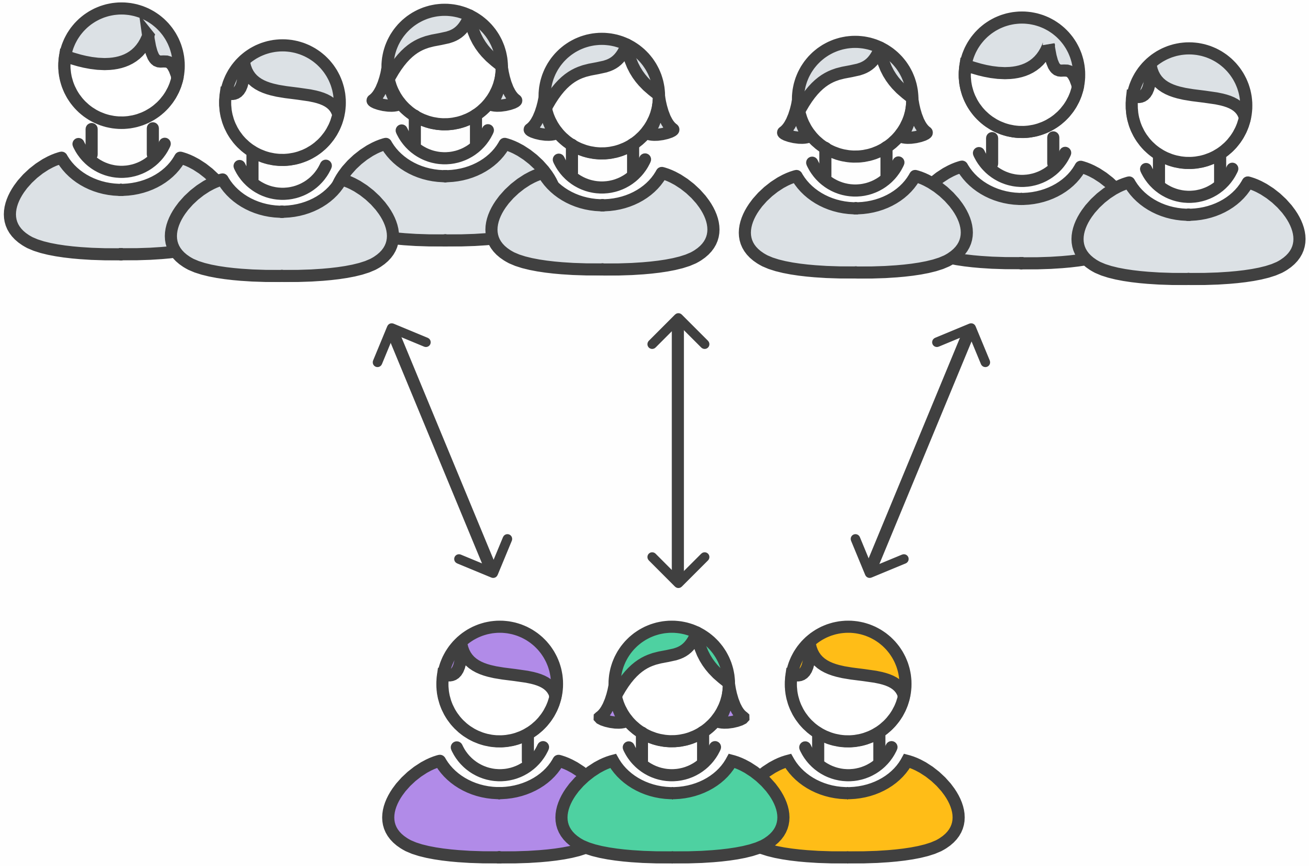
Collaborating with Git

Quick Tip: Help

```
$ git help
  # provides list of common commands
$ git help <command>
  # provides man page for specific command
$ git help add
```

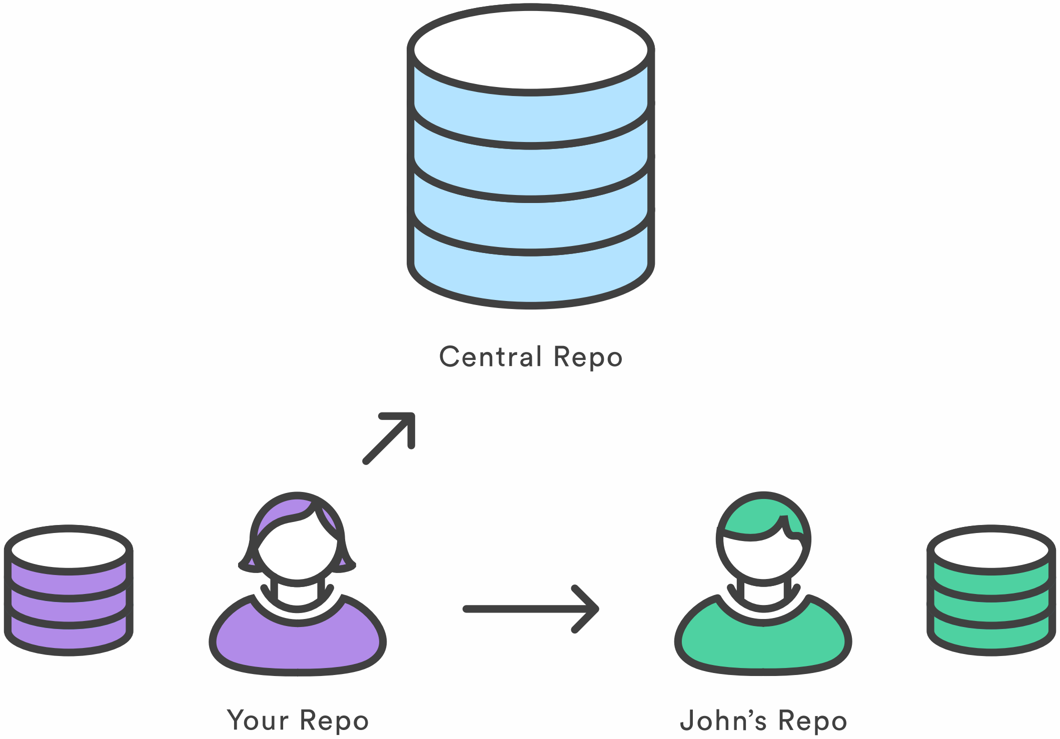


Central Repositories

- Redundancy: imagine your hard drive fails...
- Convenience: imagine our connected repos, but your computer is off...
- Security: imagine your computer constantly accepting changes from everyone...

Remote Repositories

- Create, view, and delete connections to other repos
- Kind of like a bookmark for a URL
- Sharing between remotes is not automatic



`origin & john`

Remote

```
$ git remote
  # lists remote connections
$ git remote -v
  # lists remote connections, including URLs (it's Verb
```

Repo URLs

Compare the following Repo URLs

```
http://host/path/to/repo.git
ssh://user@host/path/to/repo.git
```

Origin

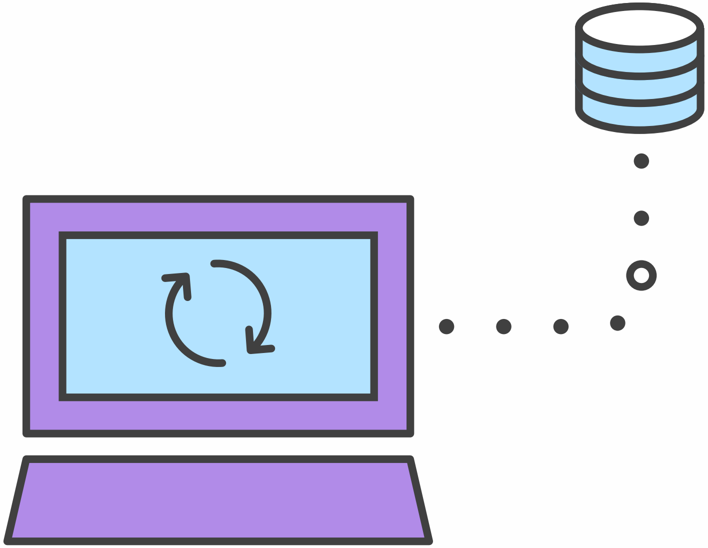
- git clone automatically creates a remote pointing at the original
- That remote is called origin
- Use the origin to pull upstream changes or publish your own

Remote

```
$ git remote add <name> <URL>
  # adds a new remote, for example:
  # git remote add origin https://github.com/ts-cset/cs
$ git remote show <name>
  # shows details about remote
```

Try it!

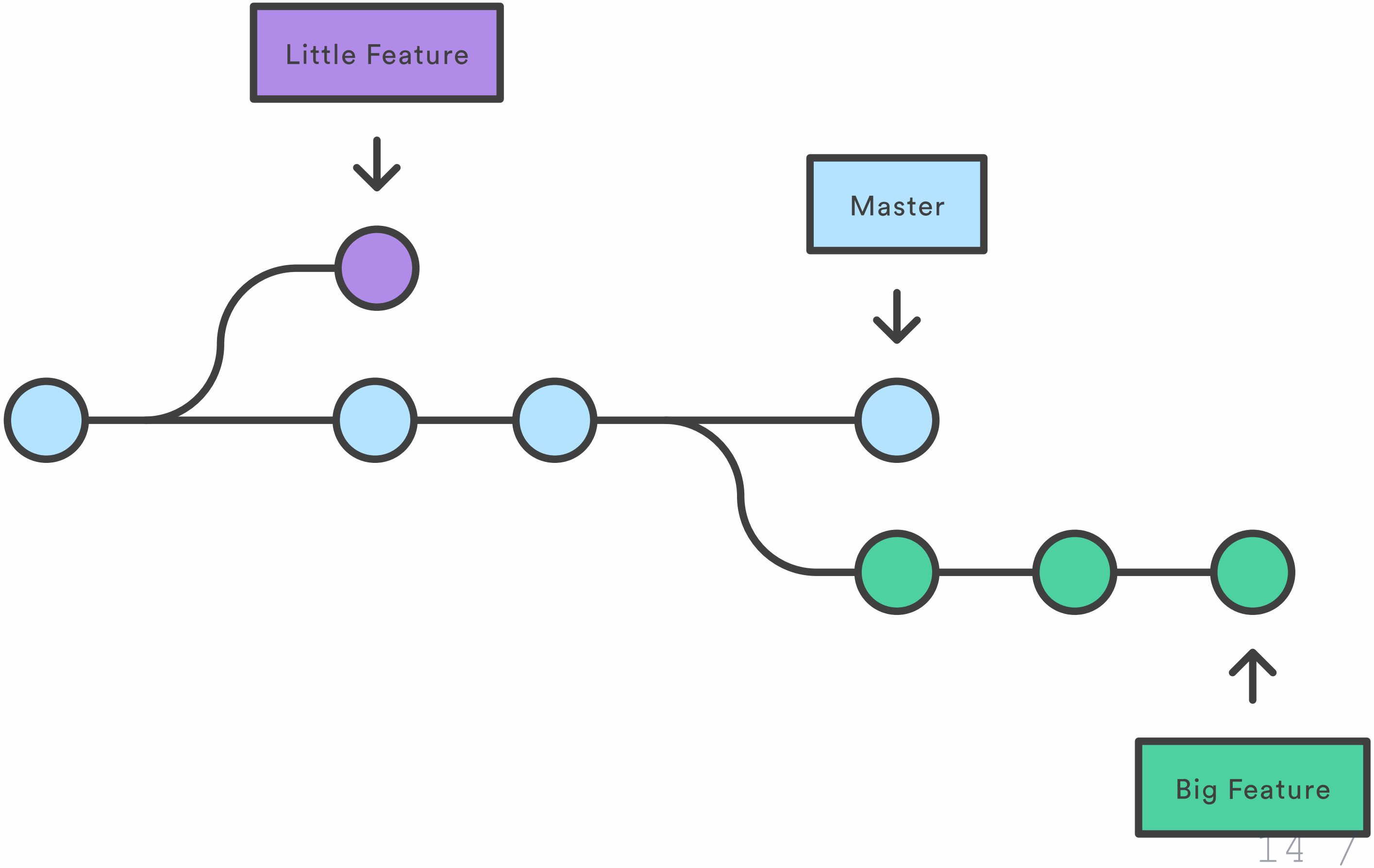
```
$ cd ~/my-repo
$ git remote -v
$ cd ~/cset-105
$ git remote -v
```



Syncing with Fetch

- Downloads commits and refs into your local repo
- Doesn't make any changes to your working directory
- View these changes by using git checkout command
- Safer of the two options

Branches



Branch

- Bookmark for a specific commit
- That commit knows it's history, not the branch
- Think of a branch as a series of commits, not a container for commits

Branch

```
$ git branch
  # lists local branches
$ git branch -r
  # lists remote branches
$ git branch -a
```

Fetch

```
$ git fetch
  # fetches all branches
$ git fetch <remote> <branch>
  # fetches a specific remote branch
```

Try it!

```
$ cd ~/cset-105
$ git status
$ git fetch origin
$ git status
```

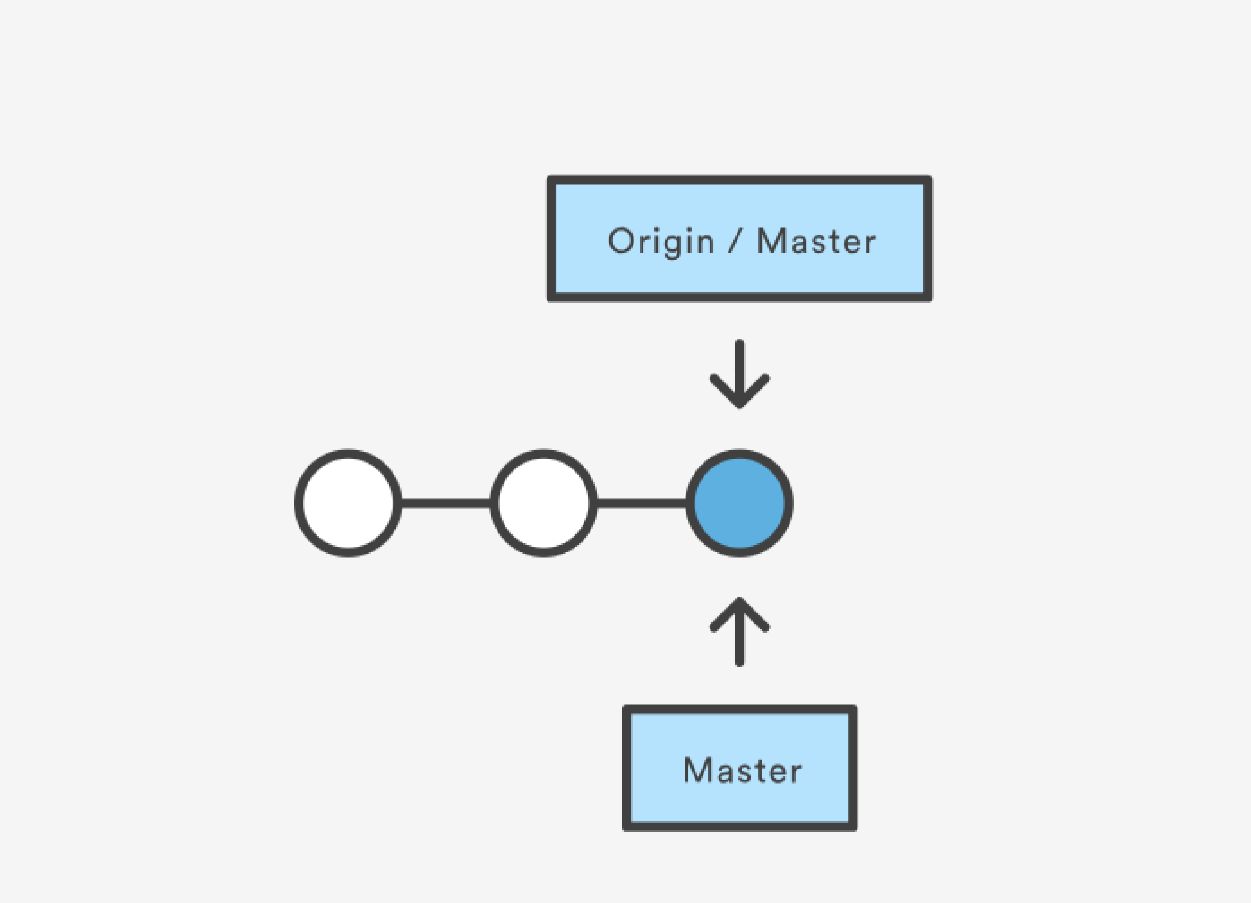
Advanced Topic

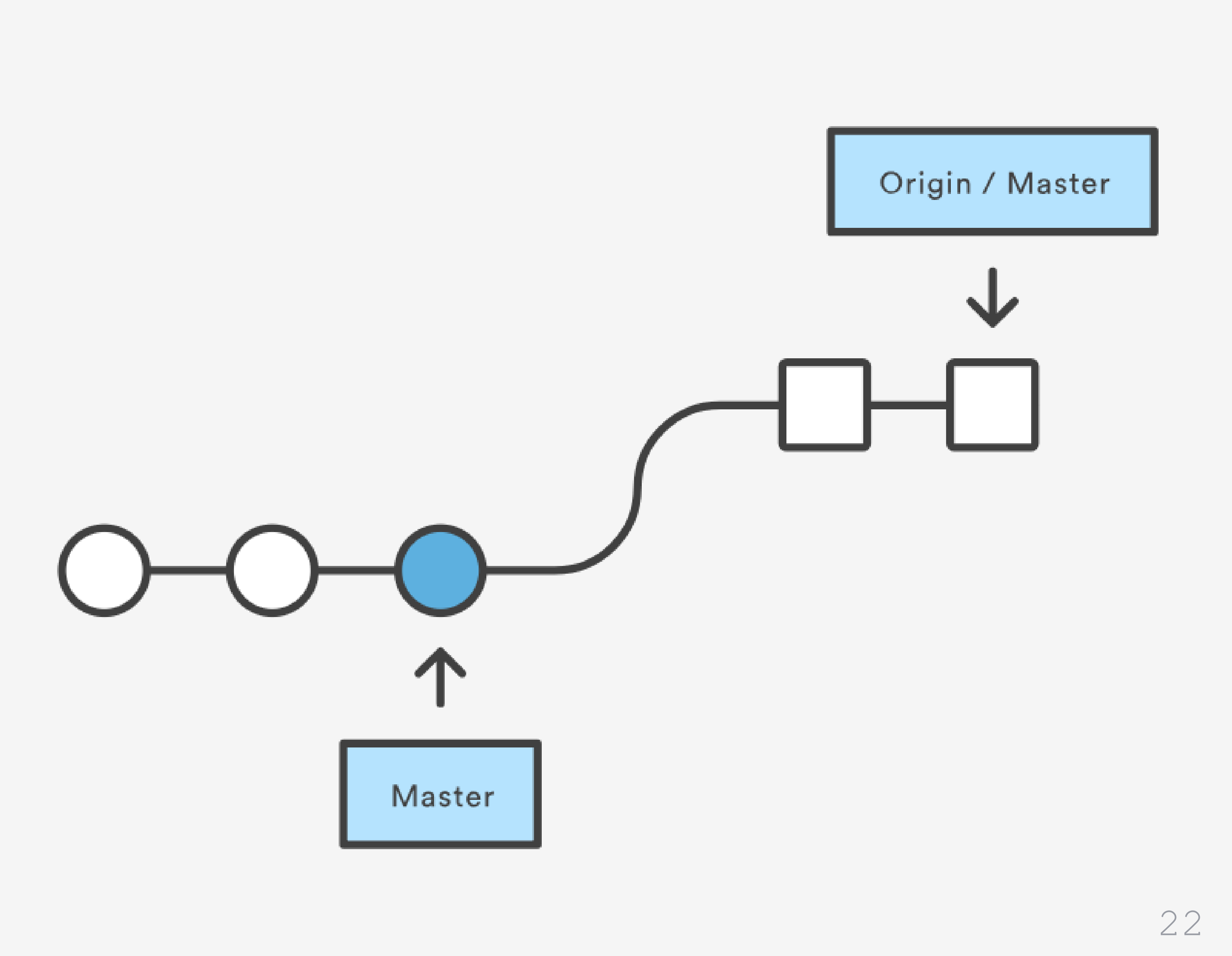
Read up on how to use fetch, checkout, log, and merge to get changes safely:

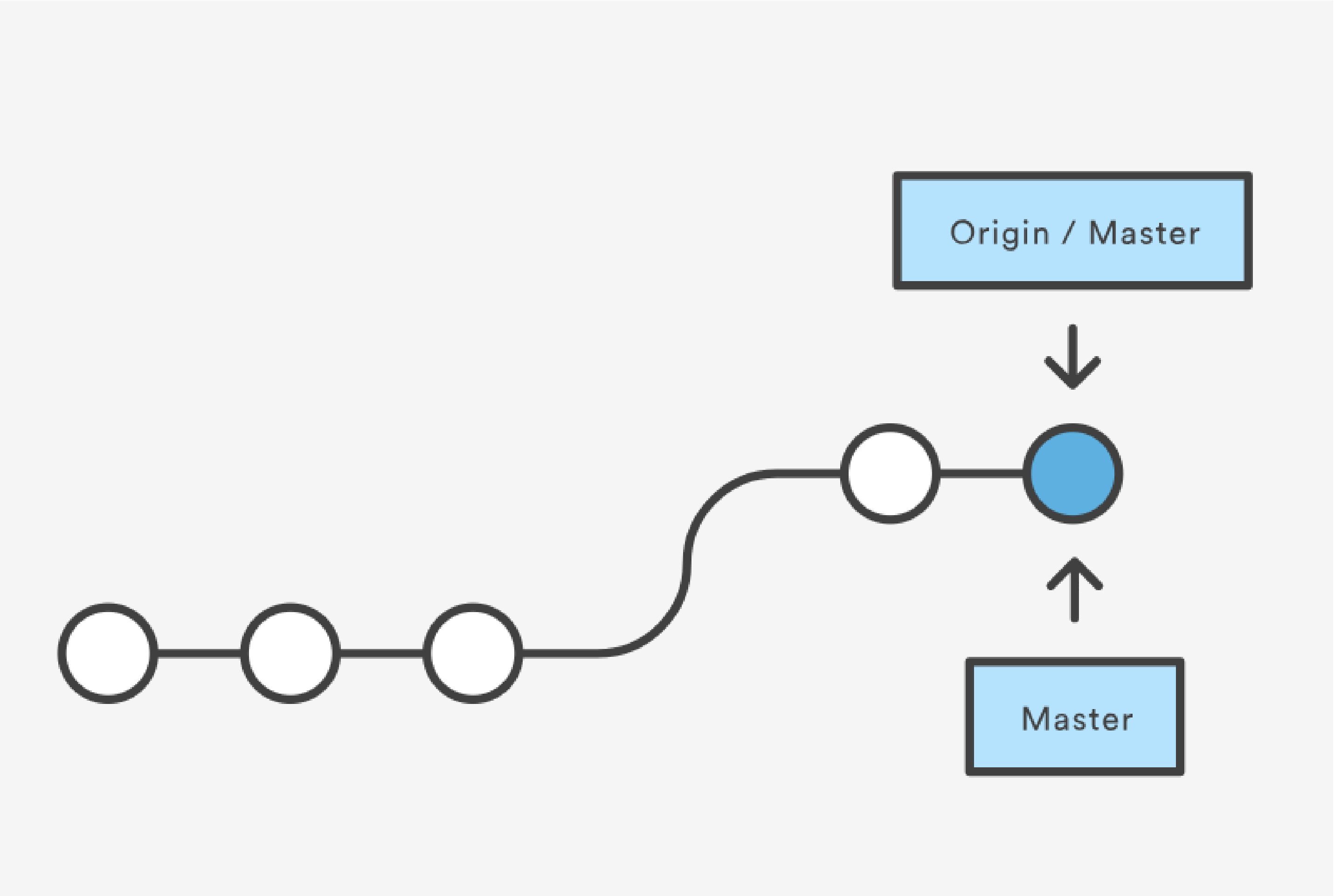
Advanced Git Fetch

Pull

- Downloads commits and refs into your local repo
- Immediately updates your working directory to match
- Shortcut for `git fetch; git merge`
- Destructive, but easier to learn


Origin / Master
Master

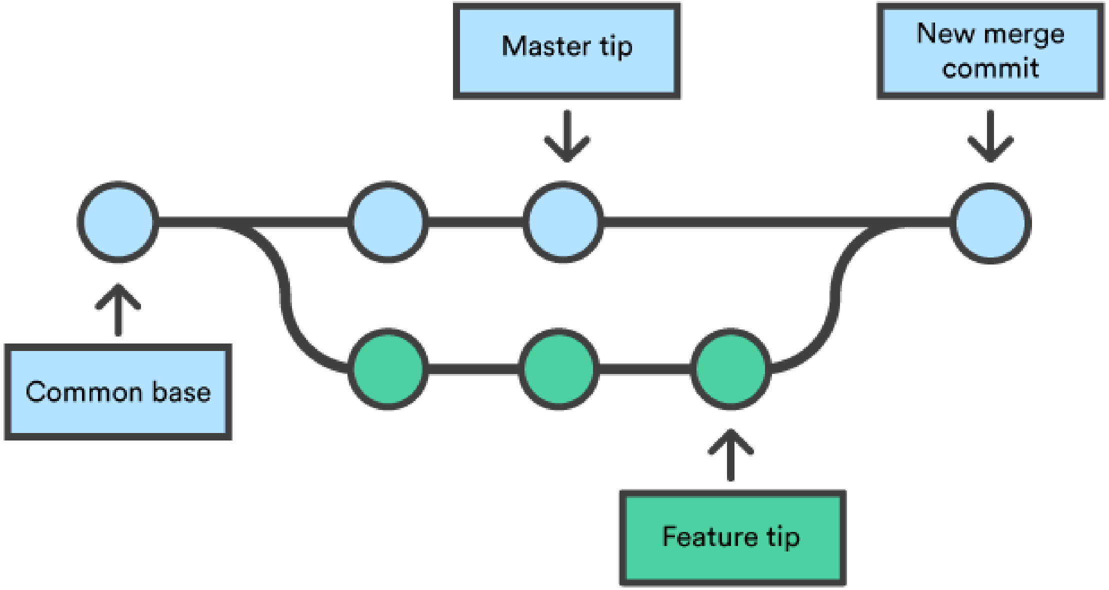

Origin / Master
Master


Origin / Master
Master

Try it!

```
$ git pull
  # fetches and merges changes
$ git status
  # should say up to date with origin/master
```

3-Way Merging



Advanced Topic

Read up on how to resolve conflicts that happen when merging:

Advanced Git Merge

Practice

- Do to LearnGitBranching.js.org
- Complete "Introduction Sequence" on Main tab
- Complete "Push & Pull -- Git Remotes" on Remote tab

Tomorrow

We'll learn all about Github!