Git:
Fetch, Pull
Rebase, Merge

Lauren Billington

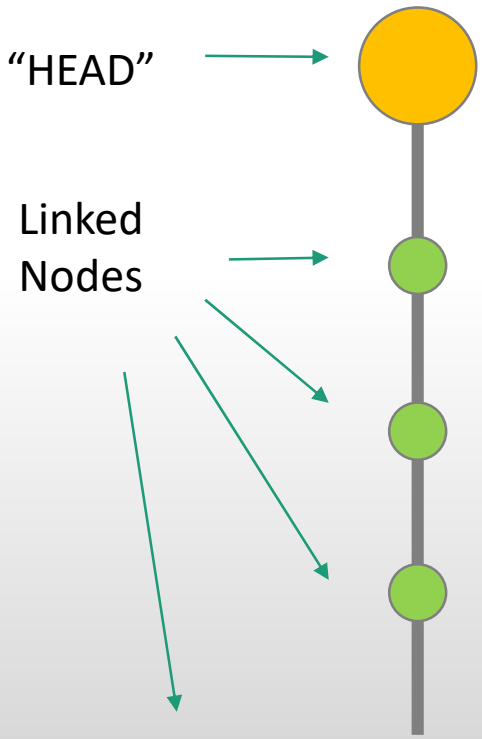
Legislative Information Services

Colorado State Legislature

My Team's recent Gitastrophy

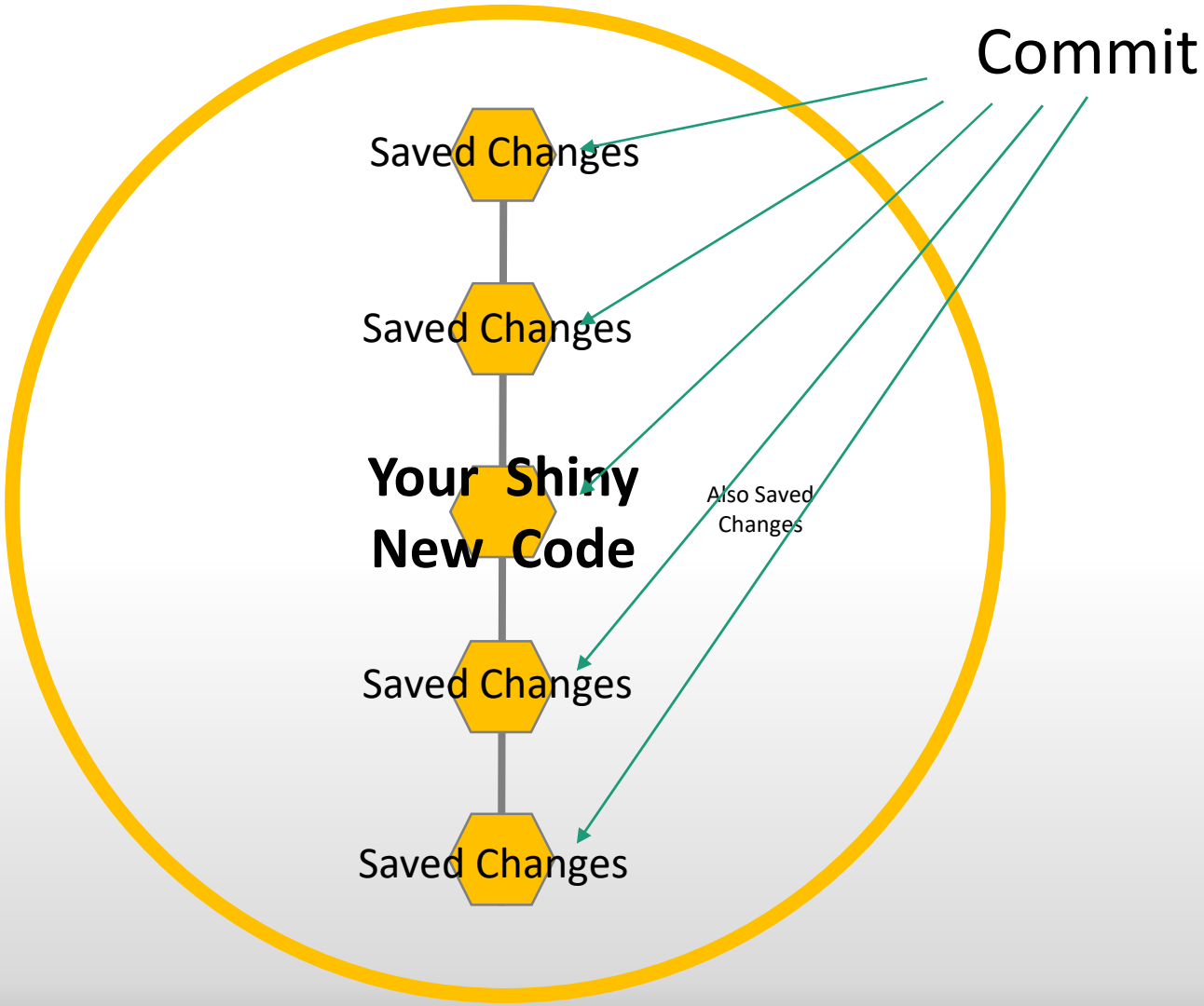
a PERFECT example!

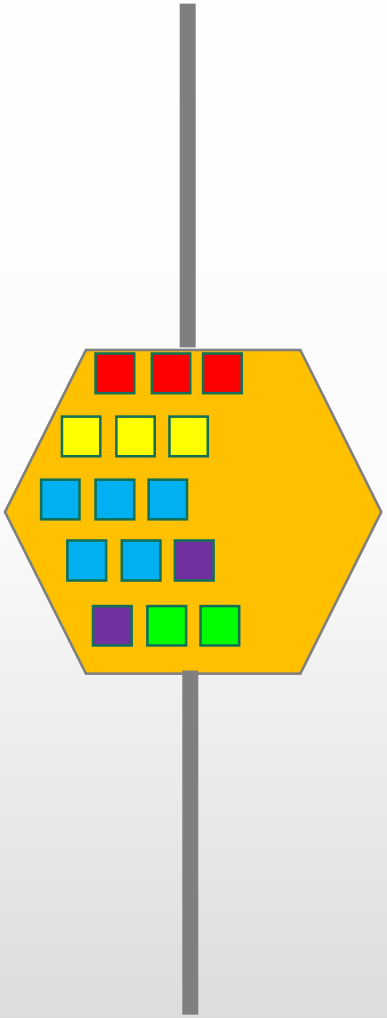
The Classic Visualization



Git Version Control
is basically a
Singly Linked List

The most up-to-date Dot is
always named “Head”


Commit
Saved Changes
Saved Changes
Your Shiny New Code
Also Saved Changes
Saved Changes
Saved Changes



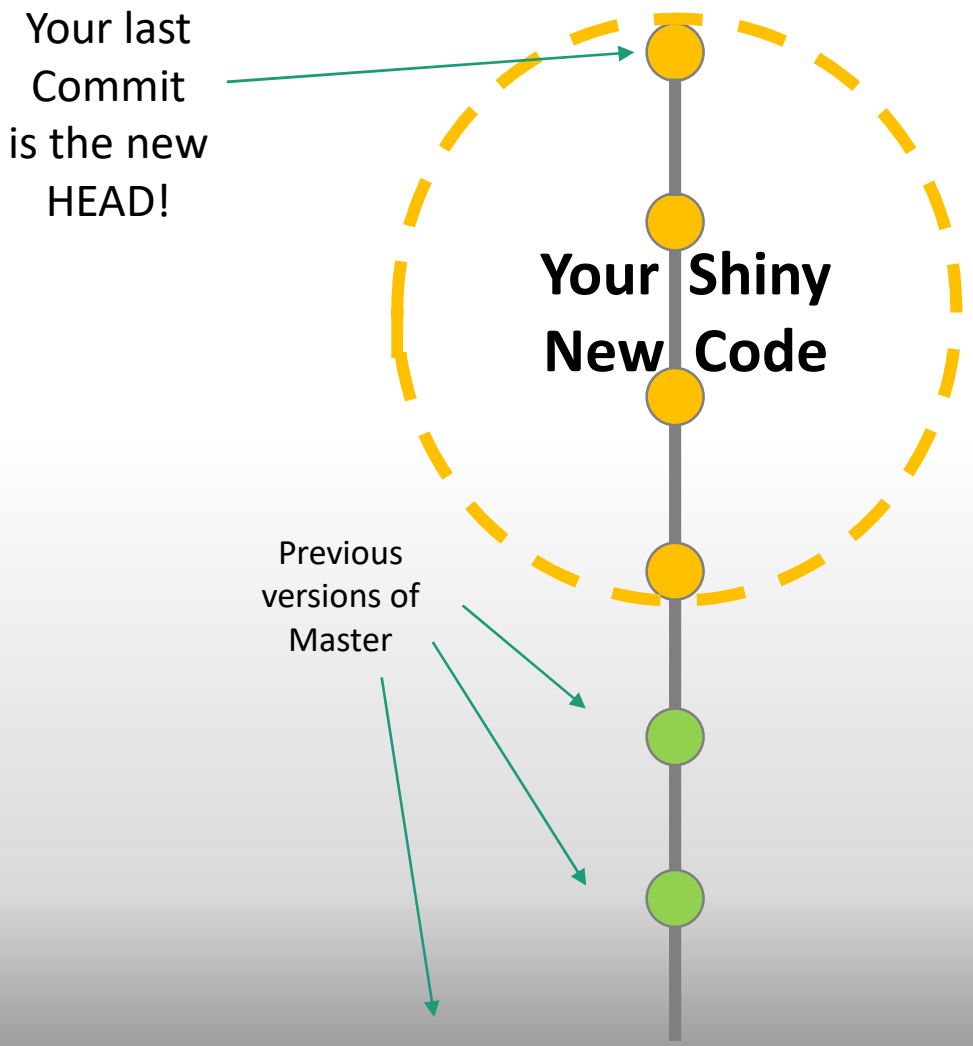
1 Commit =

1 copy of the whole codebase **including** your new changes

Each commit has a checksum hash (SHA*) so you can identify/use it

*SHA = Secure Hash Algorithm

The simplest use case



Rebasing vs Merge

- Rebasing
  - Forces us to treat integration like a Singly Linked List

Rebasing vs Merge

- ‘git merge’ (no args)
  - ‘hey Git make decisions for me plz’
  - Attempts one of 6 merging strategies:
    - Fast Forward
    - Recursive
    - Ours
    - Octopus
    - Resolve
    - Subtree

Flash Forward: Gitastrophy

- Sole developer
- Using rebase workflow
- Lots of refactors and new features

Flash Forward: Gitastrophy

- Test suite passed
- Code passed QA

Flash Forward: Gitastrophy

- Test suite passed
- Code passes QA
- Prod. Blows. Up.

What Happened?

- Server logs
- Commits and git history
- Terminal command history

Repo Master != Prod Master

Culprit?

‘git pull’

Culprit?

~~'git pull'~~

COMMUNICATION

Culprit (technically)?

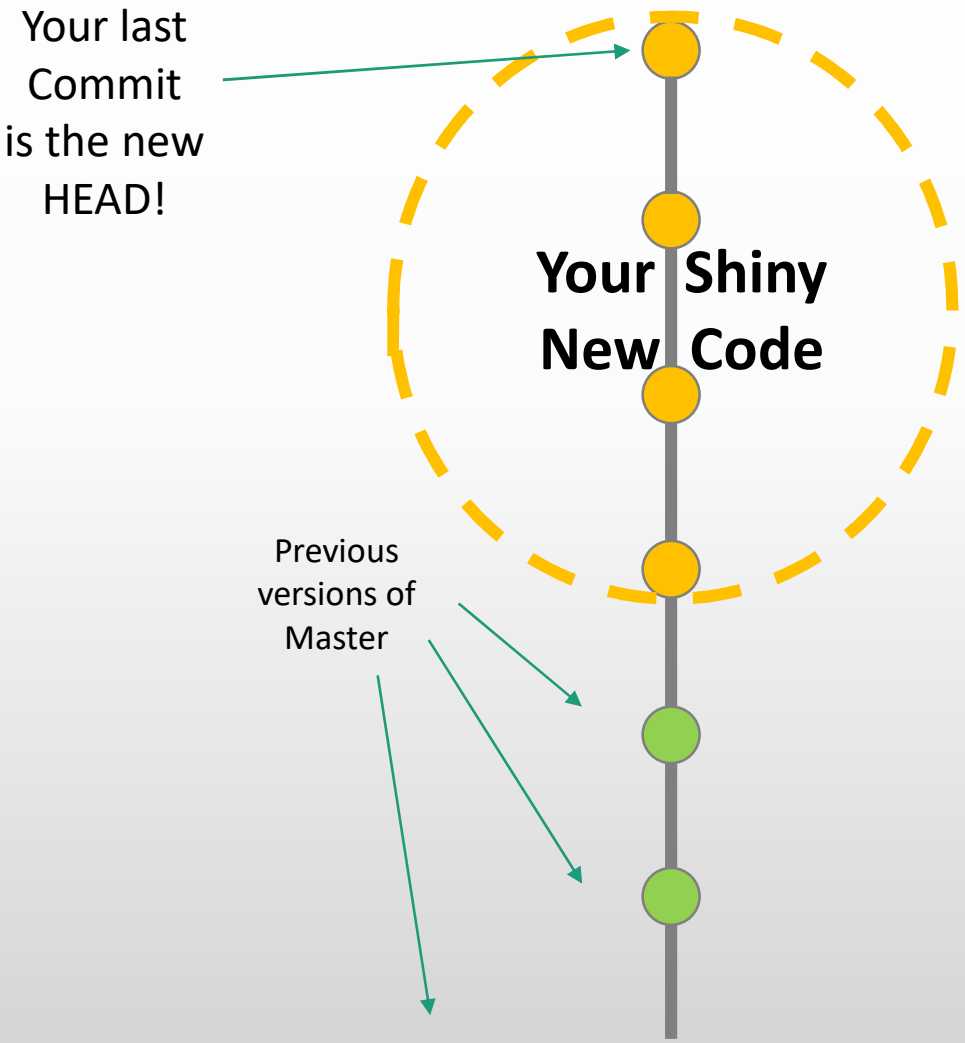
‘git pull’

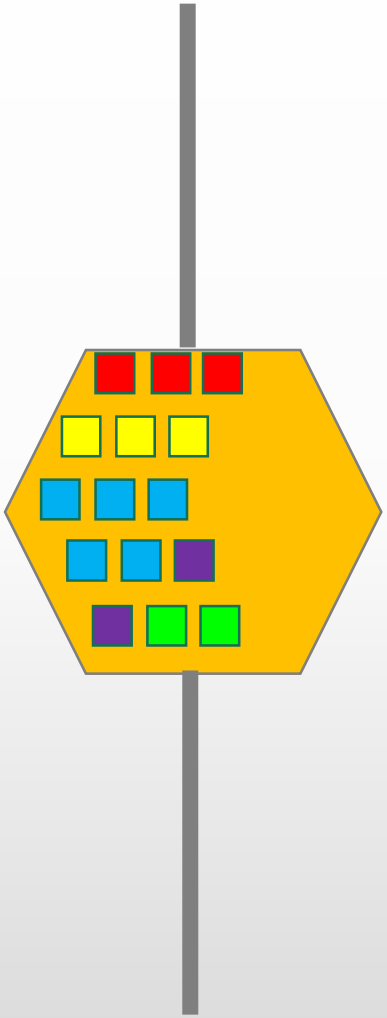
`git pull ==` git merge

"In its default mode, git pull is shorthand for 'git fetch' followed by 'git merge FETCH_HEAD'."

- Git Documentation

Using ‘git rebase -i’





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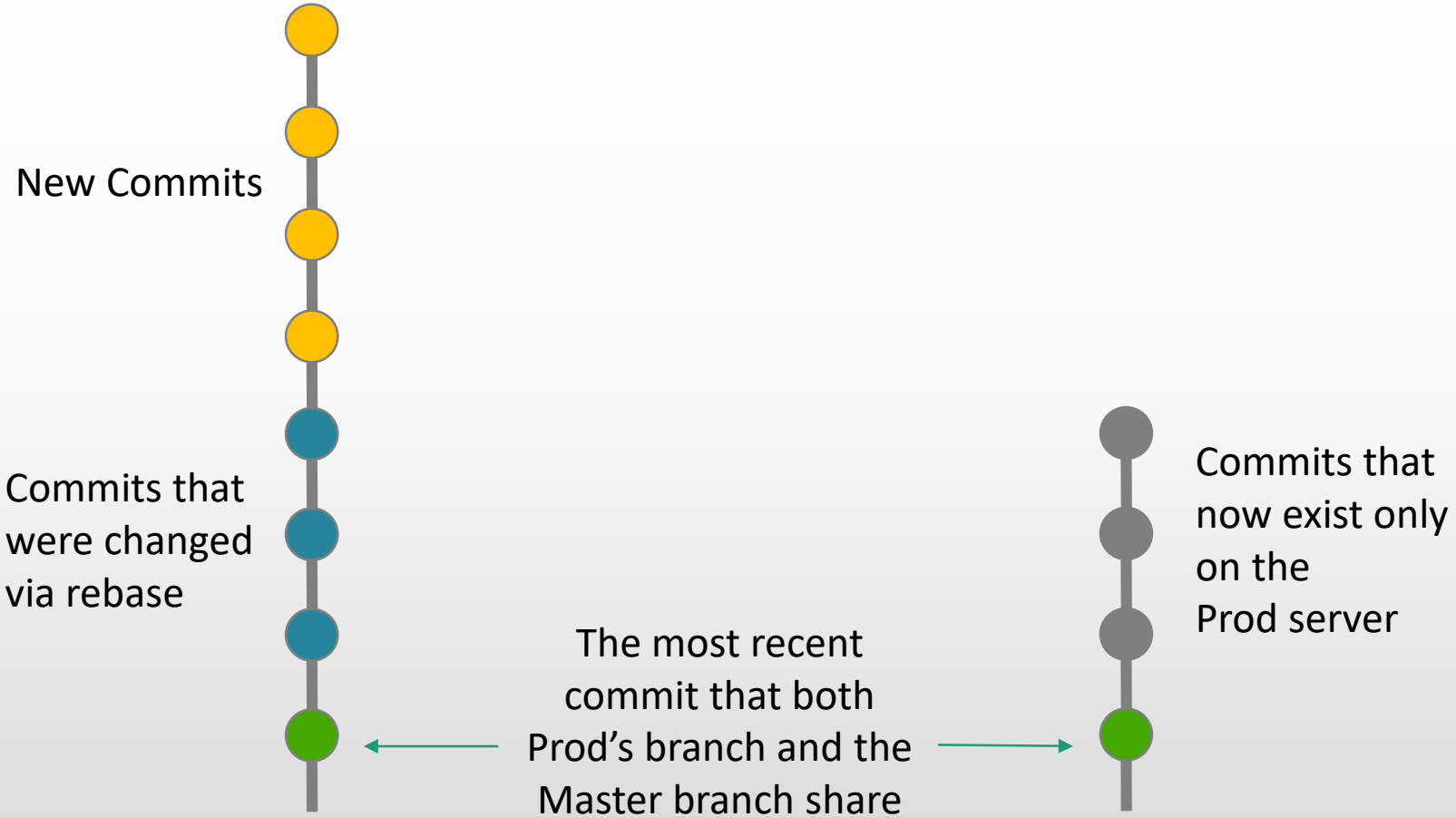
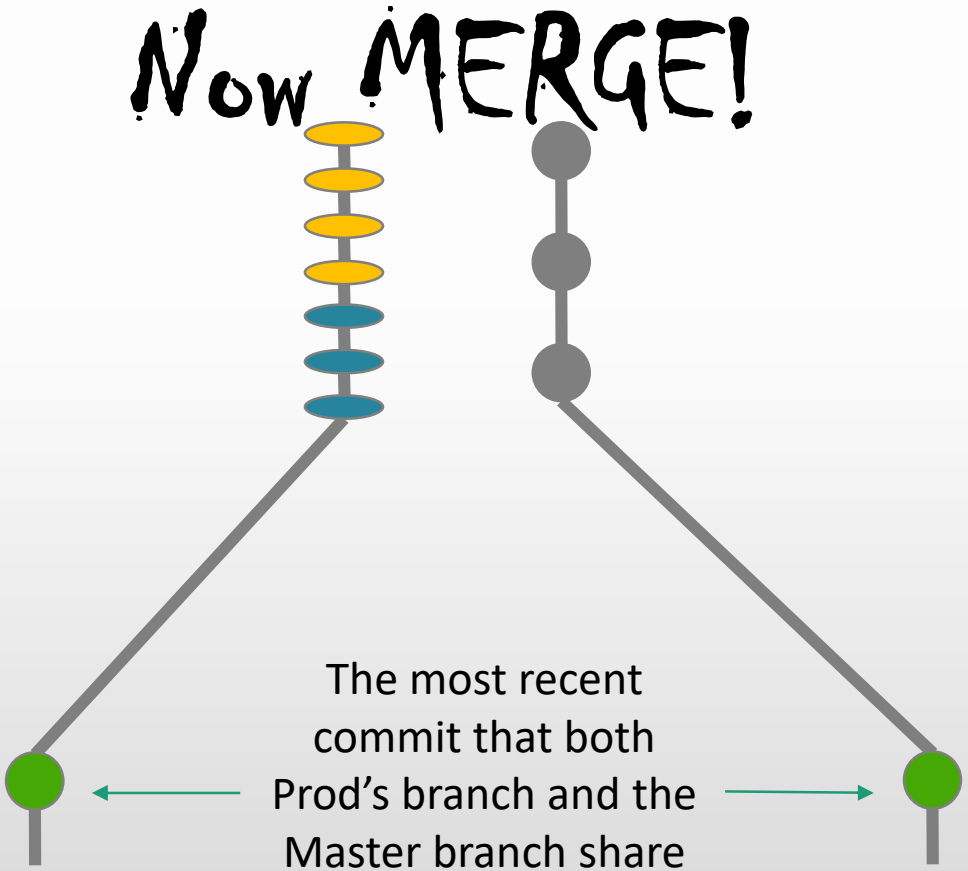
Repo vs Prod


New Commits
Commits that were changed via rebase
The most recent commit that both Prod's branch and the Master branch share
Commits that now exist only on the Prod server

Repo vs Prod


Now MERGE!
The most recent commit that both Prod's branch and the Master branch share

The Fix

```
‘git fetch upstream master &&
git reset --hard upstream/master’
```

Kinda anticlimactic ending...

Fetch, Pull
Rebase, Merge

…And also team communication…

I hope you know a bit more
than you did before

Thank you!