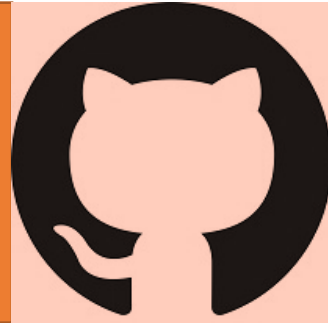




Git and Github



What is Version Management / Control?

Version control, also known as source control, is the practice of tracking and managing changes to software code.

Git and Github

Git



Version Control System

Manage Code History

Track Changes

Github

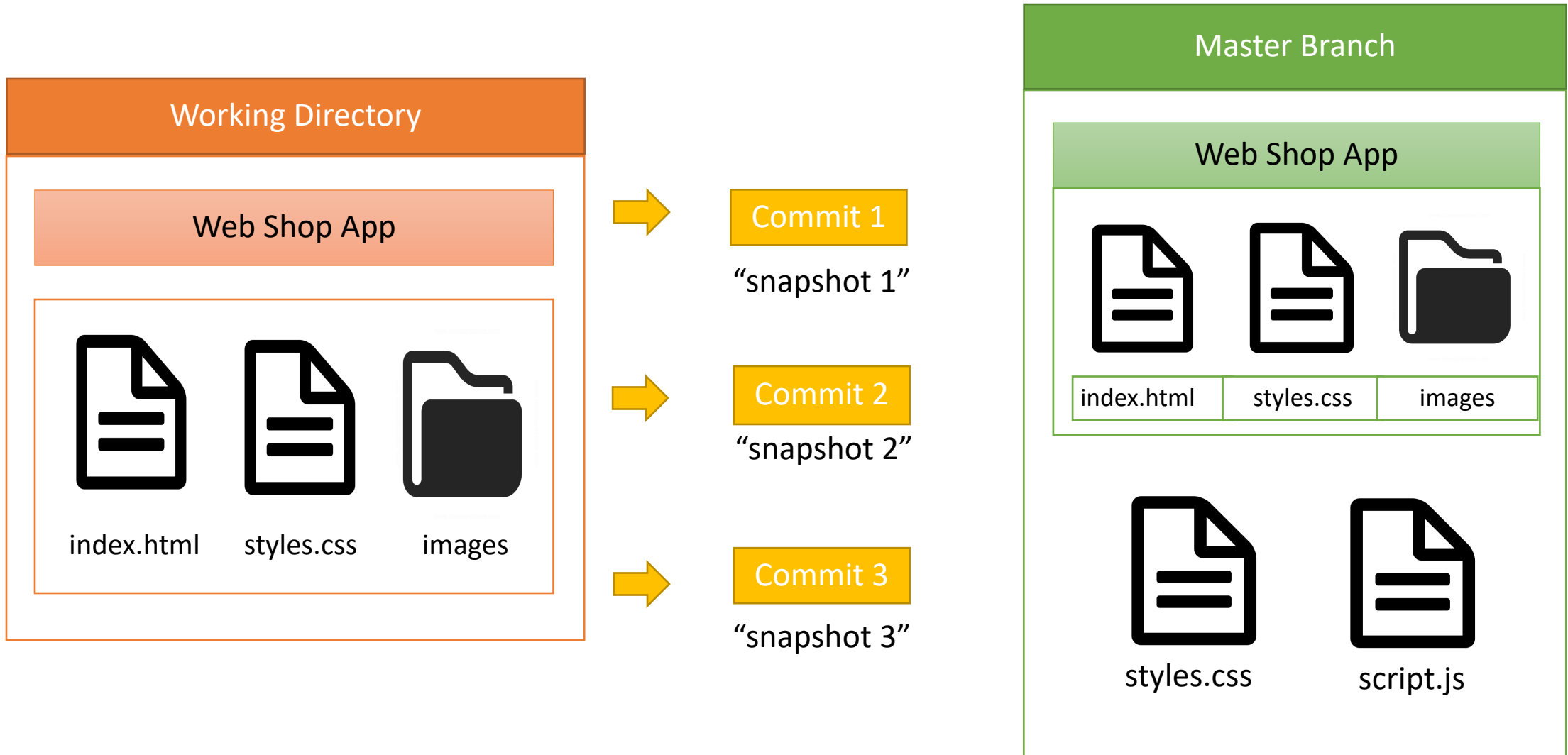


Largest Development Platform

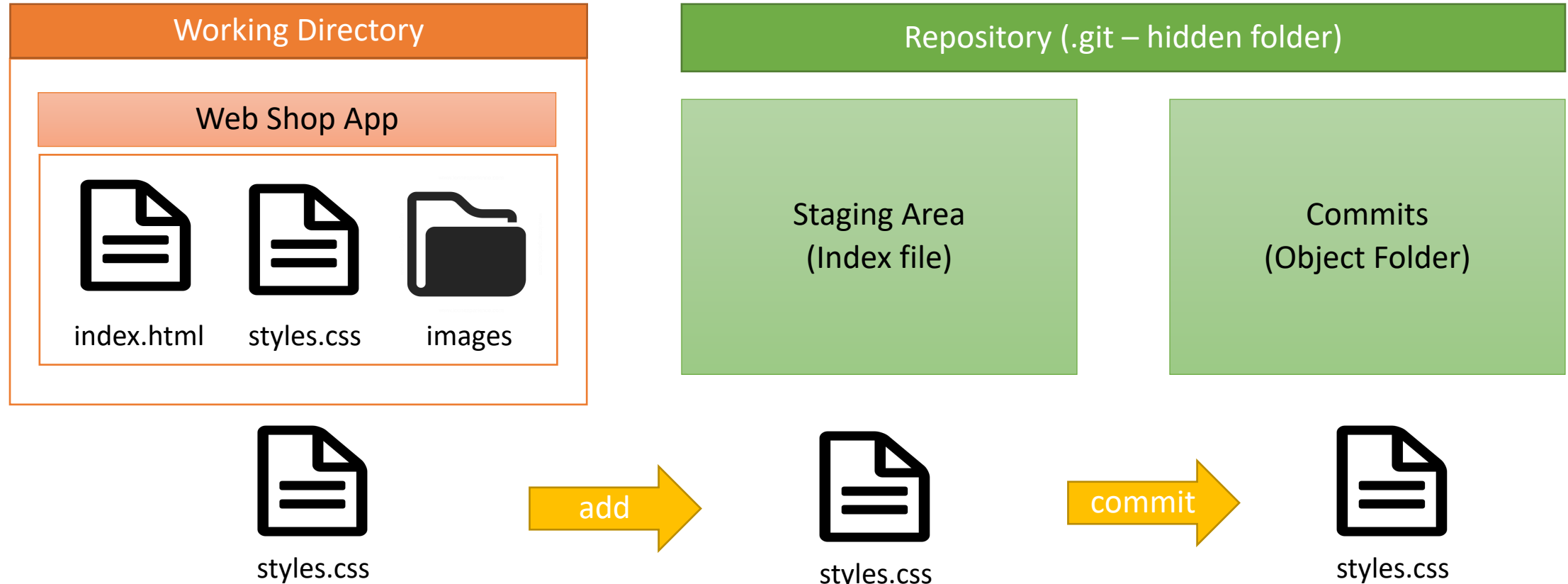
Cloud Hoisting and Collaboration
Provider

Git Repository Hoisting

How does Git Works?



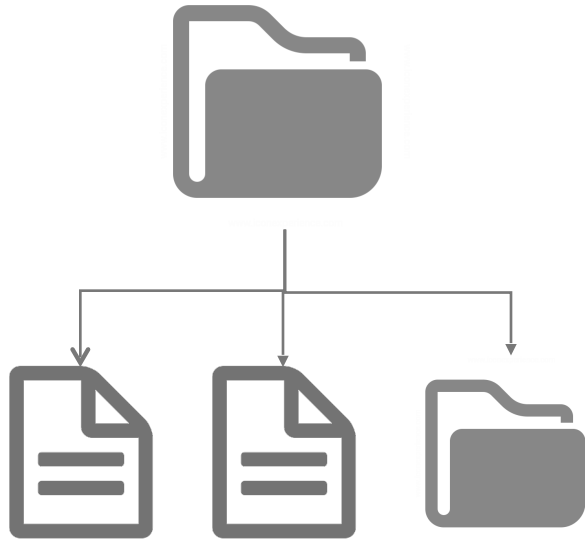
Git under the hood



Git = tracking changes – NOT storing the files again and again

Branches and Commits

Working Directory / Tree



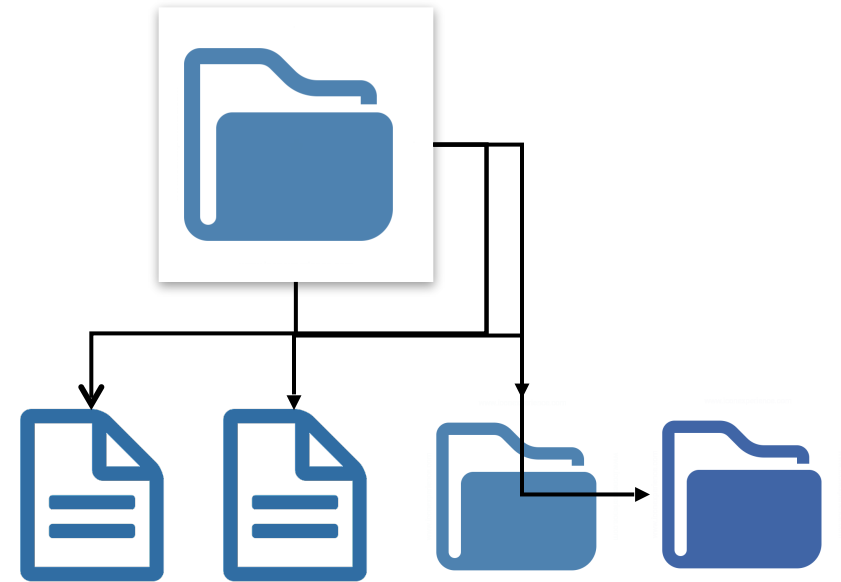
Master Branch

Commit 1

Commit 2

Commit 3

Working Directory / Tree



Development Branch

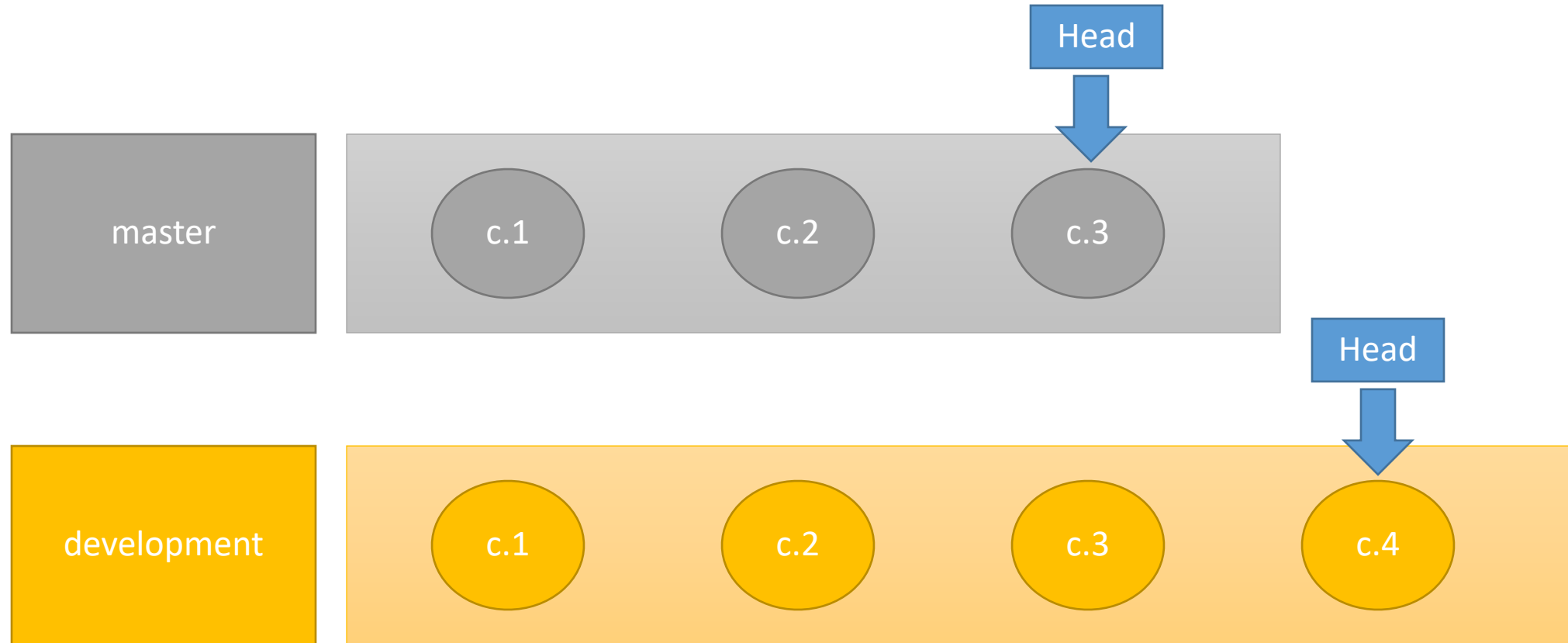
Commit 1

Commit 2

Commit 3

Commit 4

What is HEAD?



Deleting Data

Working Directory Files
(Already part of previous commits)

Unstaged Changes

Staged Changes

Latest Commits

Branches

Commands Summary - General

git --version

Checks installed Git version

git init

Creates empty Git repository

git status

Check working directory & staging area status

git log

Display all commits of current branch

git ls-files

List tracked files

Commands Summary – Commit Creation and Access

git add **filename**
git add .

Add single file or all WD files to staging area

git commit -m "**message**"

Creates new commit

git checkout **commitID**

Checkout commit (detached head)

Commands Summary –Branch Creation and Access

git branch **branchName**
git switch **branchName**

Creates new branch

git checkout **branchName**

Go to branch

git checkout -b
branchName

Creates and Access new Branch

git merge **otherBranch**

Bring other branch changes to current
branch

Commands Summary –Deleting Data

WD File*

```
git rm filename  
git add filename
```

Run command after file was deleted
from current directory

Unstaged
Changes

```
git checkout .  
git restore filename or .
```

Revert changes in tracked file

```
git clean -df
```

Delete untracked file

Staged Changes

```
git reset filename  
git restore --staged filename  
and  
git checkout -- filename
```

Removes file from staging area

Latest Commits

```
git reset HEAD~1
```

Undo latest (~1) commit

Branches

```
git branch -D branchName
```

Delete branch

Git Assignment

- Create a new folder and initialize the repository
- Paste the "instructions.txt" file into this folder
- Add a .txt file named "file-1" containing any text of your choice to the working directory
- Create a second .txt file named "file-2"
- Add "file-1" and "file-2" to the staging area - don't add "instructions.txt"
- Change the initial text you added to "file-1"
- Now add all working directory files to the staging area
- Create the first commit
- Create a second branch named "feature" (two commands are possible)

Git Assignment (Contd...)

- Add a third .txt file ("file-3.txt") to this branch
- Create a new commit
- Add the following text to "file-3": "I will be deleted"
- Add the updated file to the staging area
- Undo the staged change
- Add the following text: "Please add me to the master/main branch"
- Commit this latest change
- Merge the "master" (or "main") branch with "feature"
- Delete the "feature" branch



Reference Log

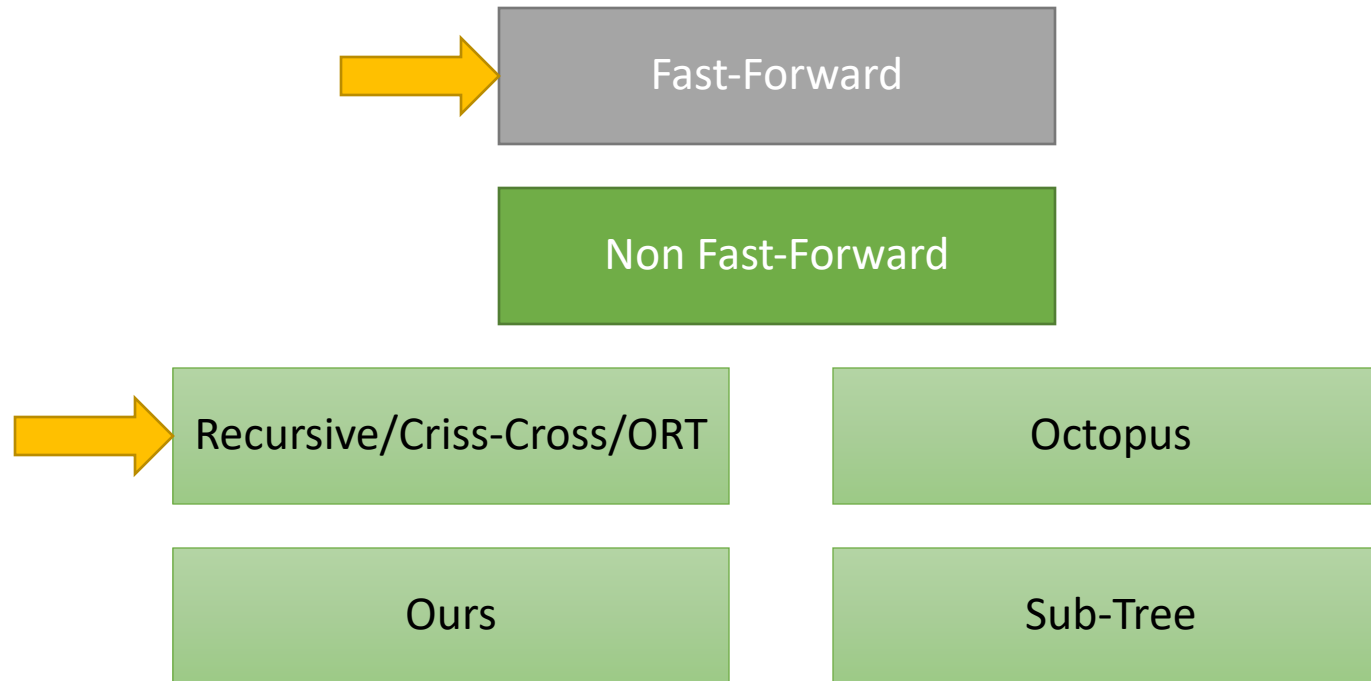
Git keeps track of updates to the tip of branches using a mechanism called reference logs,

git reflog

Manage reflog information

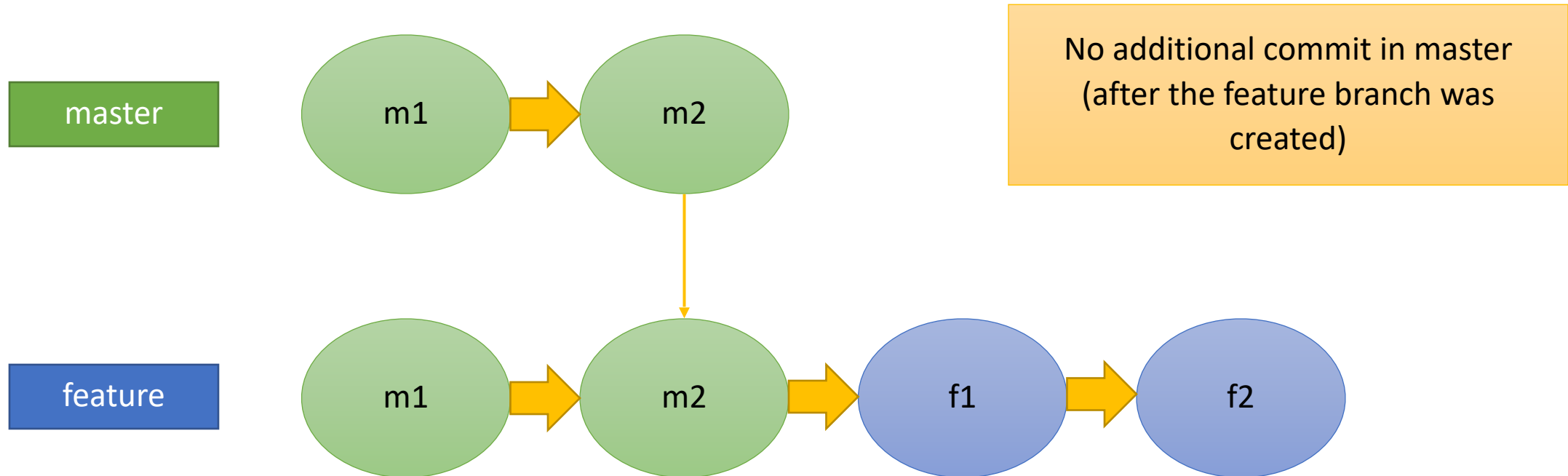


Merge Types



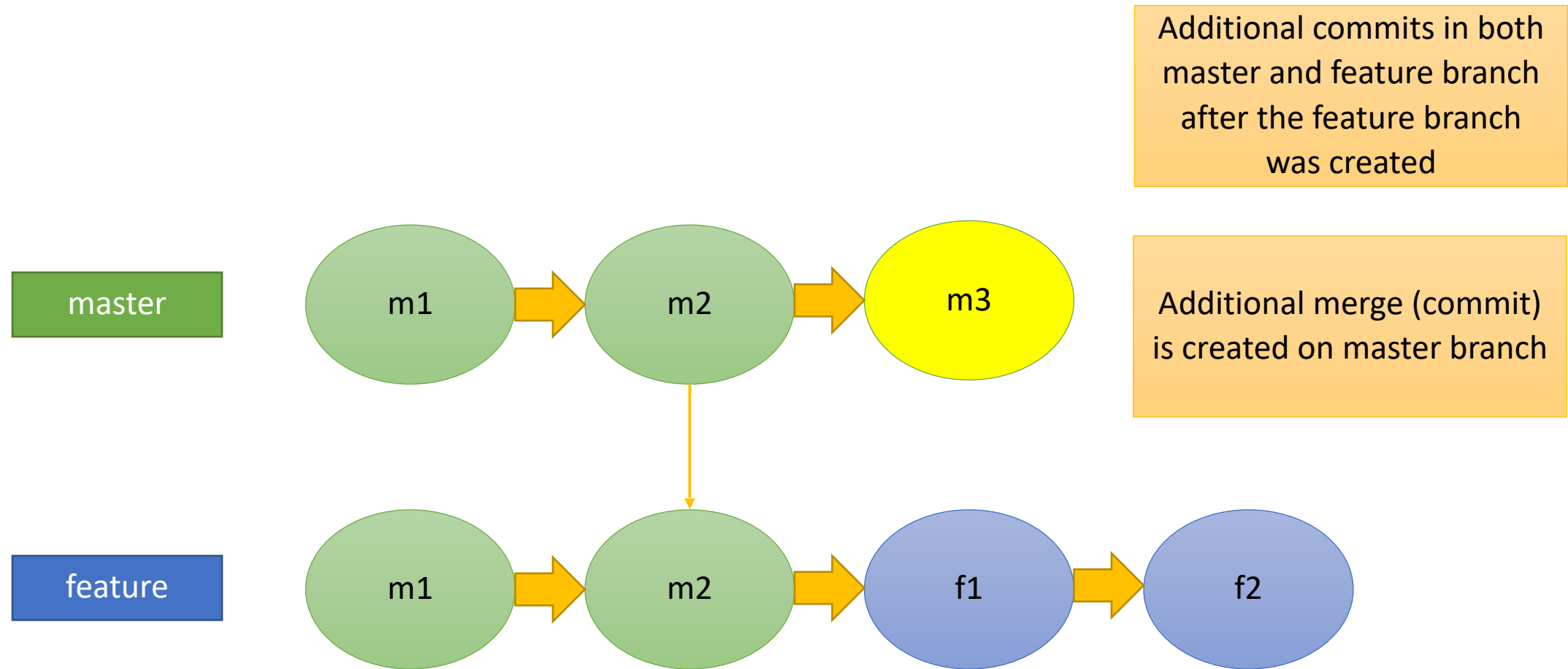


Master and Feature – Merge (“fast-forward”)





Master and Feature – Merge (“recursive”)





Branch Types

Local Branch

Branch on your machine only

Remote Branch

Branch on remote location

Remote Tracking Branch

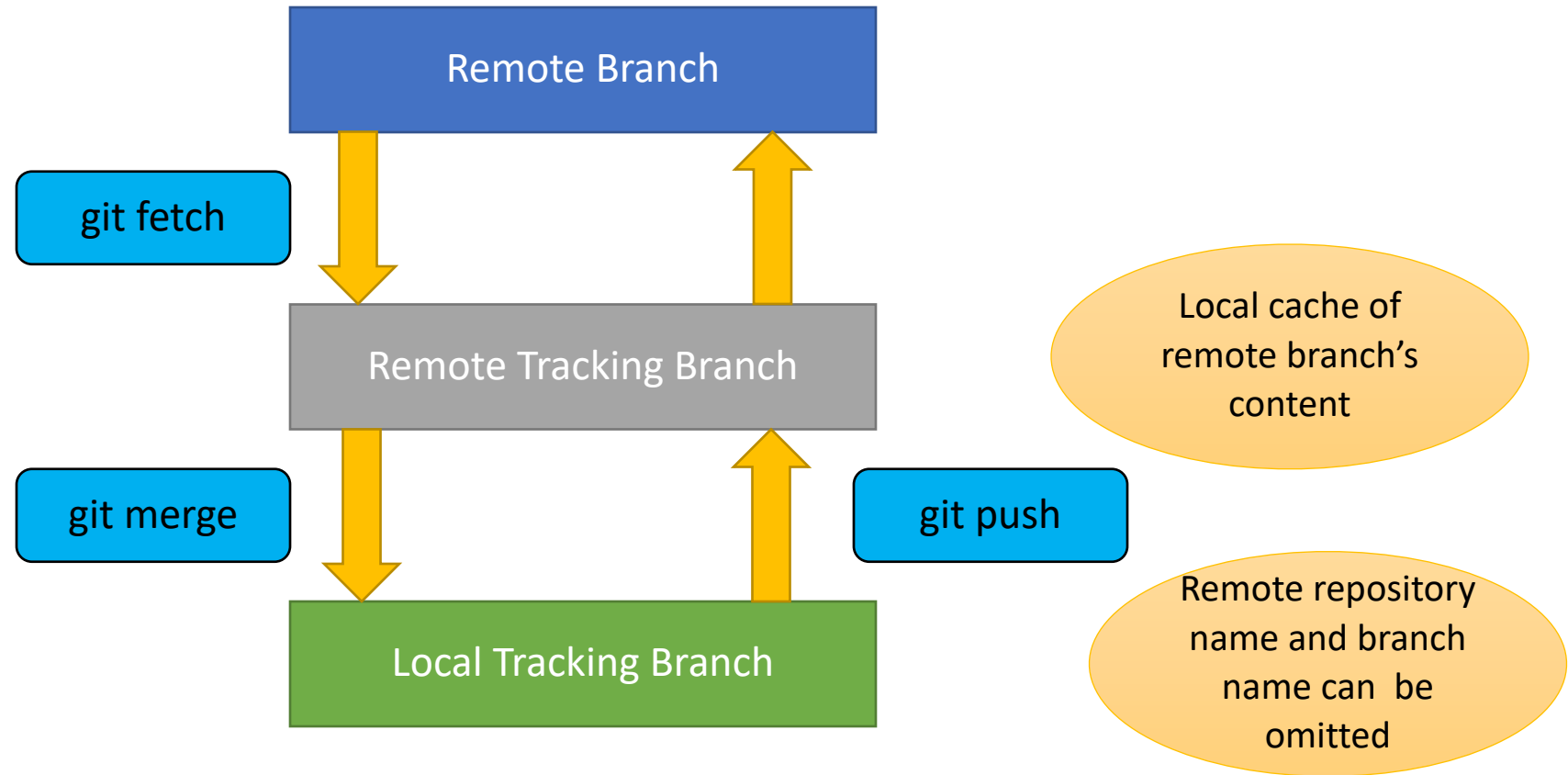
Local copy of remote branch
(not to be edited)

Local Tracking Branch

Local reference to remote
tracking branch (to be edited)

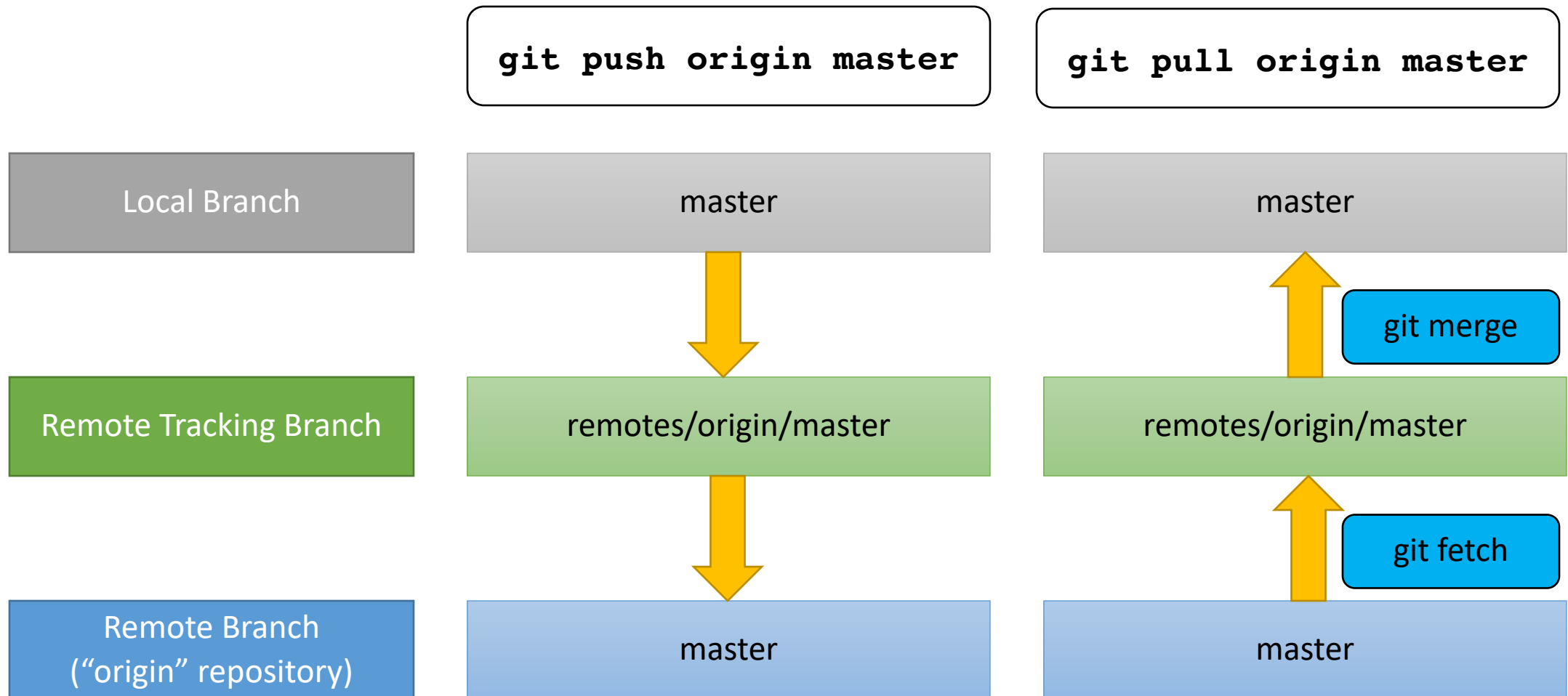


Local & Remote Tracking Branches





More on Branches





Local & Remote Tracking Branches – General Commands

`git remote`

Show remote servers

`git branch -a`

List all branches

`git branch -r`

List all remote branches

`git remote show origin`

Show detailed configuration

`git branch -vv`

List local tracking branches and their
remotes

Thank You!