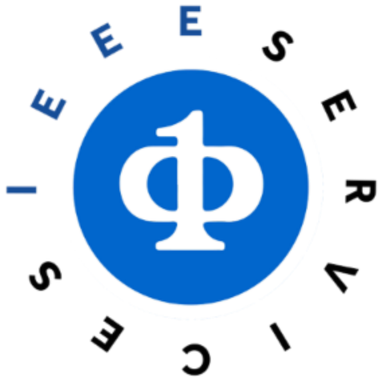
Social Coding With GitHub

Instructor:
John J Rofrano
Senior Technical Staff Member, DevOps Champion
IBM T.J. Watson Research Center
rofrano@us.ibm.com
@JohnRofrano



Objectives

The objectives of this class are to:

- Learn the mechanics of using Git
- Introduce the Git Feature Branch Workflow
- Learn how Git encourages Collaboration
- Become a *Social Coder*

“What makes senior developers senior is not that they know the syntax of a given language better, but that they have experience working with large and complex projects with real users and business goals”

–Ariel Camus - medium

HOW TO BECOME A GIT JEDI

How to become a Git Jedi

Rule #1: Create a Git repository for every new project

How to become a Git Jedi

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Rule #2: Create a new branch for every new feature

How to become a Git Jedi

Rule #1: Create a Git repository for every new project

Rule #2: Create a new branch for every new feature

Rule #3: Use Pull Requests to merge code to Master

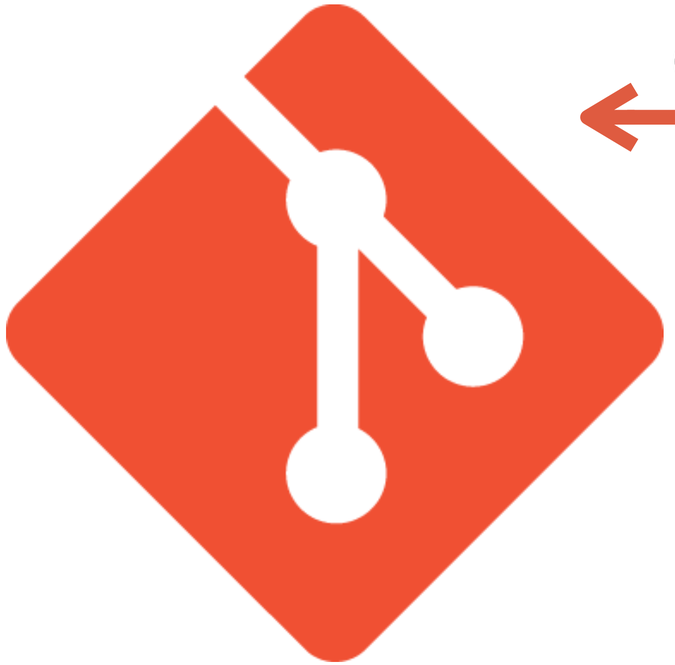
Git

- A distributed source code management (SCM) tool invented by Linus Torvalds in 2005 for Linux kernel development
- Code is kept in a repository and every developer has a full copy
- Works locally without any server
- Works remotely with GitHub, GitLab, & BitBucket

GitHub

- A web site that hosts git repositories
- Founded in 2007, has 40 million registered developers and was acquired by Microsoft for a whopping $7.5 billion in 2018
- Free and Paid accounts
- Adds ability to track Issues and Bugs
- Provides webhooks to integrate other tools
- ...and a whole lot more

Git vs GitHub



Git is the tool

GitHub is the web site

How many of you know Git?

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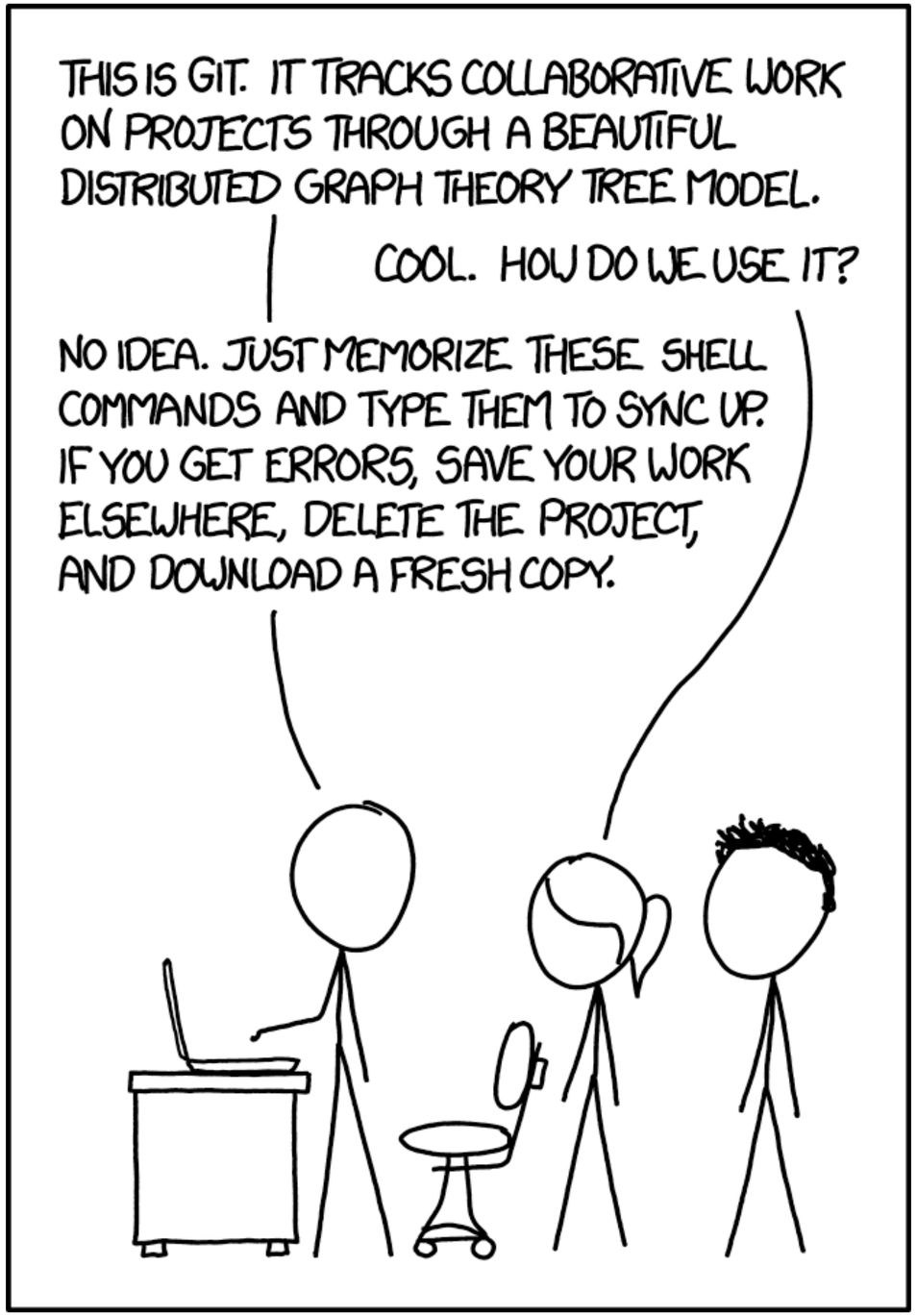


Git Overview

- Git is a Decentralized Source Code Management (SCM) System
- Developers work in their own BRANCHES (even in FORKS)
- The MASTER branch should always be ready to deploy
- PULL REQUESTS are used to MERGE code BRANCHES into MASTER

Huh?

Branches?

Forks?

Spoons?

Merge?

Master?

Pull Requests?

Pulling hair?

What?

Git Command Workflow

workspace

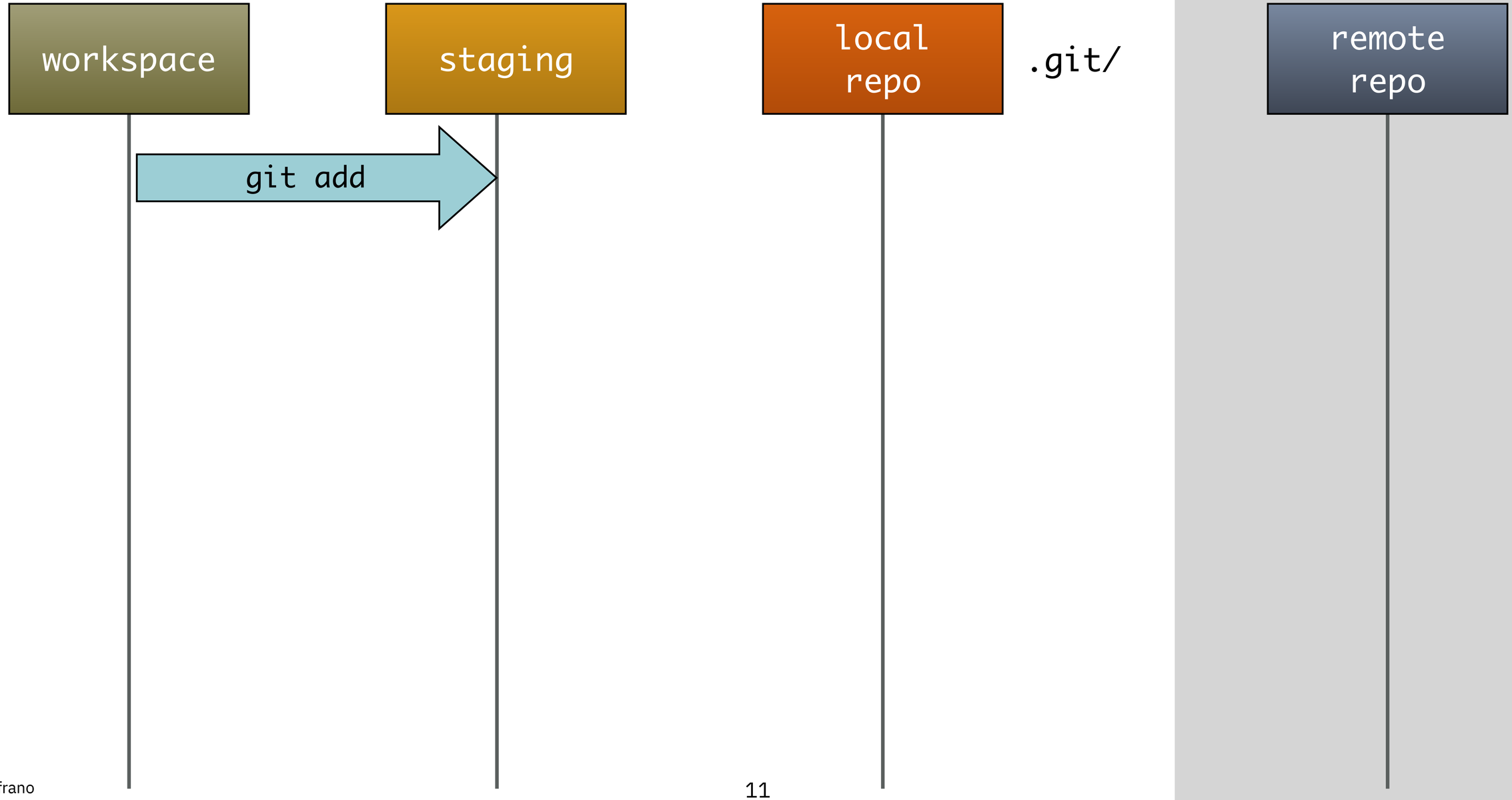
staging

local repo

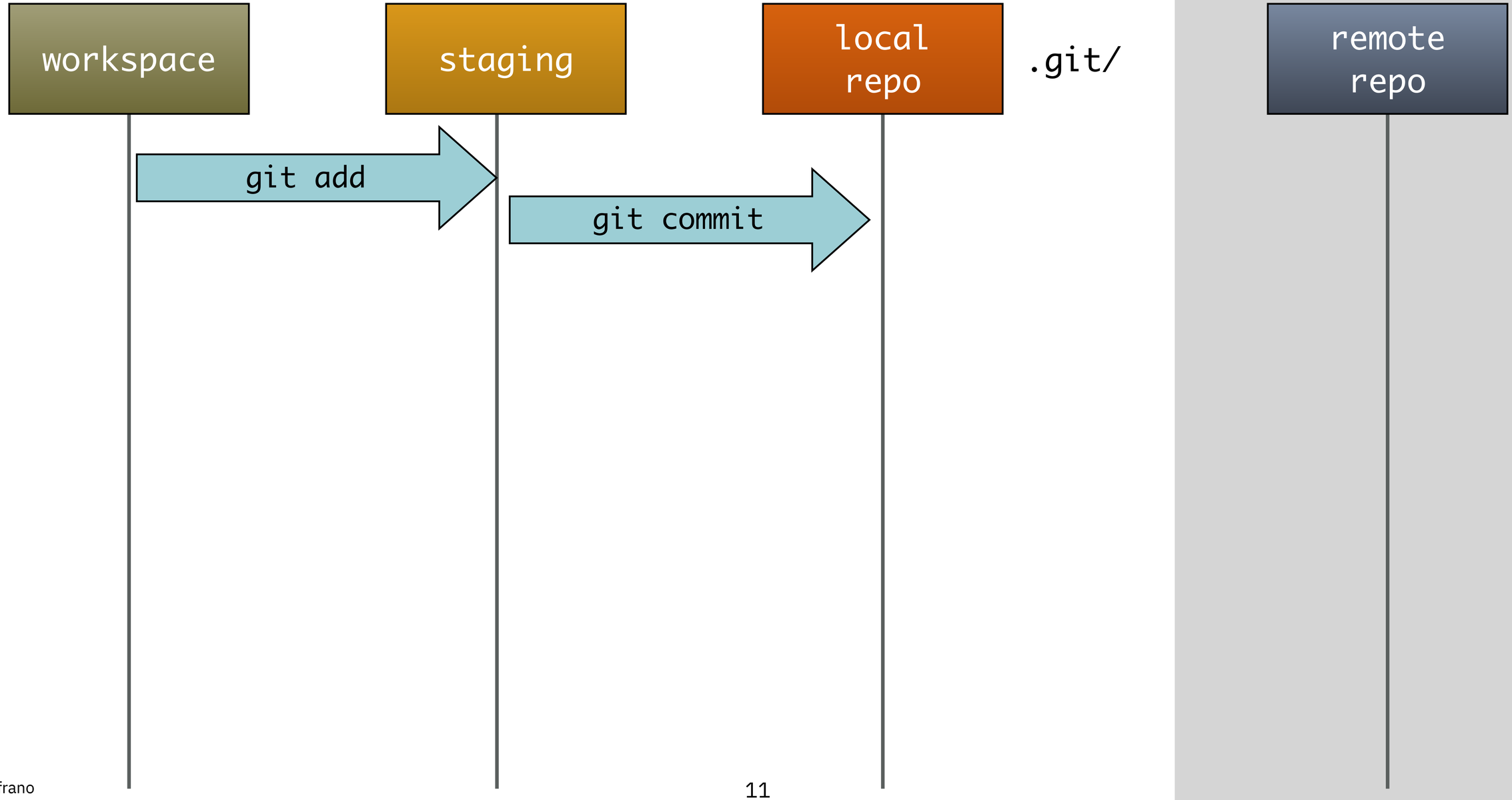
.git/

remote repo

Git Command Workflow



Git Command Workflow



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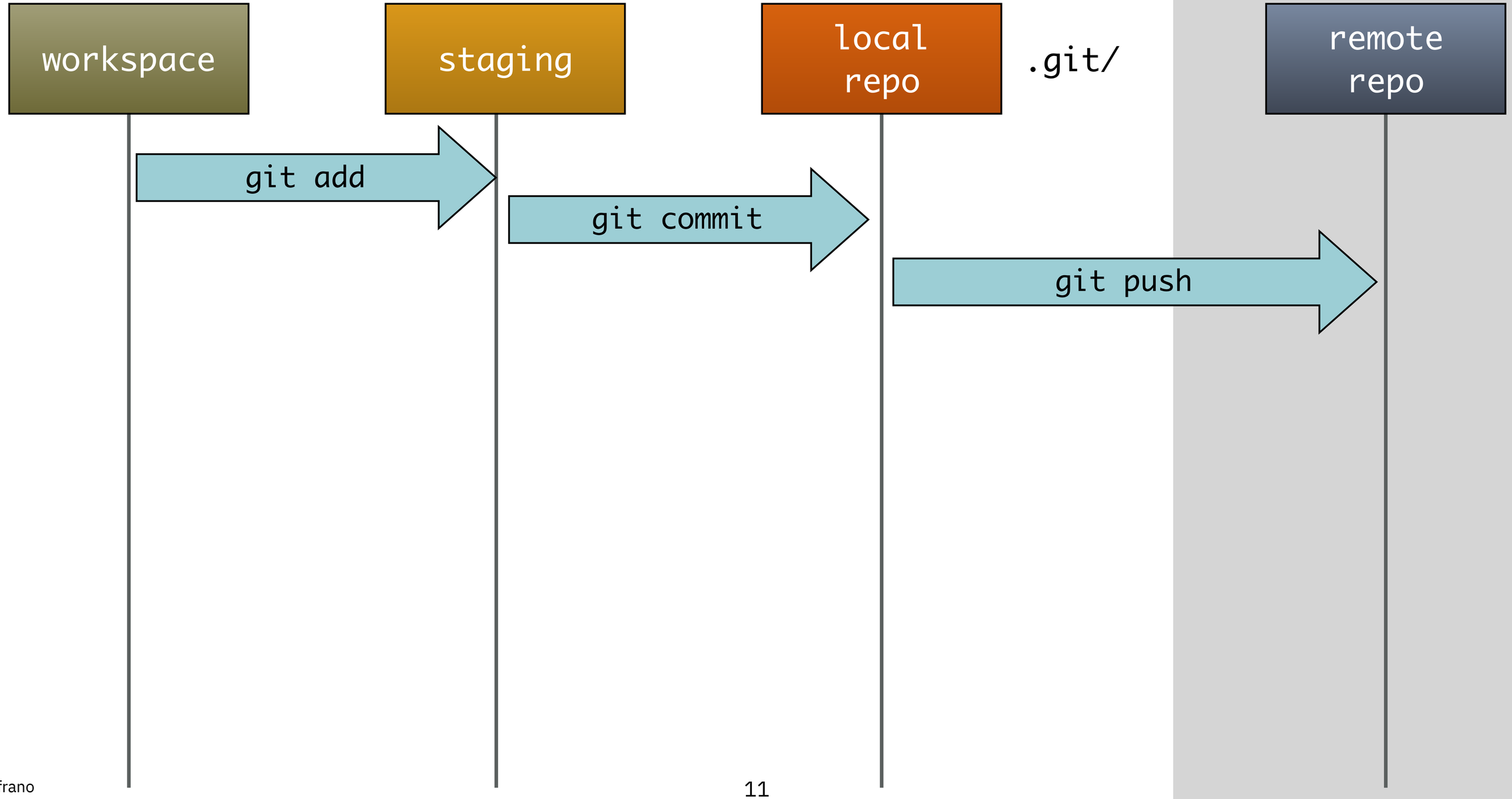

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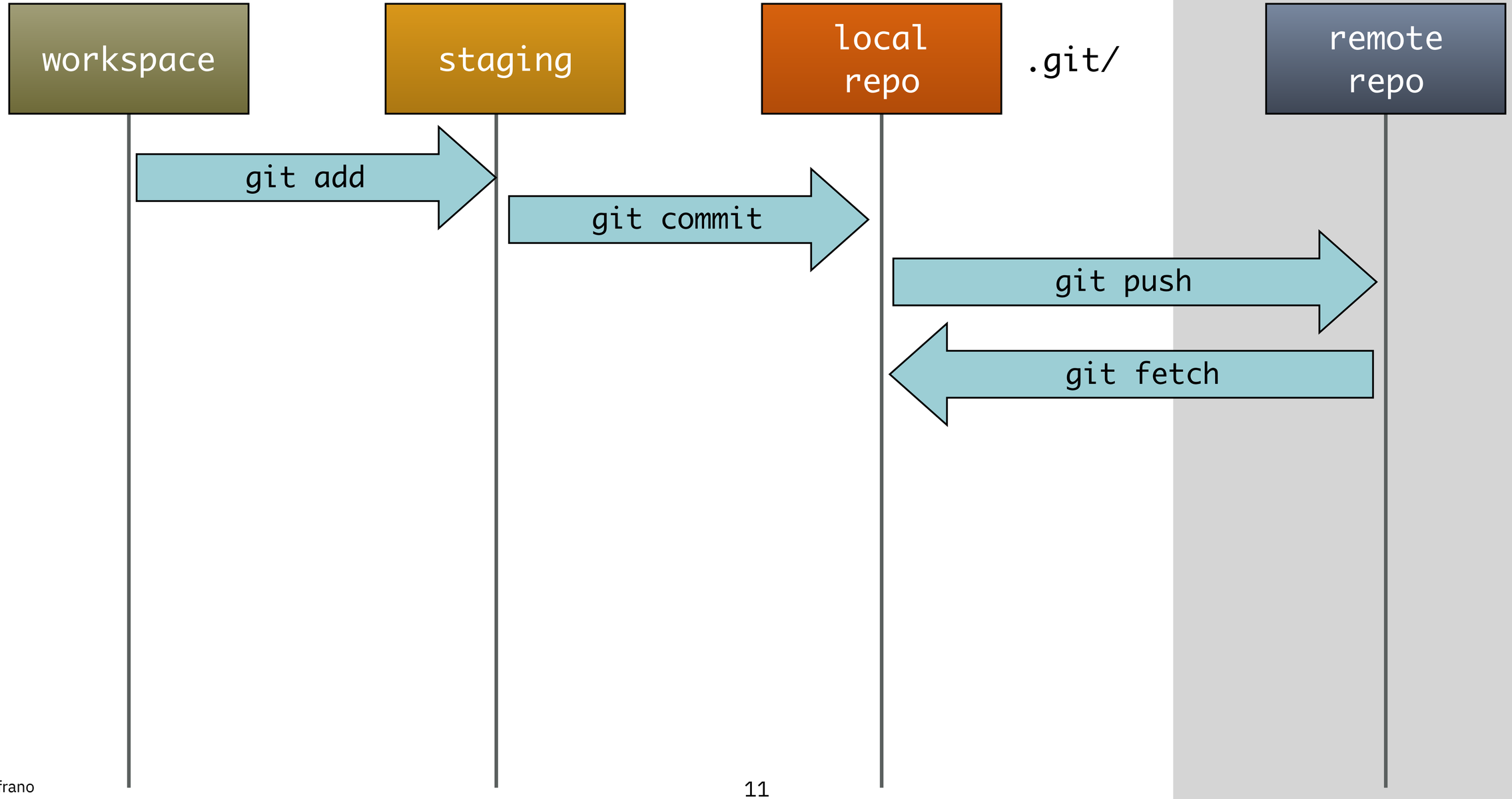

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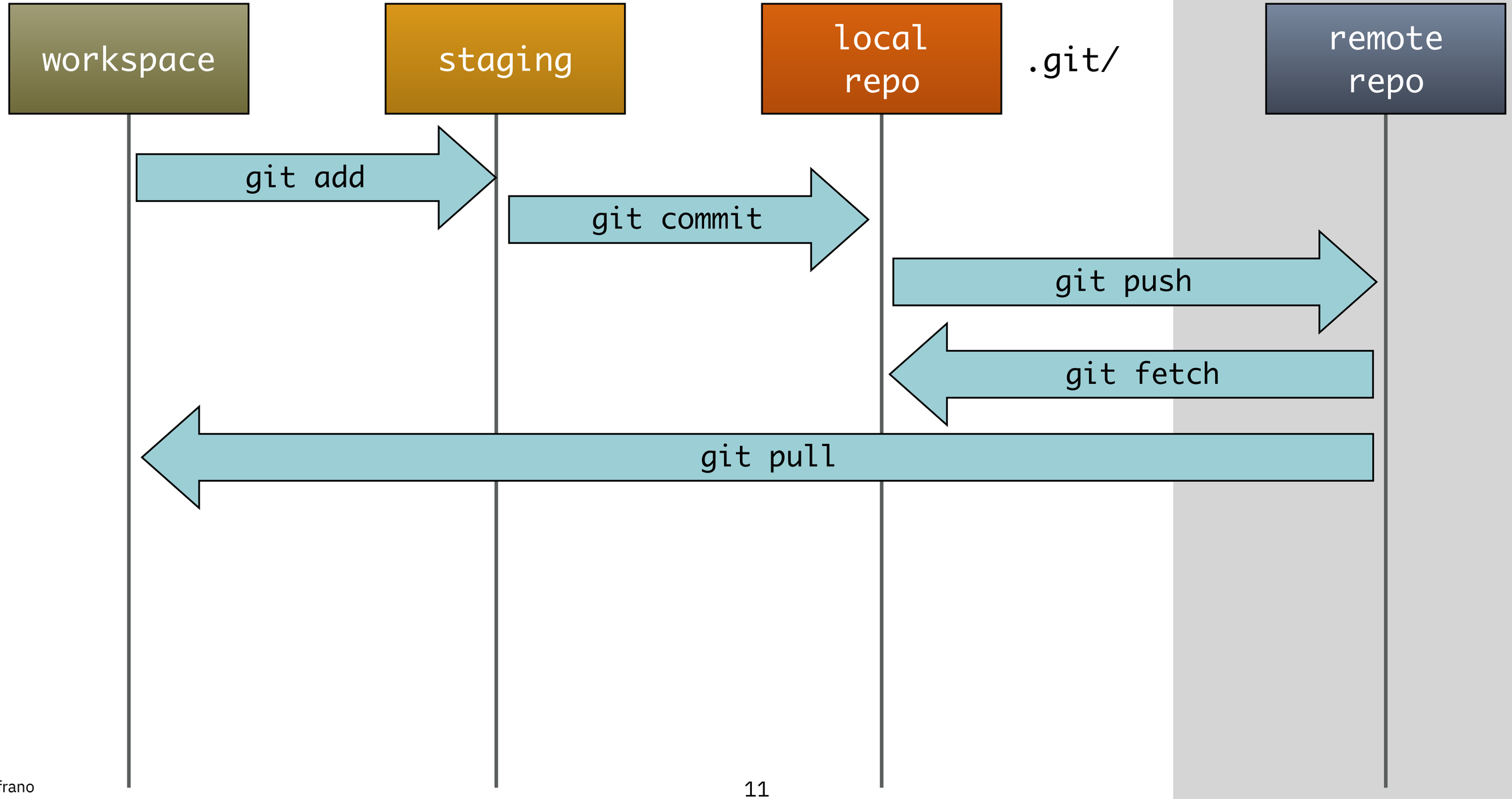

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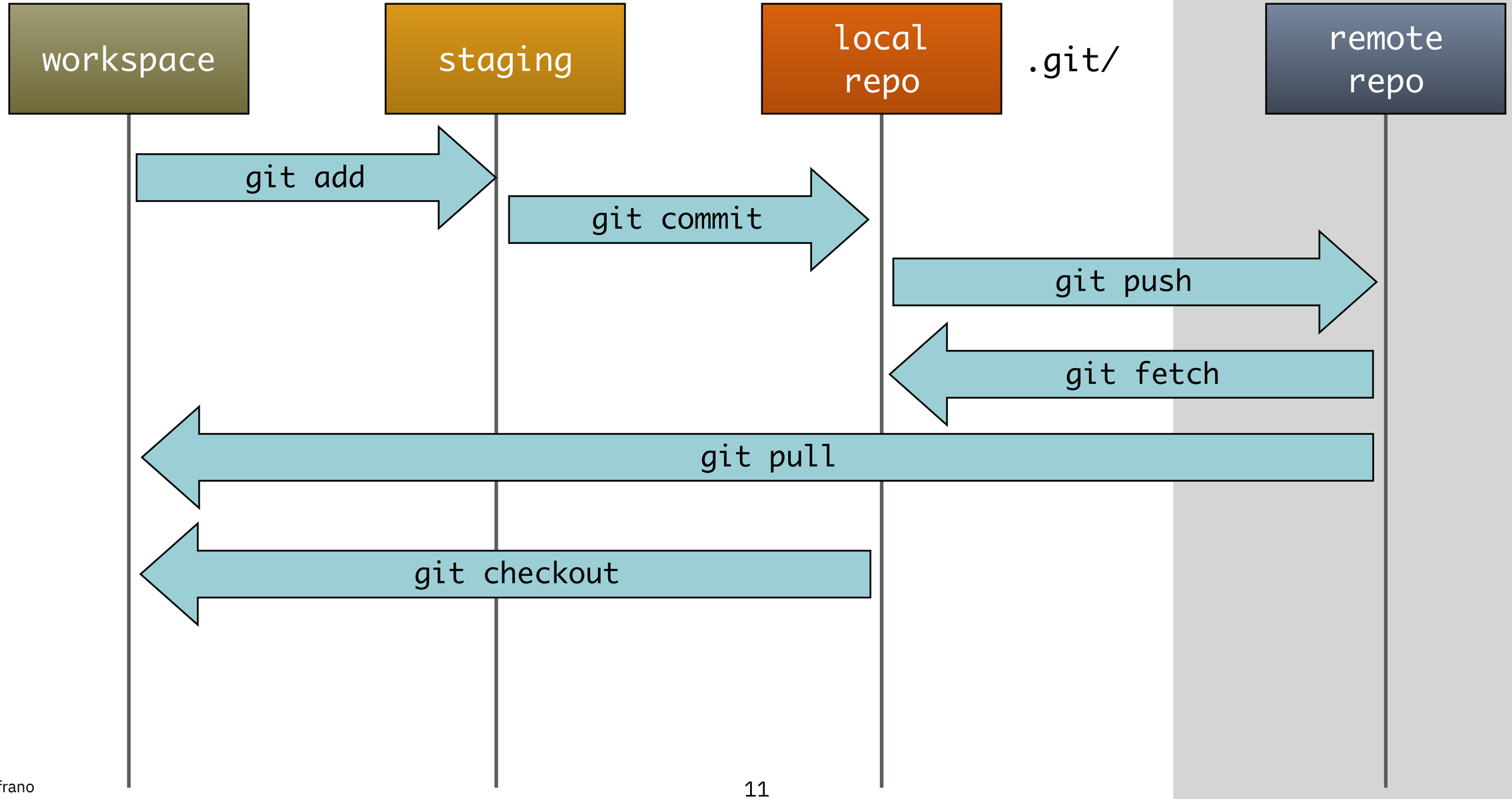

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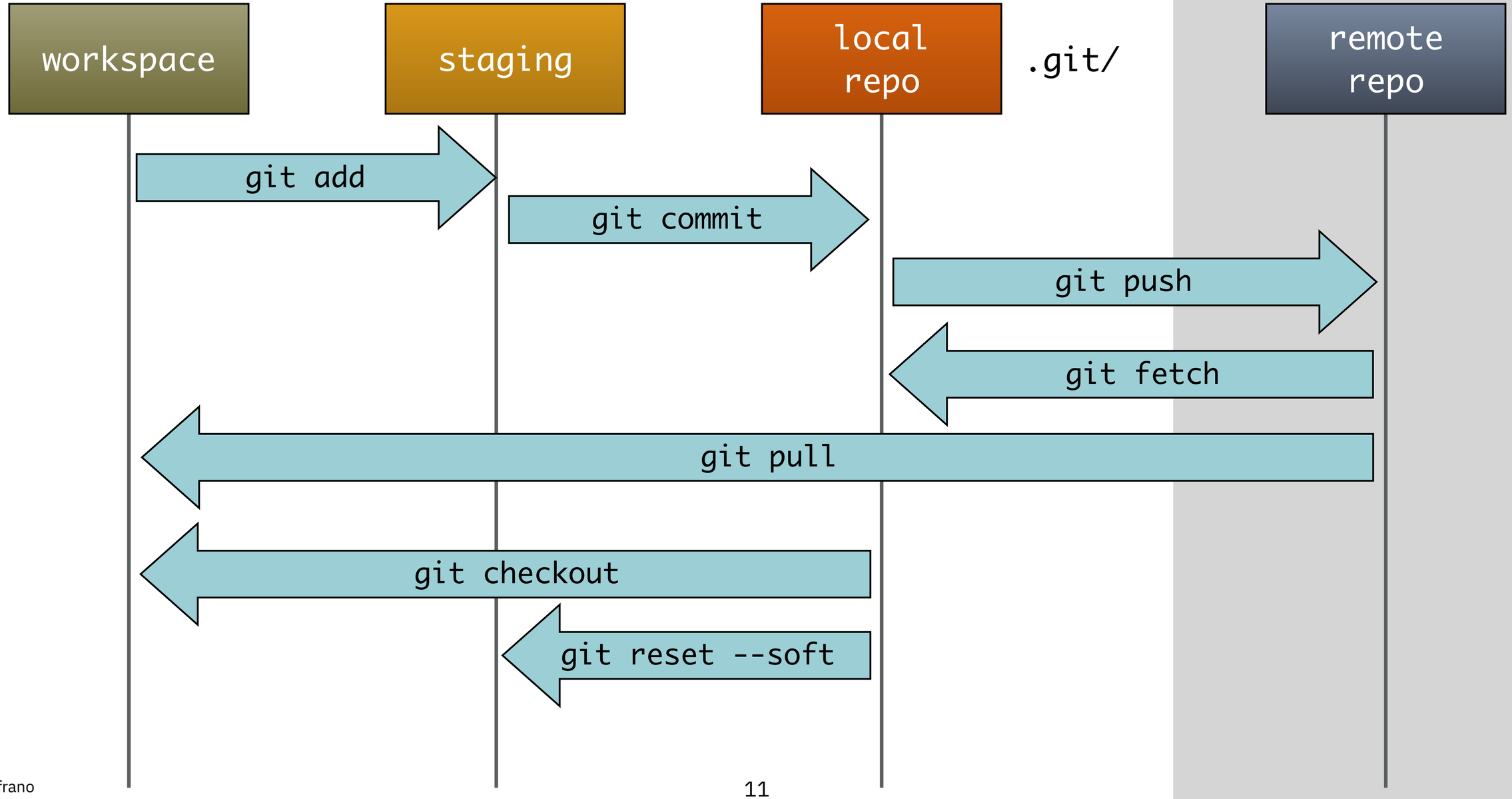

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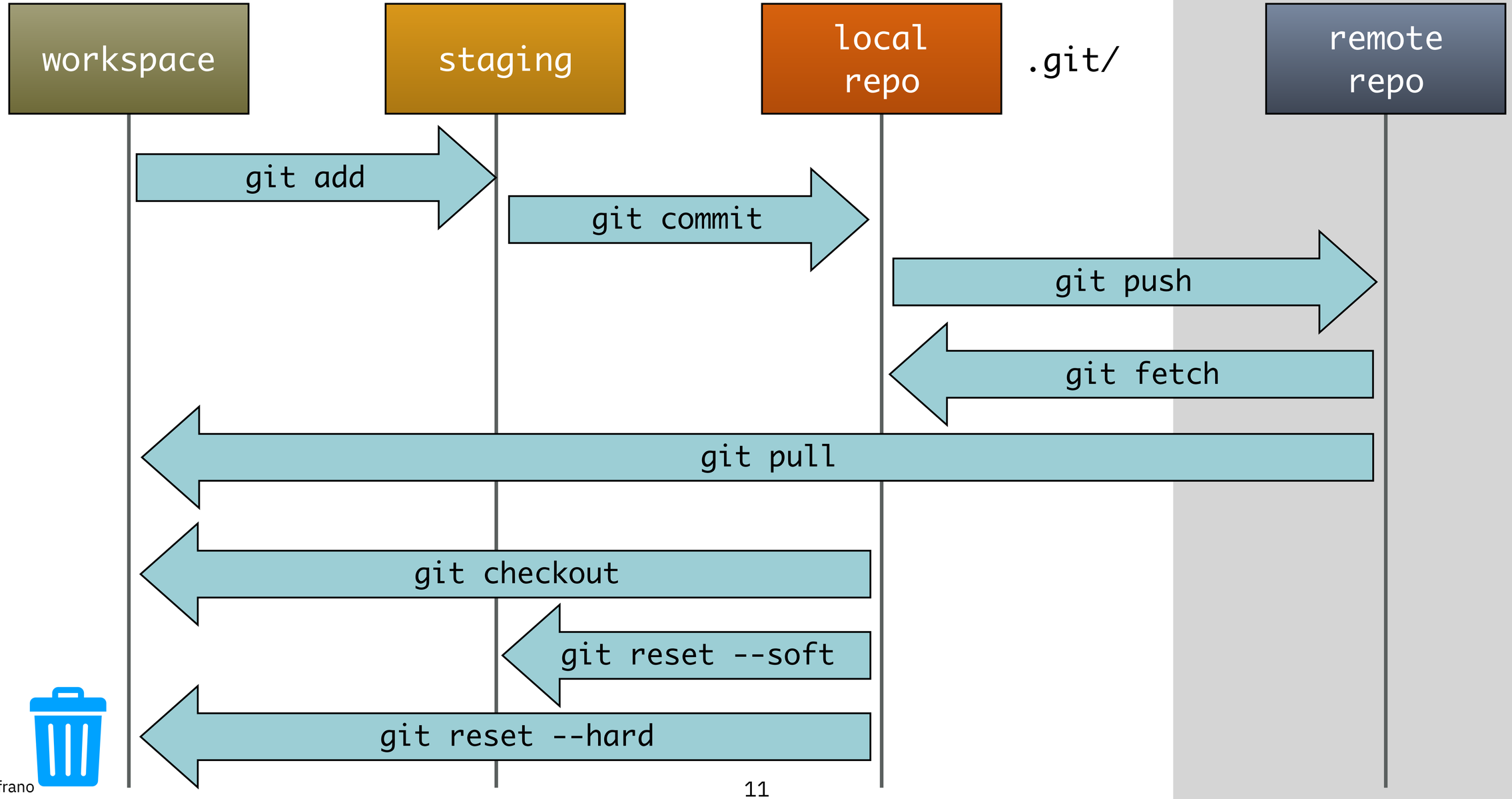
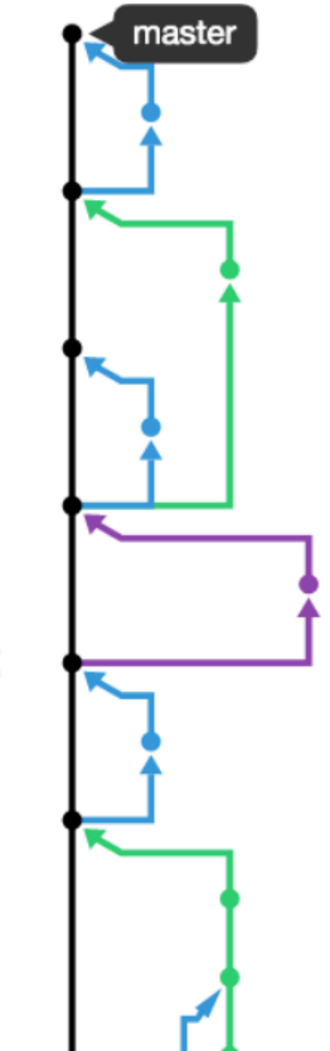


Git Feature Branch Workflow

1. CREATE a new repository or FORK an exiting repository
2. CLONE it to your local system
3. Create a BRANCH to work on your ISSUE
4. COMMIT changes to that branch
5. PUSH your changes to the Remote branch
6. Issue a PULL REQUEST to have your work reviewed
7. MERGE your code to master and close the ISSUE



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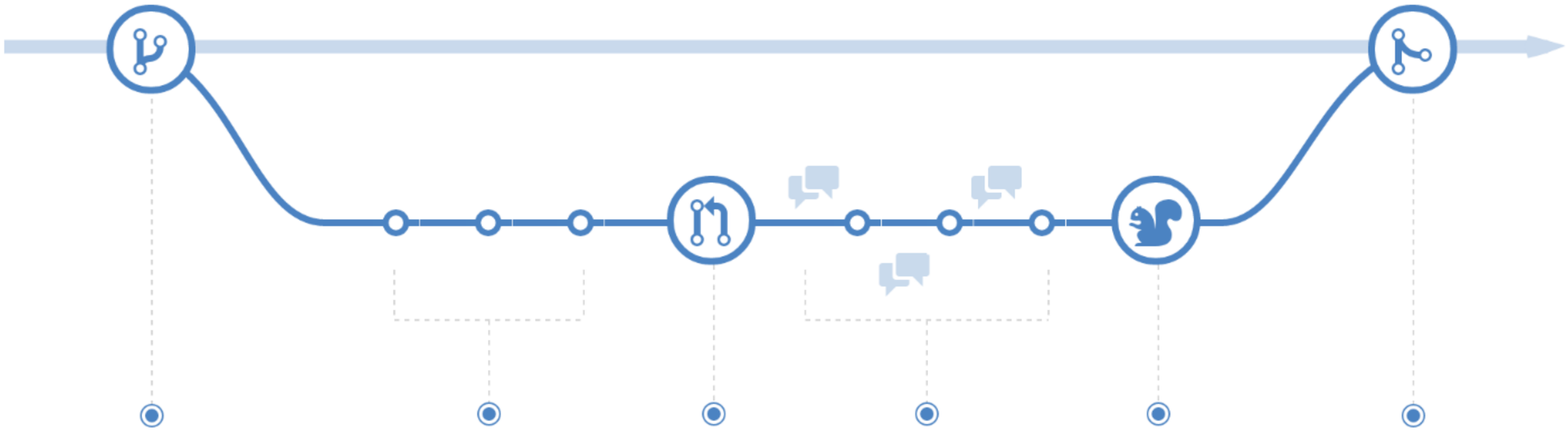

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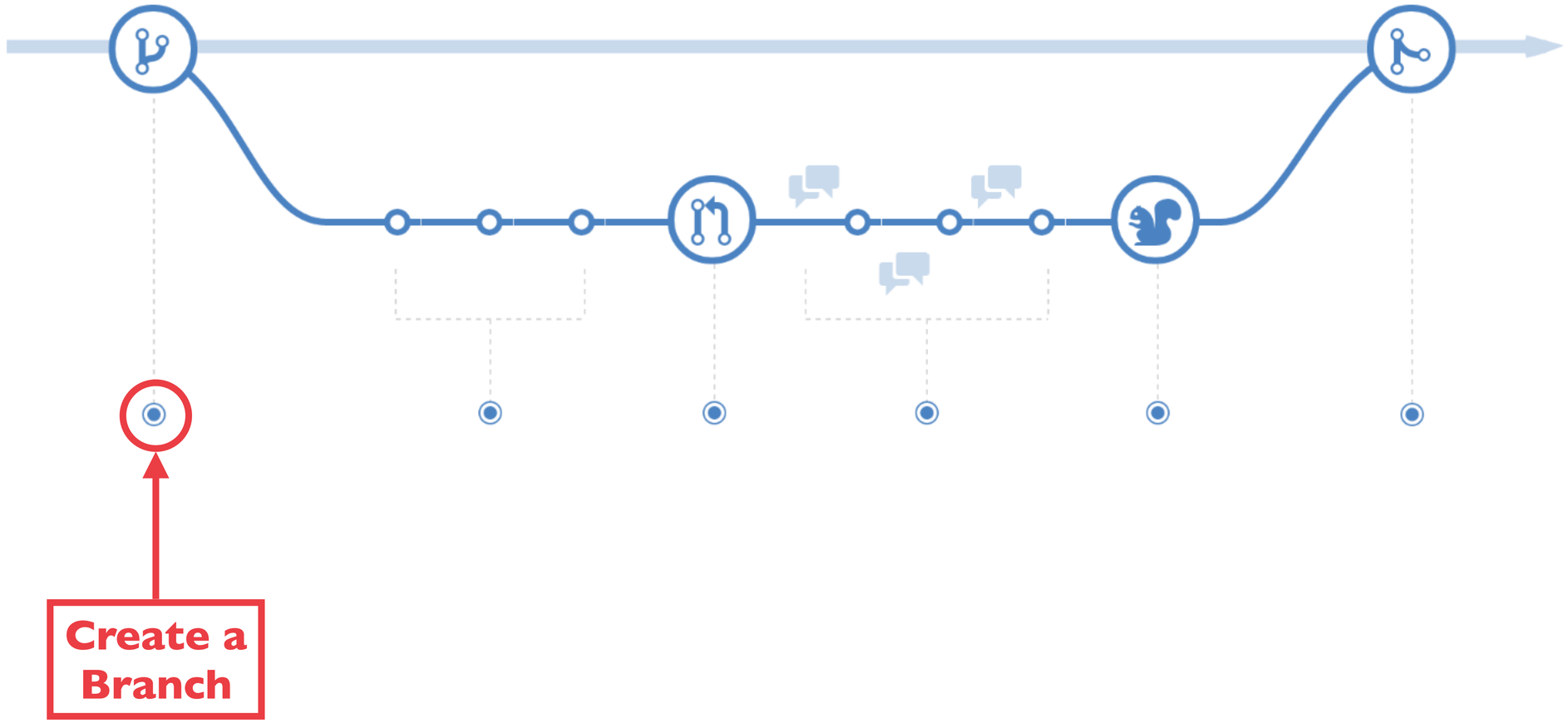

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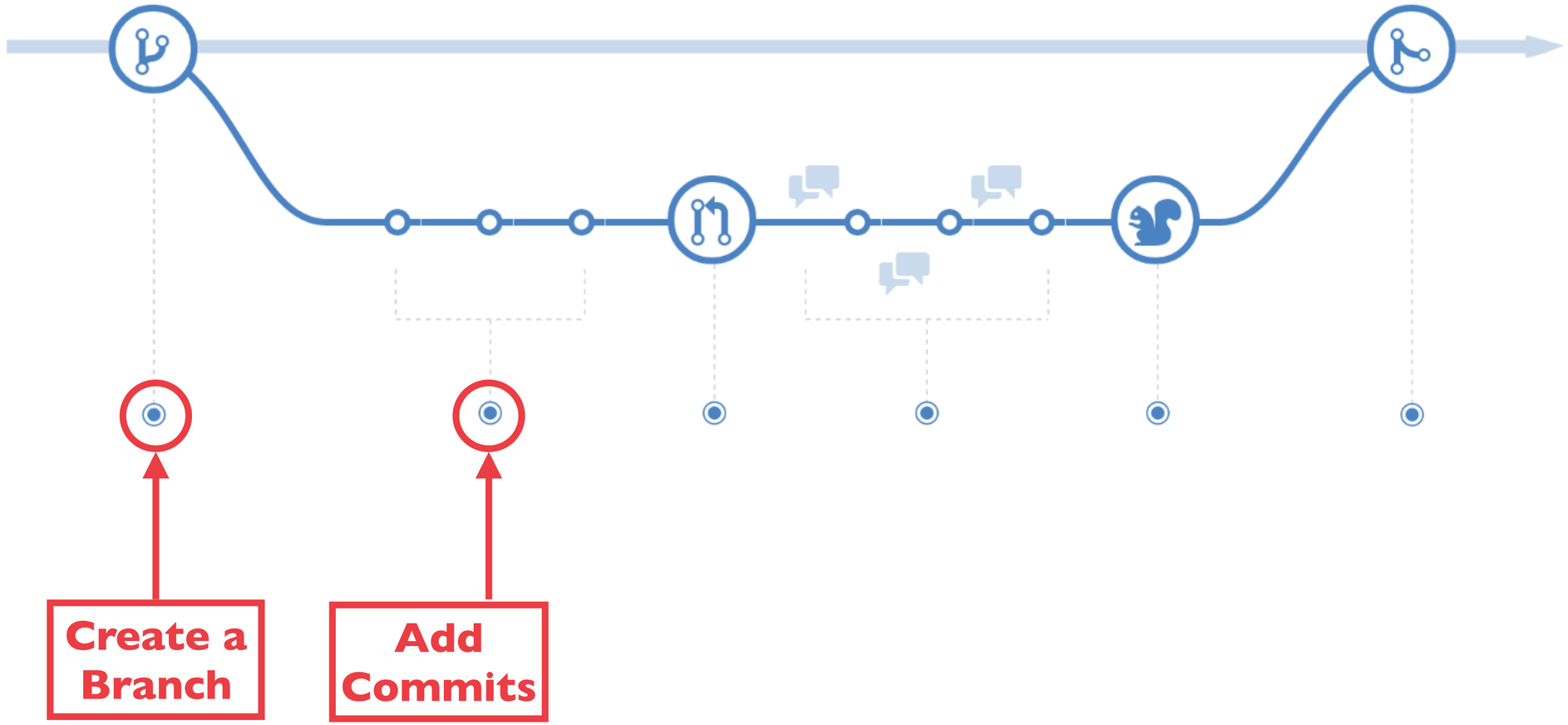

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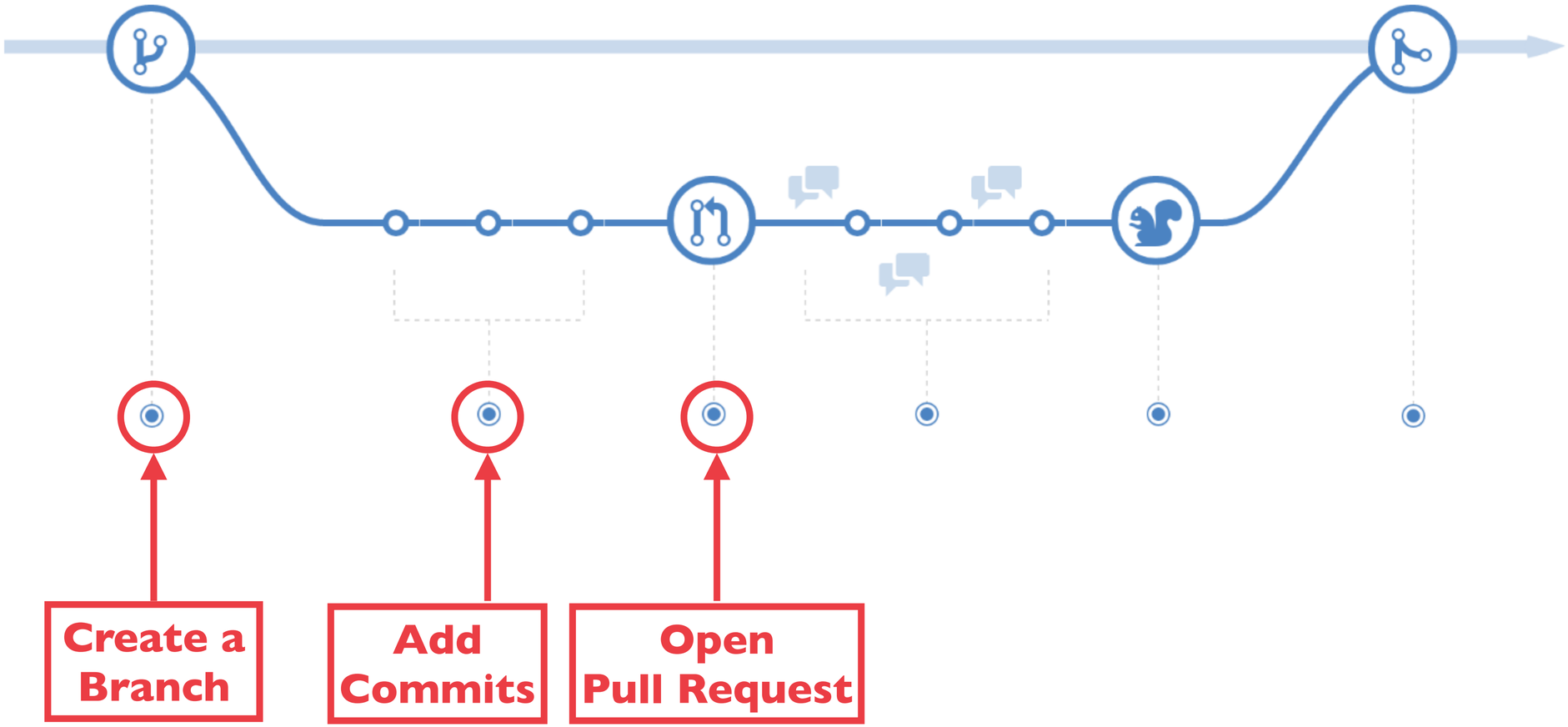

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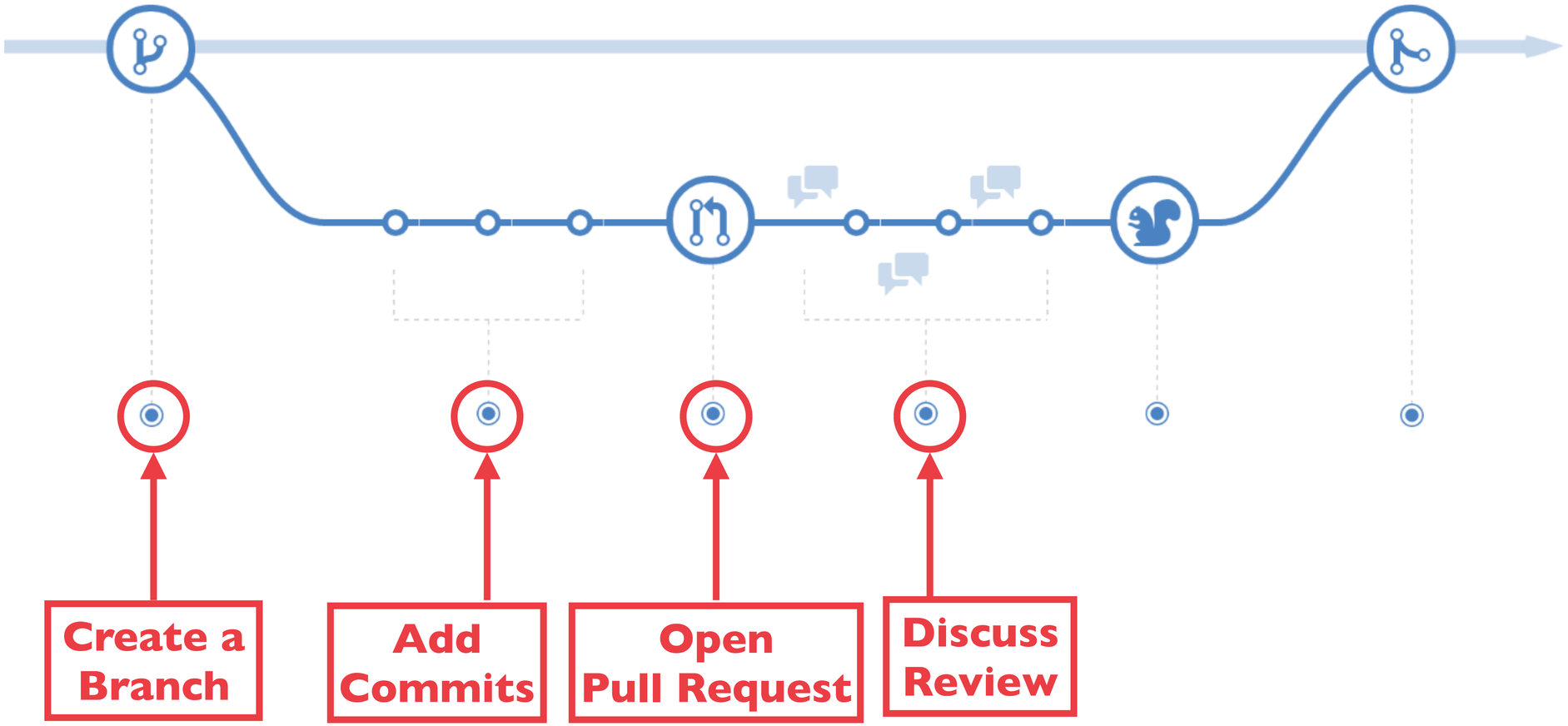

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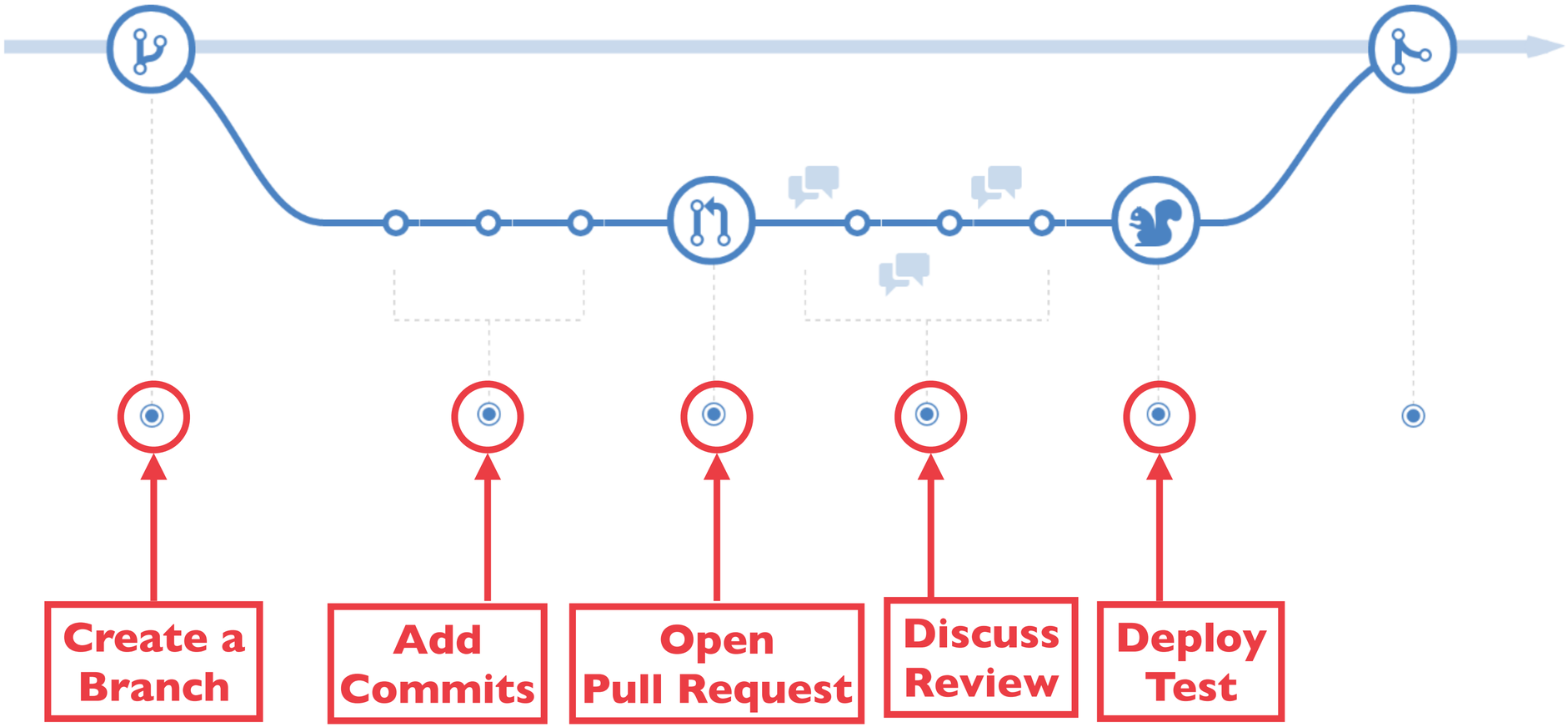

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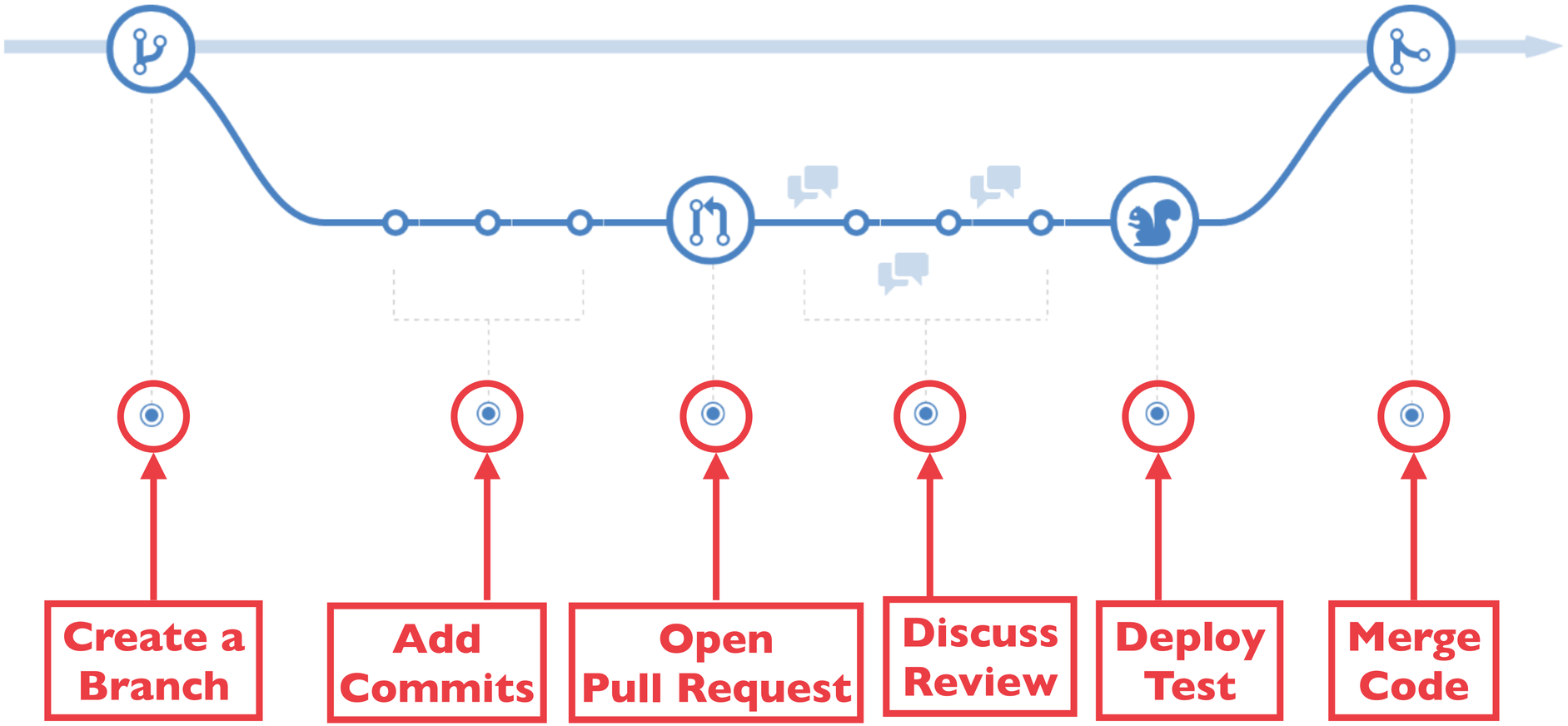
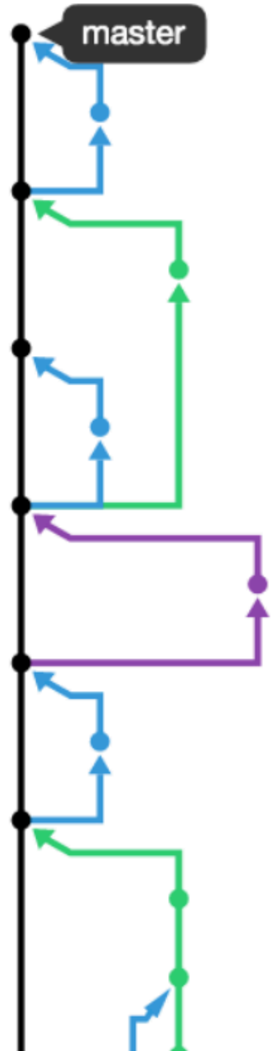


Detailed Feature Branch Workflow

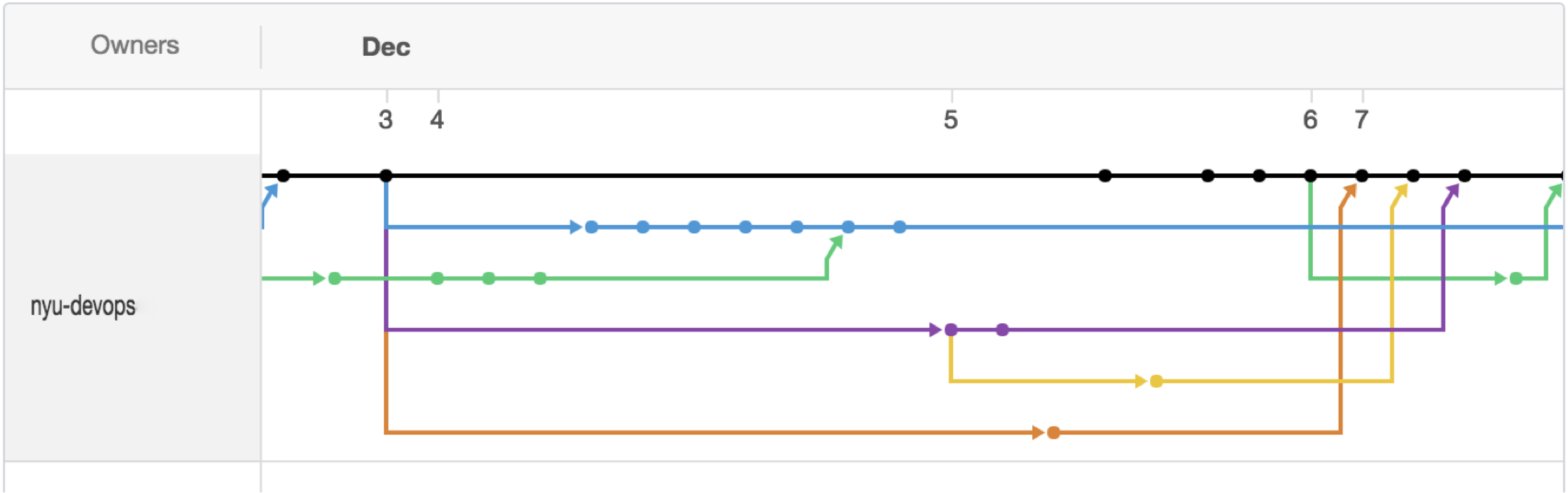
- CLONE a Repository (FORK first if not part of Dev Team)
- Assign the ISSUE for your work to yourself and place it in working status
- Create a BRANCH to work on an ISSUE
- Run the Test suite to make sure you can run the code
- Make changes to code and test cases and COMMIT to local BRANCH
- Run the Test suite early and often to make sure you didn’t break anything
- PUSH changes to remote BRANCH
- Did we mention testing the code early and often?
- Create PULL REQUEST when all tests pass and code is ready for review / MERGE



Why is Testing So Important?

- Automated testing must pass before your Pull Request will be accepted
- Automated testing is your guarantee that you didn’t break anything
- Without automated testing you cannot fully automate the DevOps pipeline

Branching example



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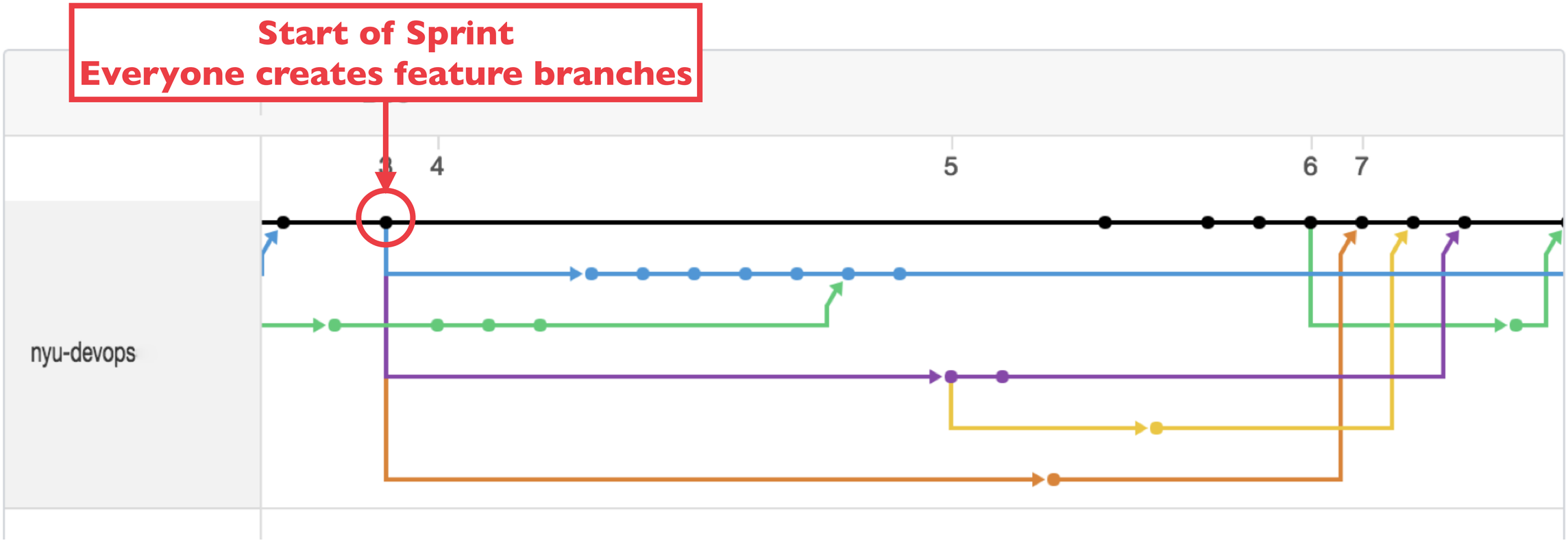

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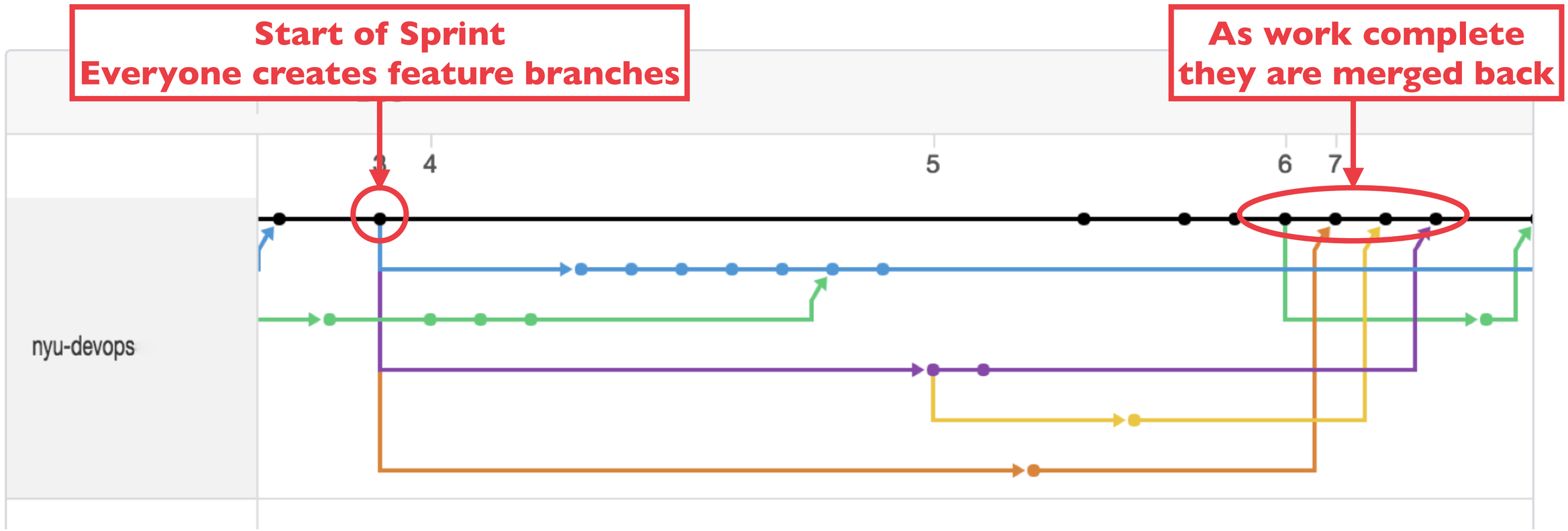

Example workflow

- Your initial workflow should set up a remote branch that is tracked

```
git checkout -b my-new-feature
... write some code here ...
git add .
git commit -m 'initial working version of my new feature'
git push -u origin my-new-feature
```

- The next day you add more code and push to your remote branch

```
... write some code here ...
git add .
git commit -m 'added this cool code...'
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No need to use the branch name because it is tracked

Example workflow before Pull Request

- Before making a Pull Request always get the latest changes from master

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git checkout master
git pull
git checkout my-new-feature
git merge master
... fix any merge conflicts here ...
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git commit -m 'merged updates from master'
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Pull the latest changes from master

Merges any changes from master with your branch

Hands-On

“live follow-along session”