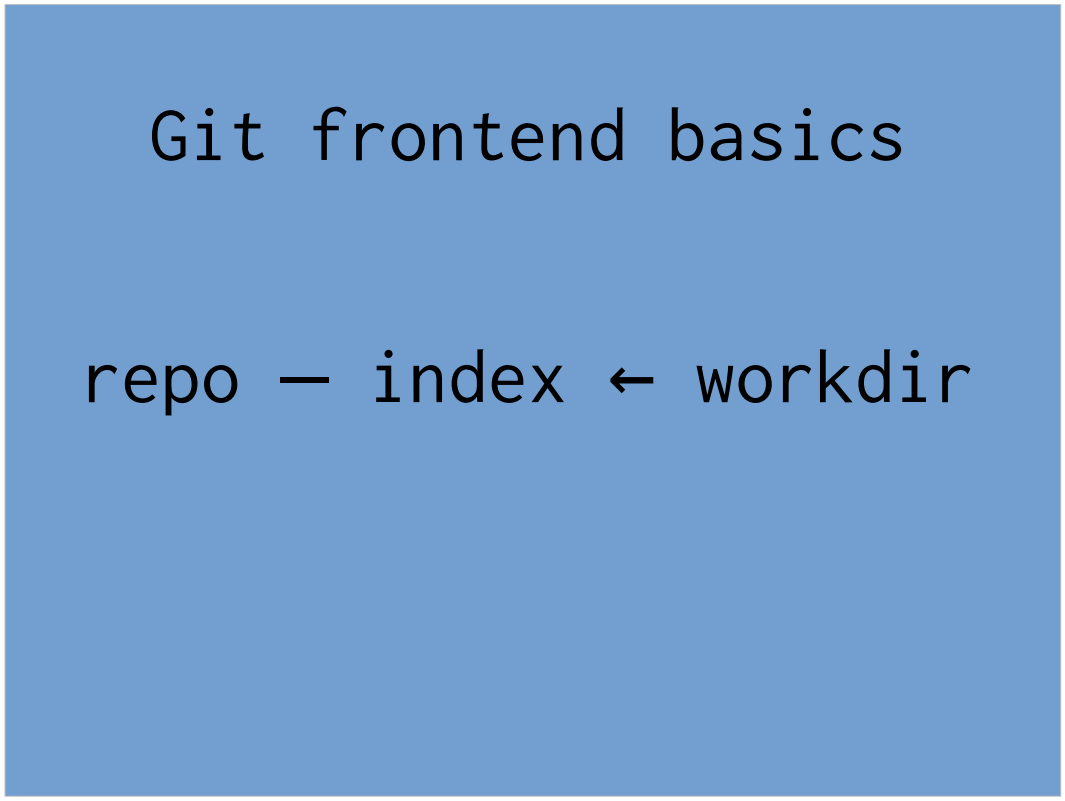


Local repo is stored in a '.git' directory here in the workdir



$PATH can be . If you want to add the whole thing

One other part you need to be aware of, though, is the index, or staging area.



Add files (or hunks) to the index, so you can craft your commit to only include specific things.

Git frontend basics

repo — index ← workdir

`git commit`

Git frontend basics

repo ← index ← workdir

Git frontend basics

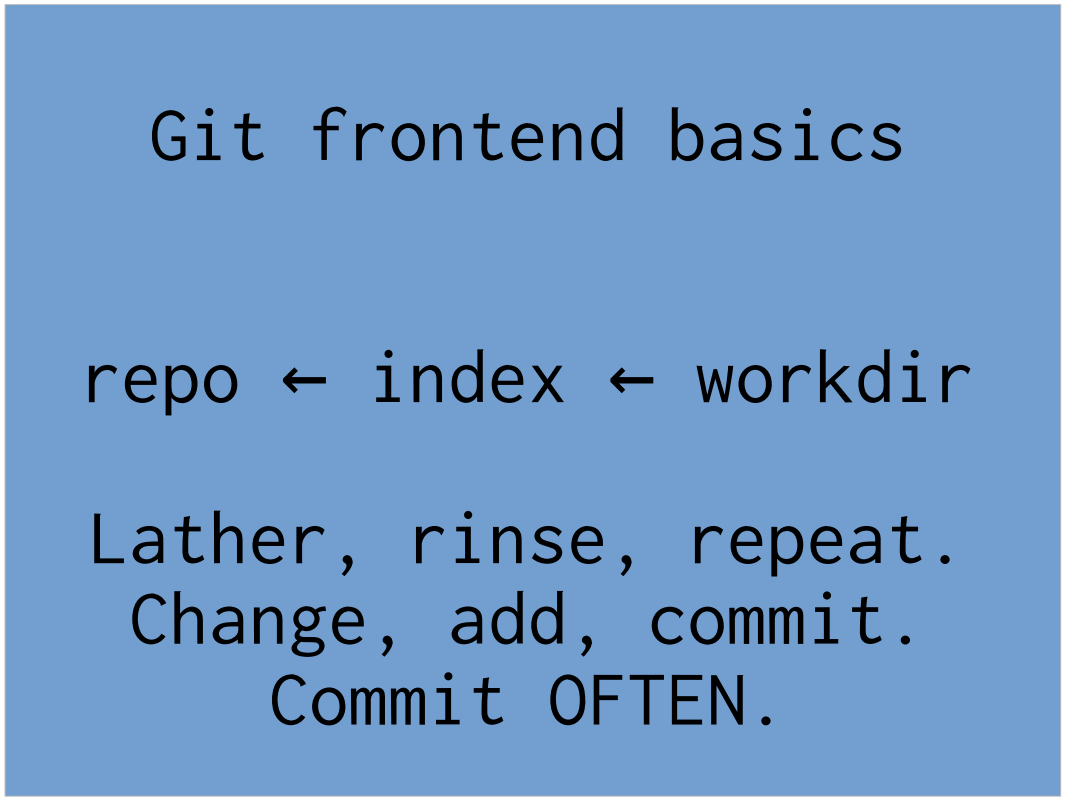
repo ← index ← workdir

Lather, rinse, repeat.

Git frontend basics

repo ← index ← workdir

Lather, rinse, repeat.
Change, add, commit.

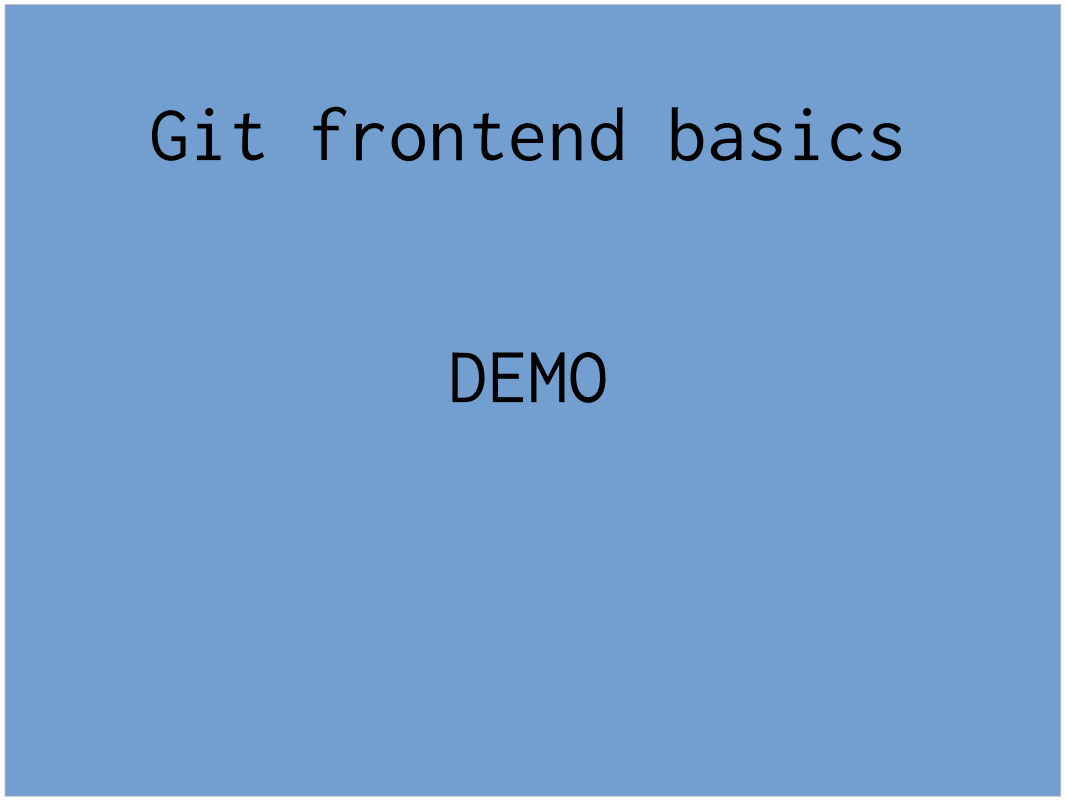


This is the journaling part I mentioned earlier.

This is way better than commenting out code in order to write something different.

If you had a build/test environment, each commit would be a small, self-contained change. It may include changes to multiple files, but it should all still work.

Now, the backend...



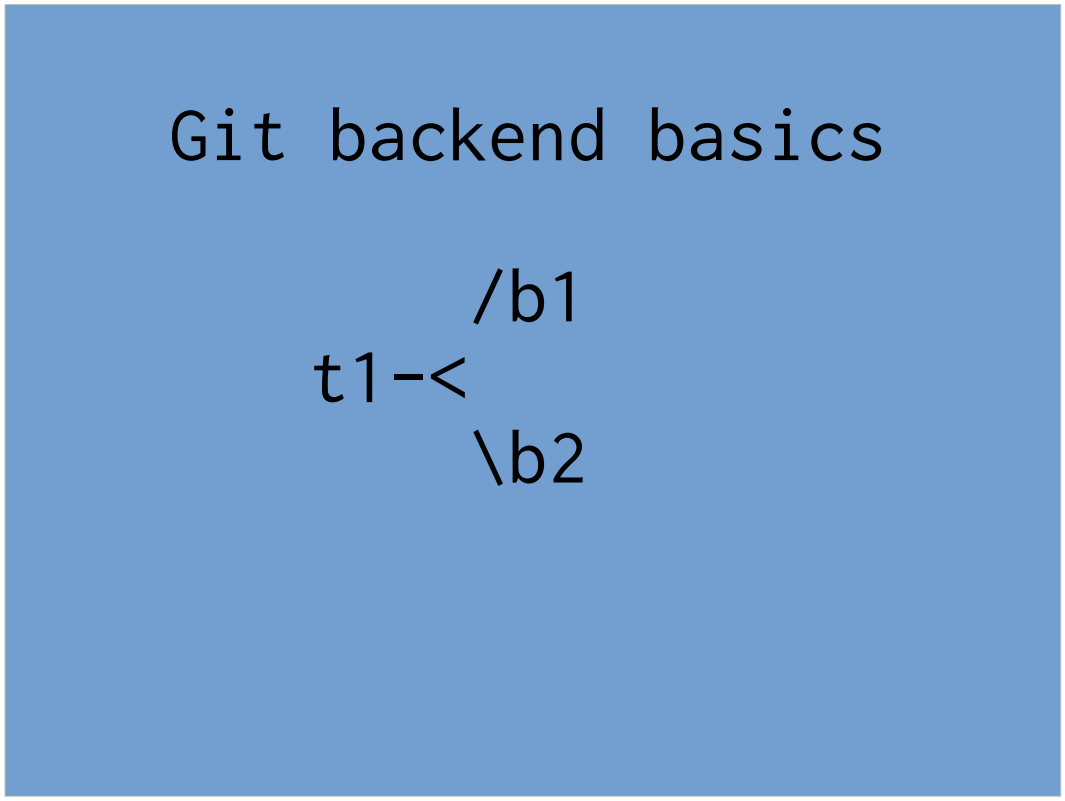
status
log
log --oneline

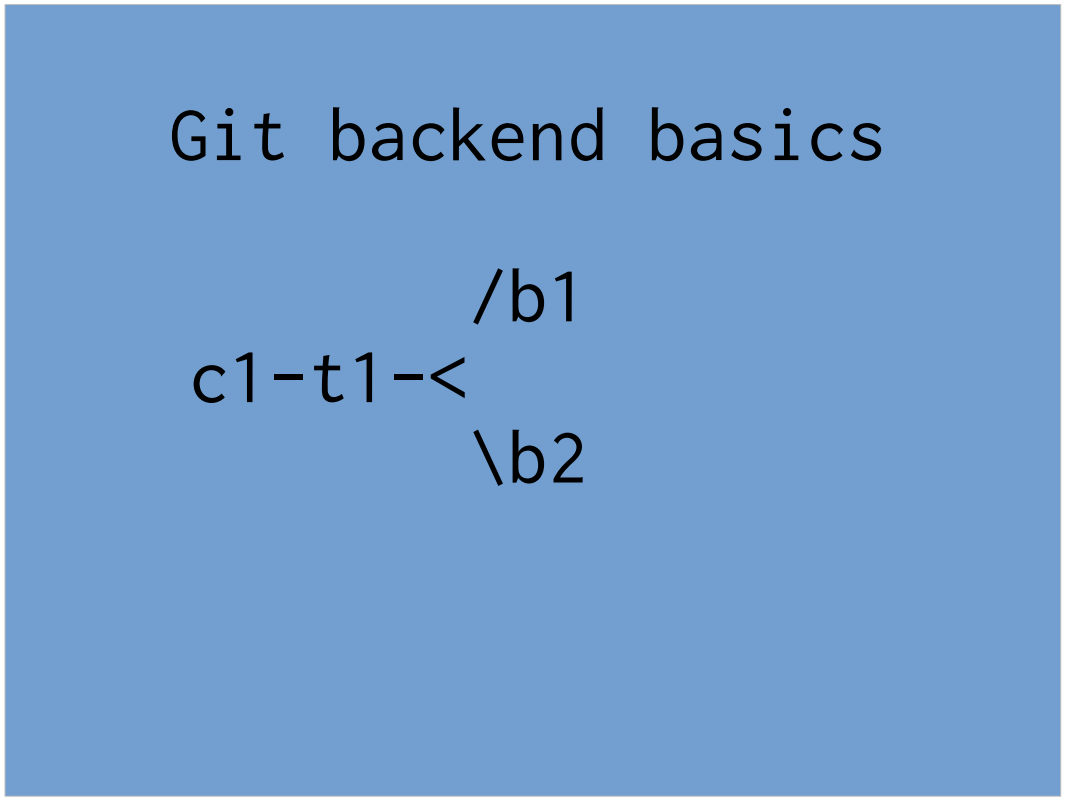
Git backend basics

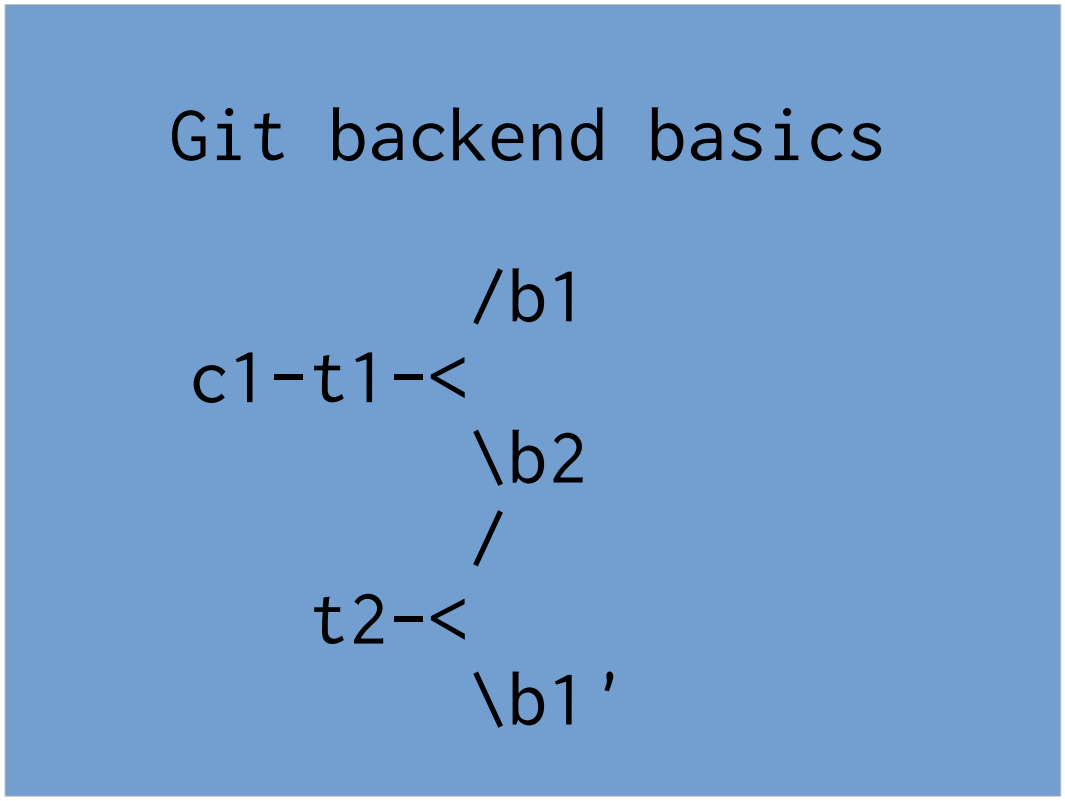
Git has four types of objects:

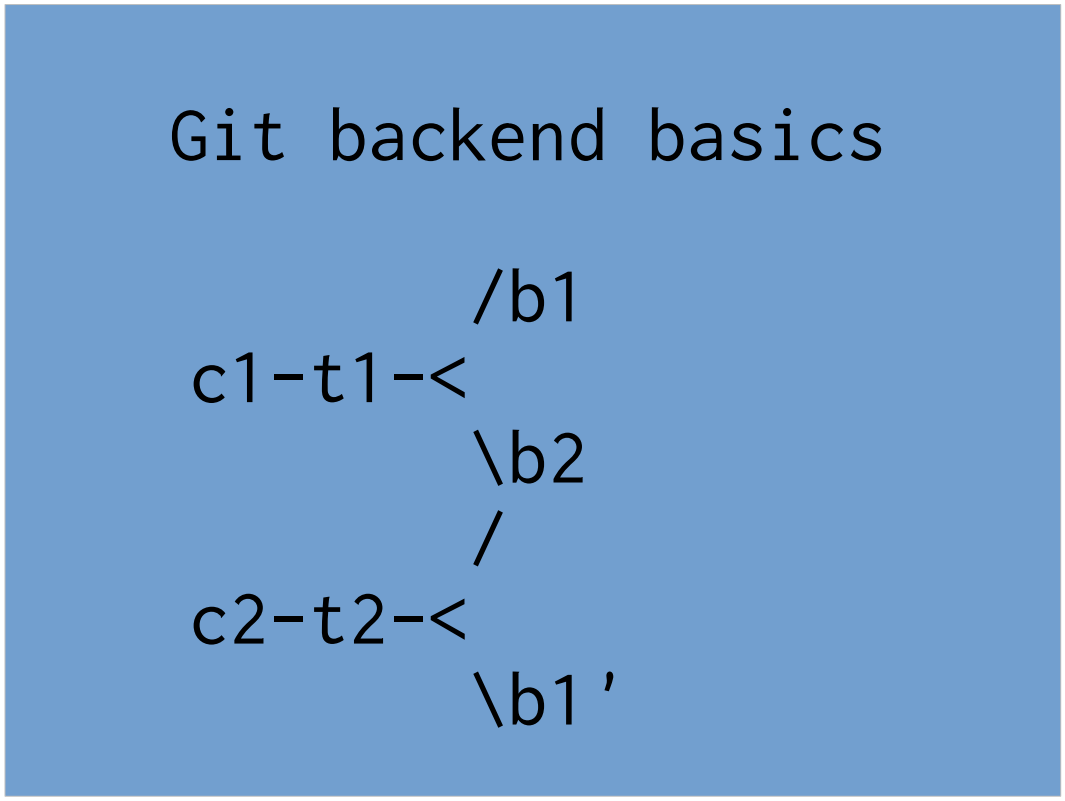
Git backend basics

blob
tree
commit
tag

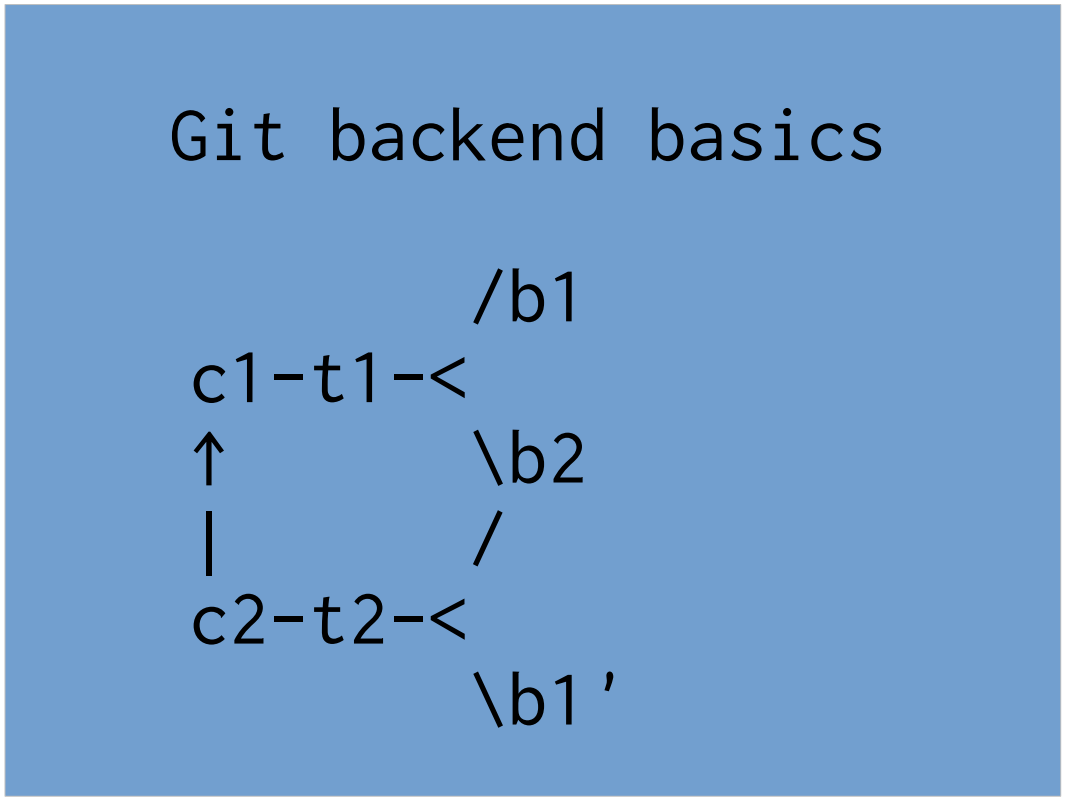

Git backend basics
/b1
t1-<
\b2


Git backend basics
/b1
c1-t1-<
\b2

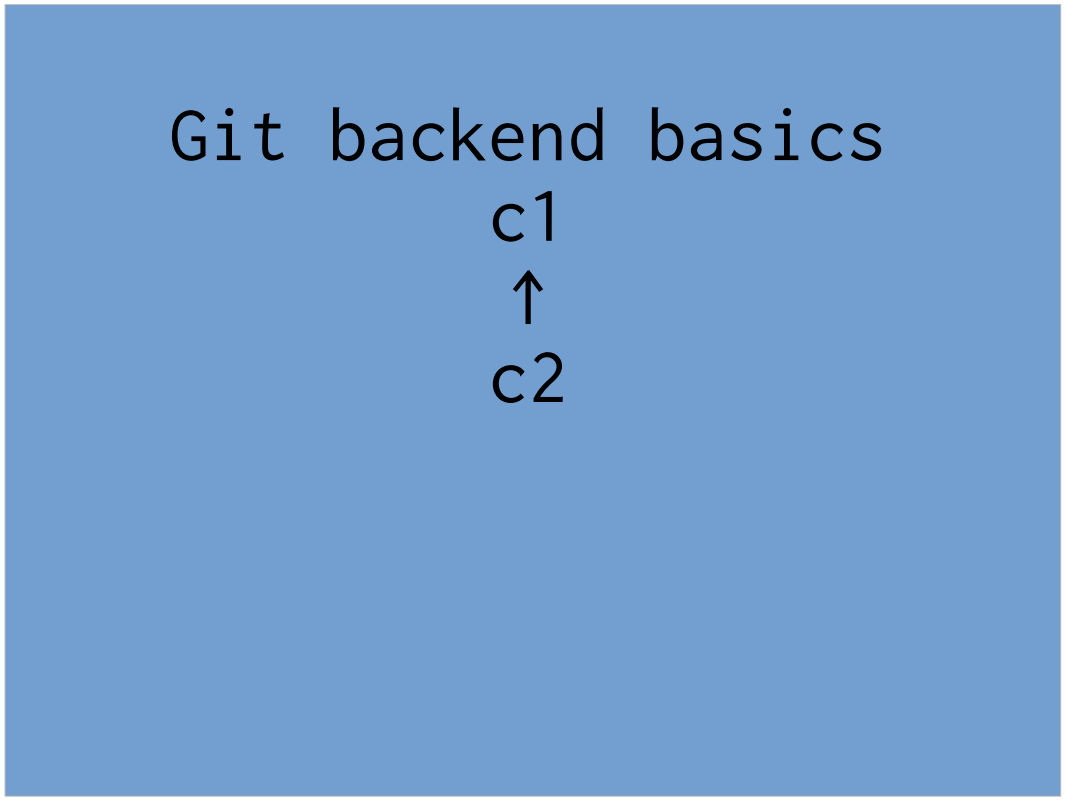

Git backend basics
/b1
c1-t1-<
\b2
/
t2-<
\b1'

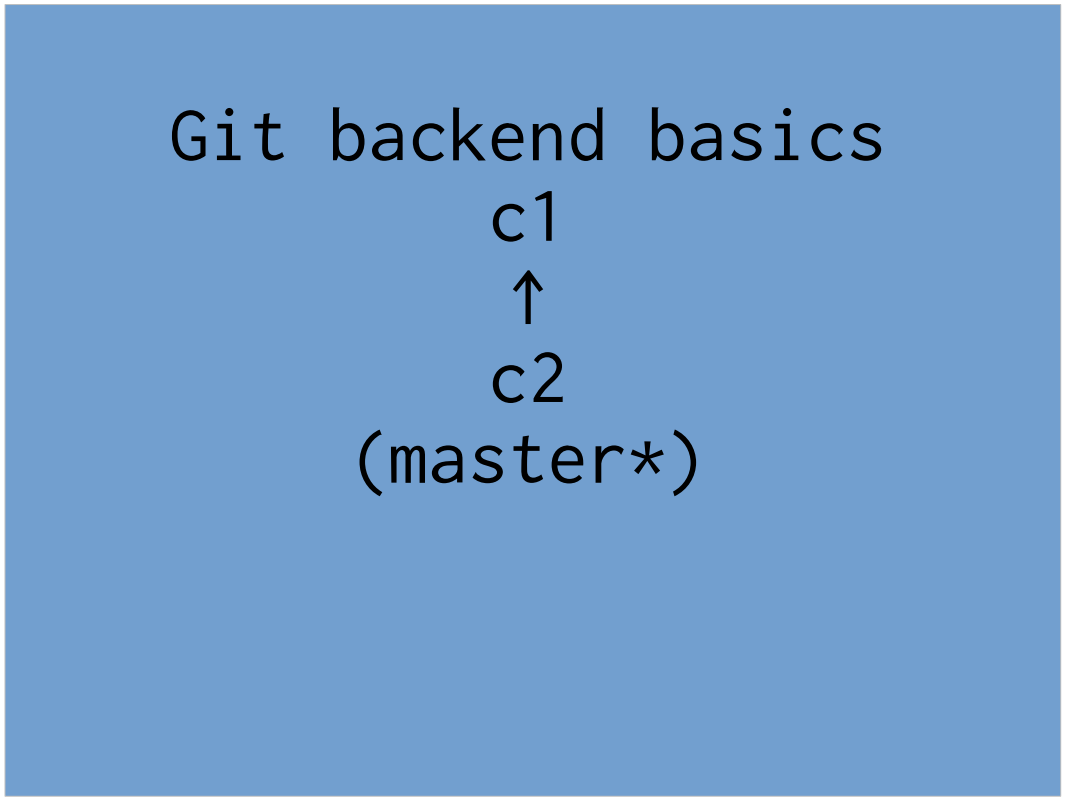

Git backend basics
/b1
c1-t1-<
\b2
/
c2-t2-<
\b1'

Git backend basics



Git backend basics


Git backend basics
c1
↑
c2



Master is like SVN trunk

Git backend basics

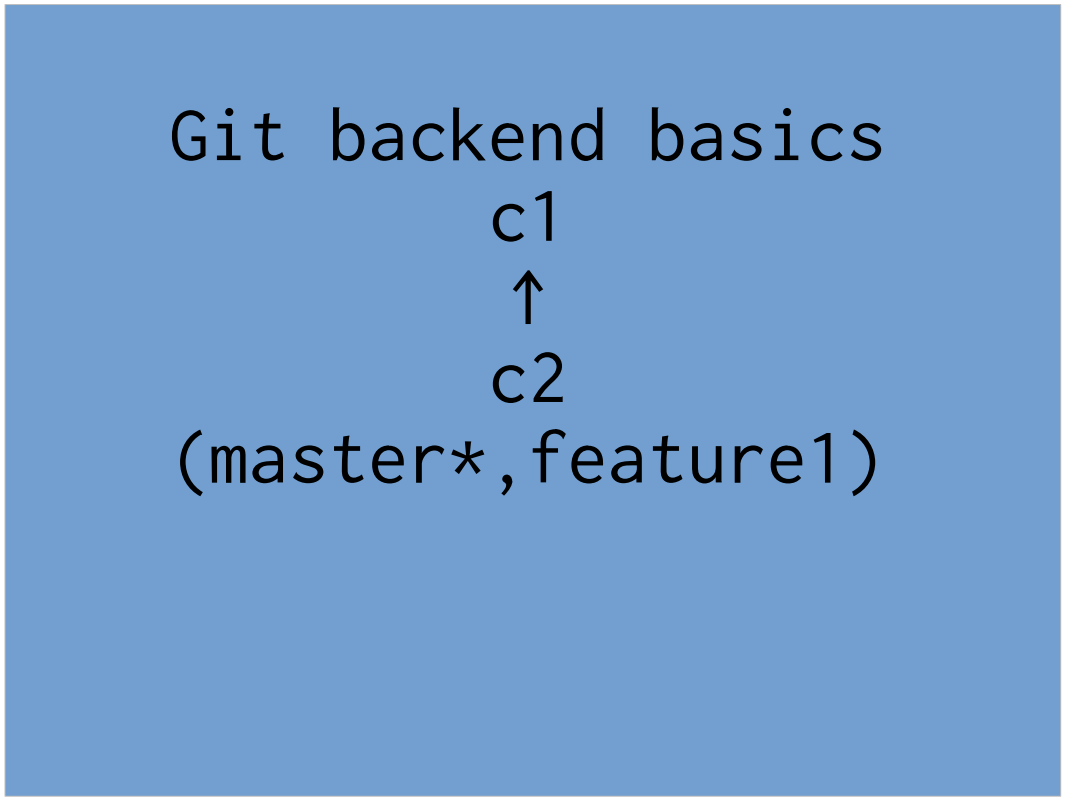
c1

↑

c2

(master*)

`git branch feature1`


Git backend basics
c1
↑
c2
(master*,feature1)

Git backend basics

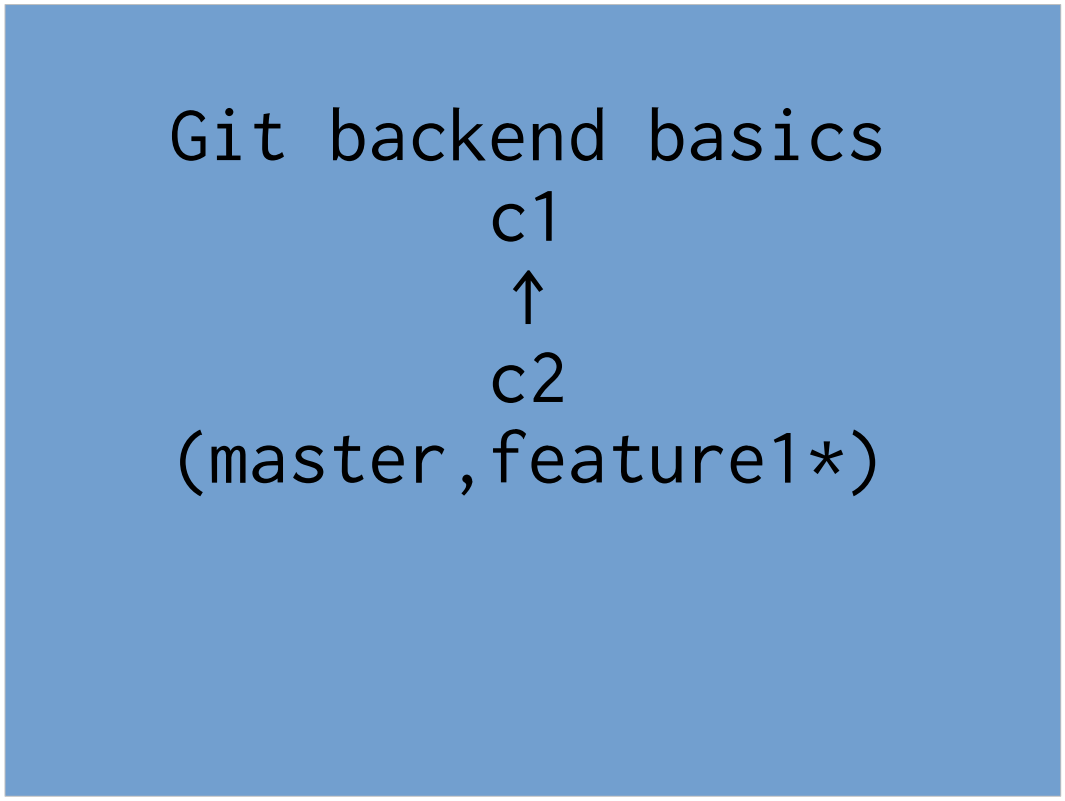
c1

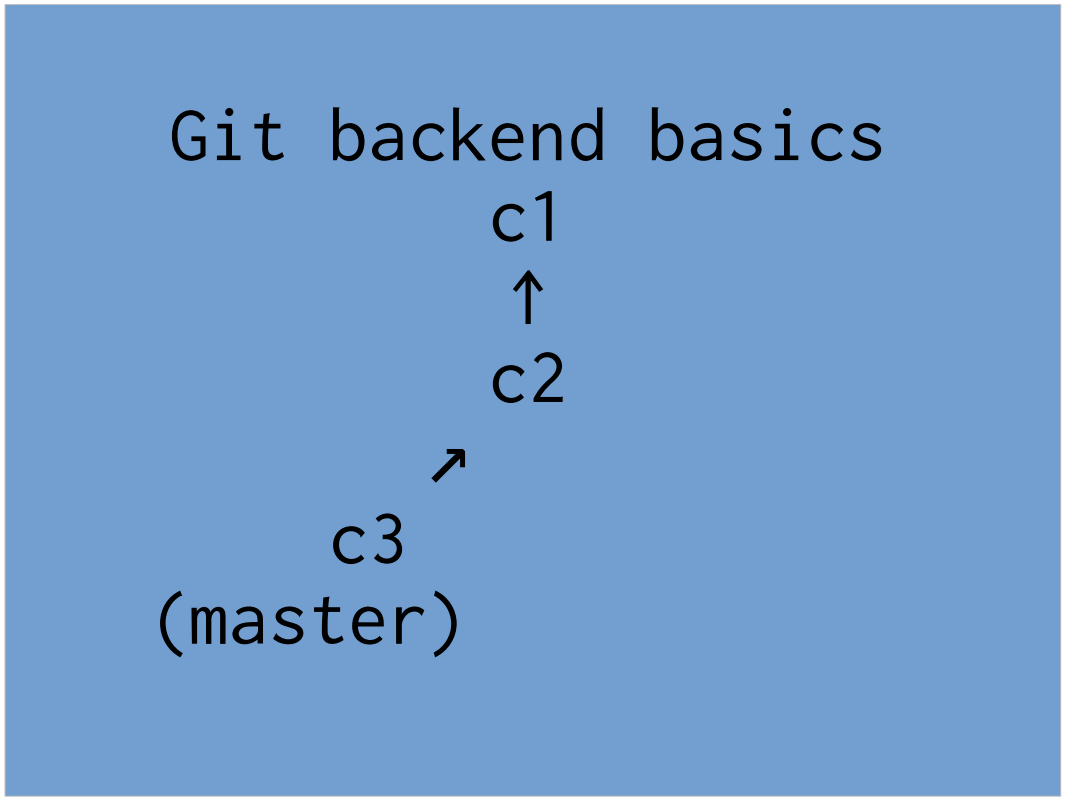
↑

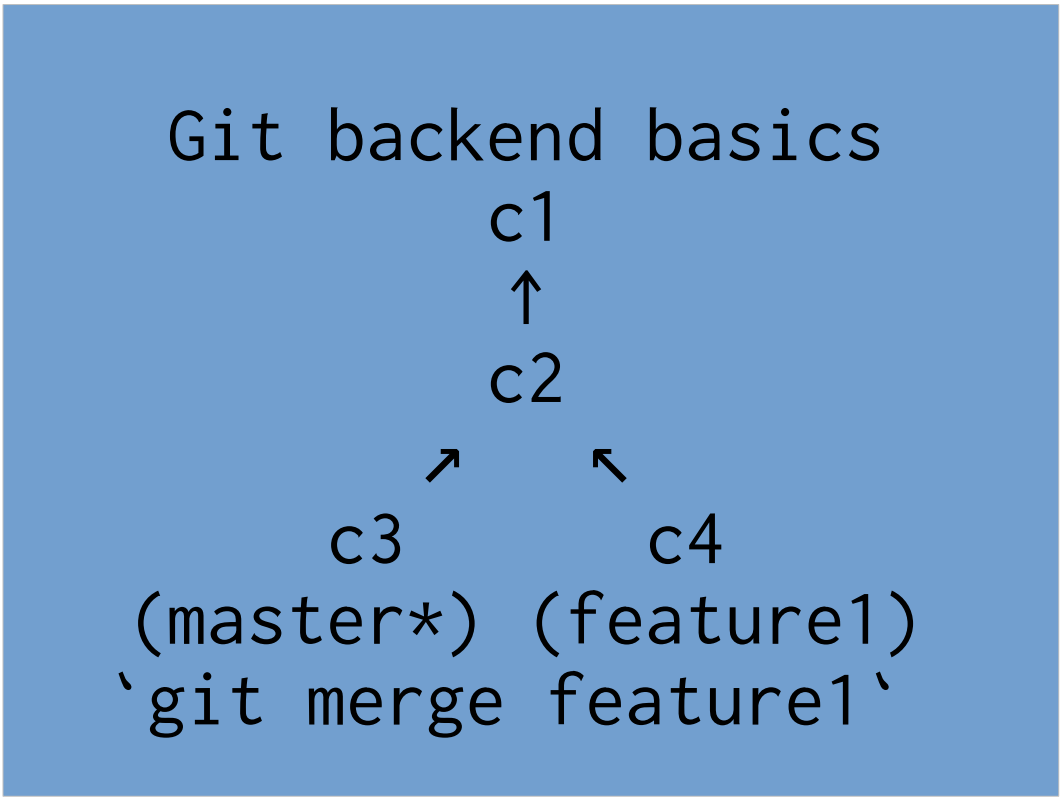
c2

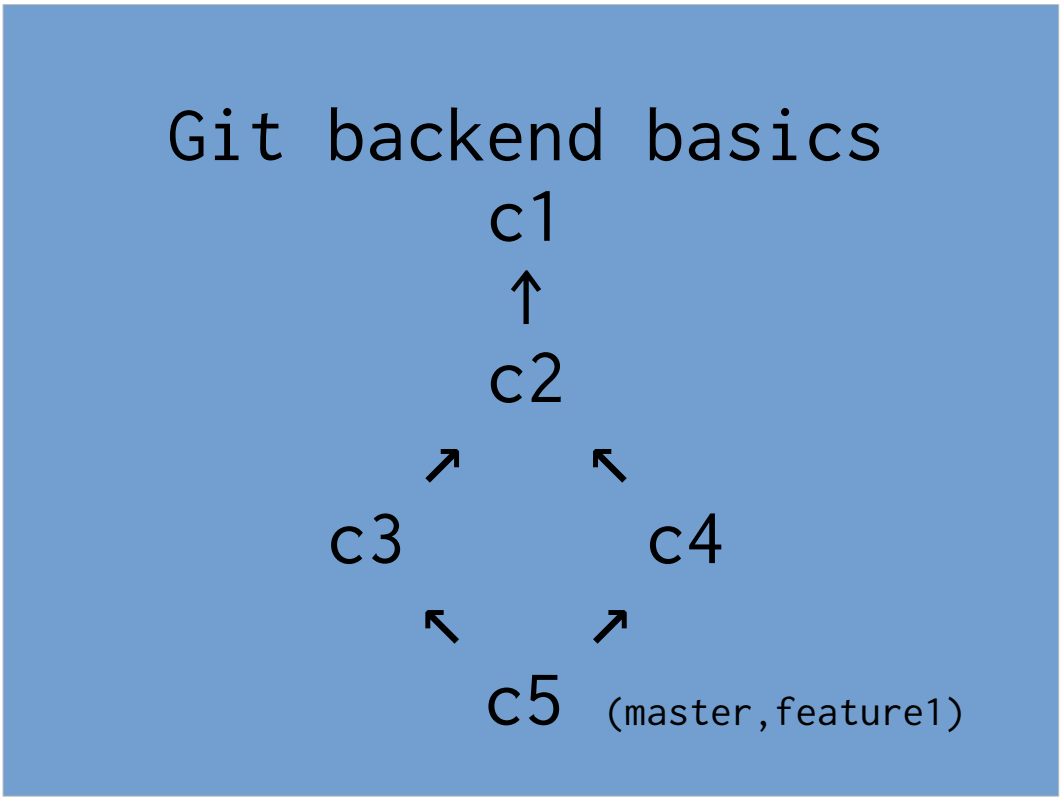
(master*,feature1)

`git checkout feature1`


Git backend basics
c1
↑
c2
(master,feature1*)


Git backend basics
c1
c2
c3
(master)


Git backend basics
c1
↑
c2
↗ ↖
c3 c4
(master*) (feature1)
`git merge feature1`



C5 is a merge commit, with two parents

Resources

Pro Git (free)

Resources

Pro Git (free)
Version Control with Git (O'Reilly)

Resources

Pro Git (free)
Version Control with Git (O'Reilly)
Git Intro: Randal Schwartz (Vimeo)

Q&A

- Branching
- Collaboration
- SVN migration