

# Getting Started with Git

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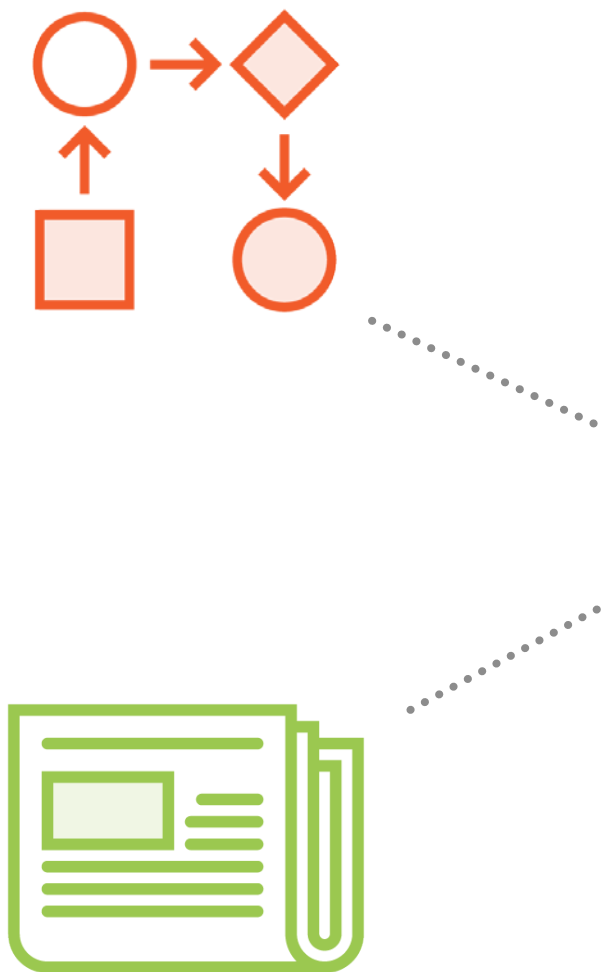
WHAT IS GIT AND HOW DOES IT WORK?



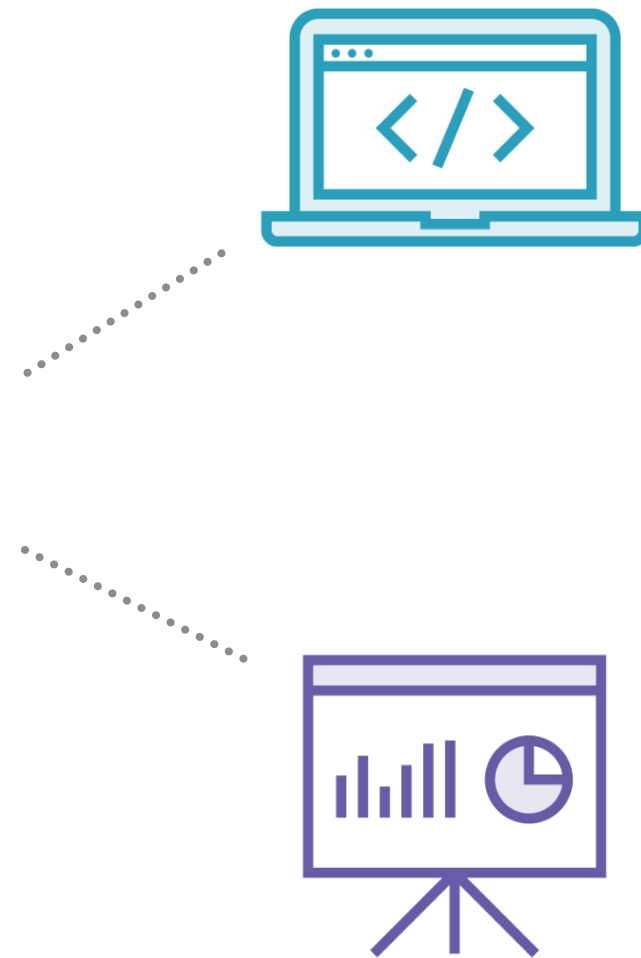
**Aaron Stewart**

[www.github.com/a-a-ron](https://www.github.com/a-a-ron)





# git





**git**



# git

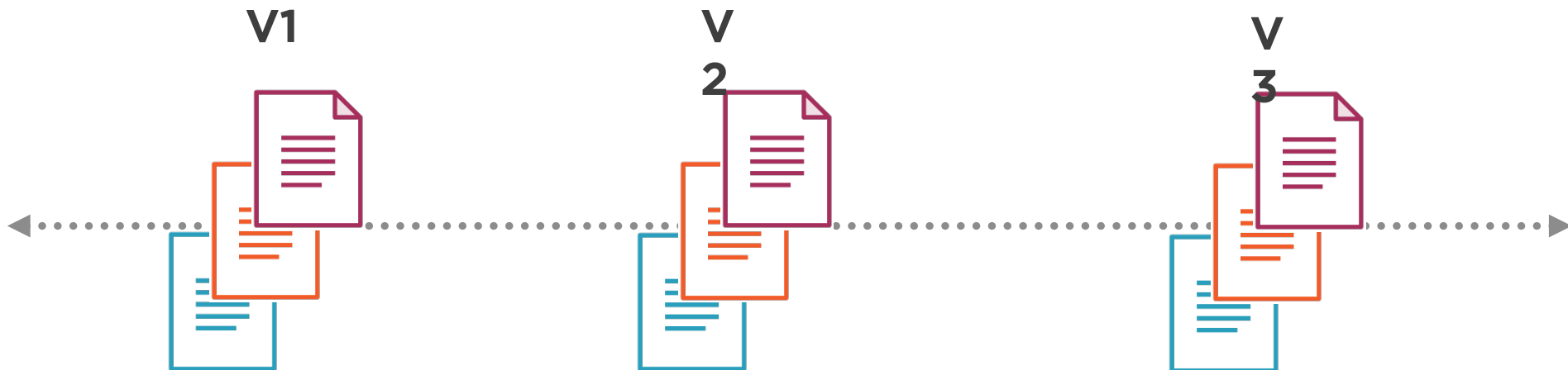


# GitHub



# What Is Git?

## Version Control System



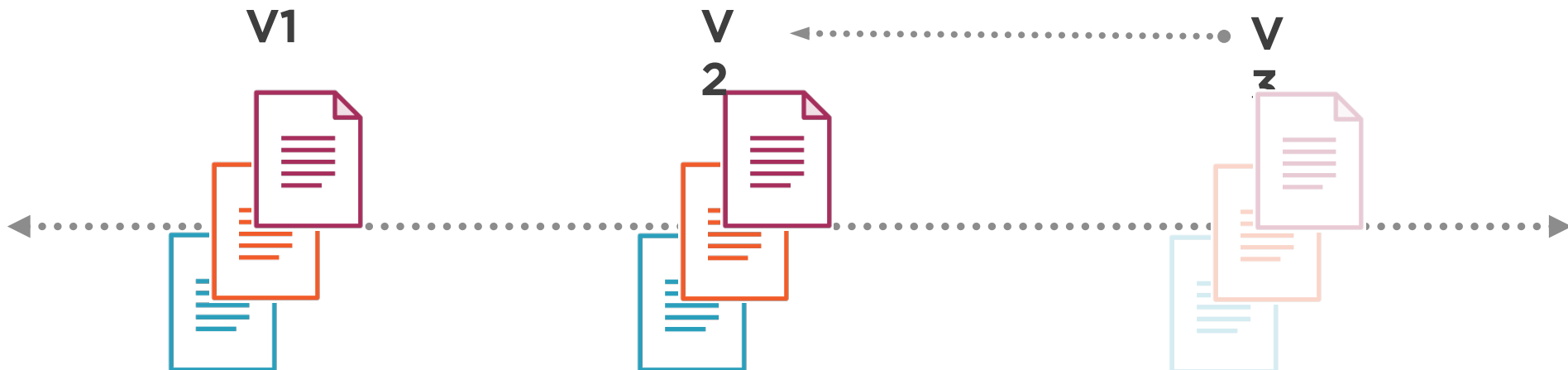
# What Is Git?

## Version Control

### System

Software designed to record changes made to files over time

- Ability to revert back to a previous file version or project version



# What Is Git?

## Version Control

### System

Software designed to record changes made to files over time

- Ability to revert back to a previous file version or project version
- Compare changes made to files from one version to another

V1



++++++  
Date:  
Author:  
Message:



+++++  
Date:  
Author:  
Message:



+++++++  
Date:  
Author:  
Message:

V  
2



++-----  
Date:  
Author:  
Message:



+++++++-----  
Date:  
Author:  
Message:



+-----  
Date:  
Author:  
Message:



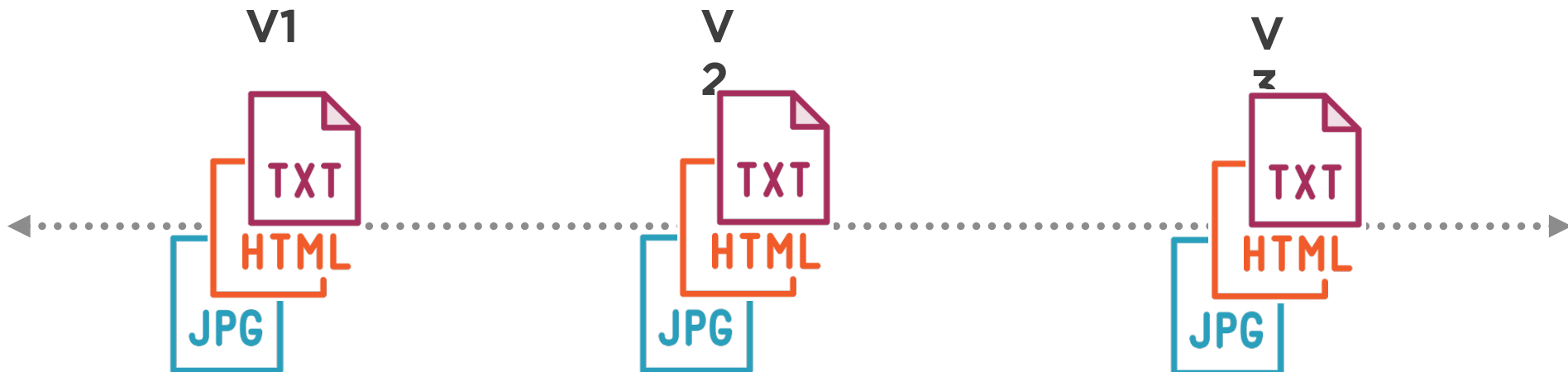
# What Is Git?

## Version Control

### System

Software designed to record changes made to files over time

- Ability to revert back to a previous file version or project version
- Compare changes made to files from one version to another
- Version control any plain text file, not just source code





# Types of VCS

## Local Computer



# Local VCS



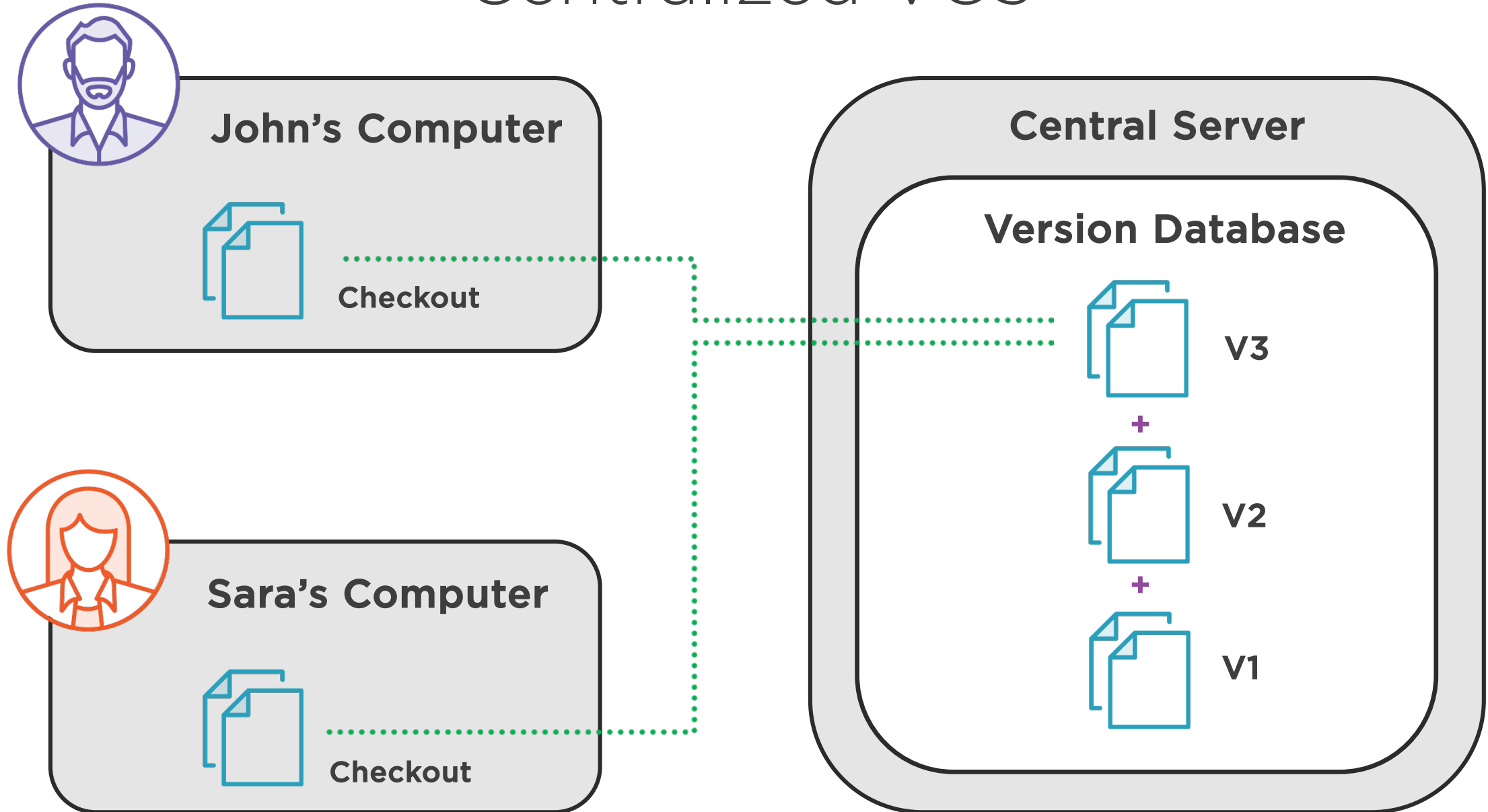
**Local Computer**



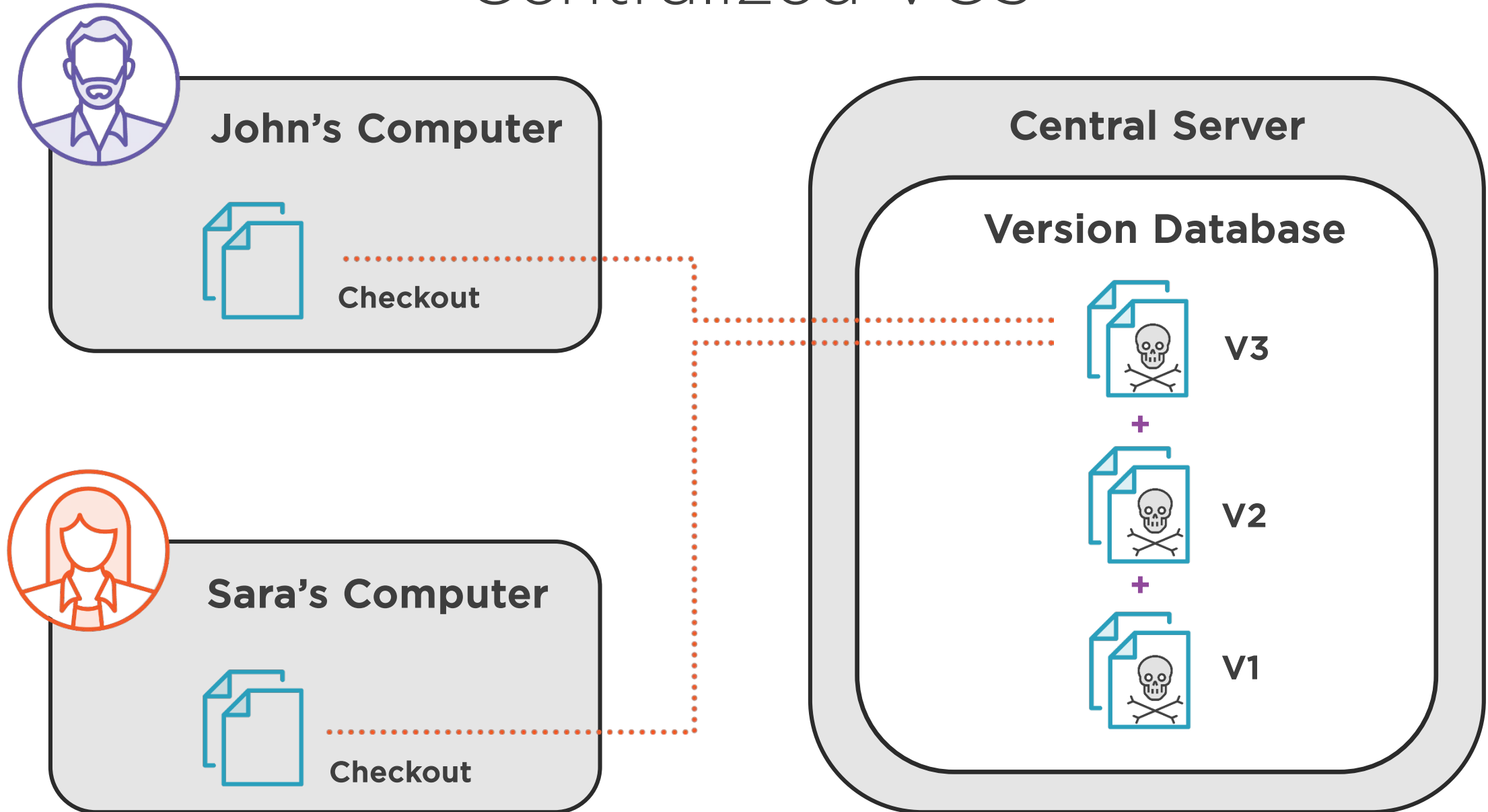
**Version Database**



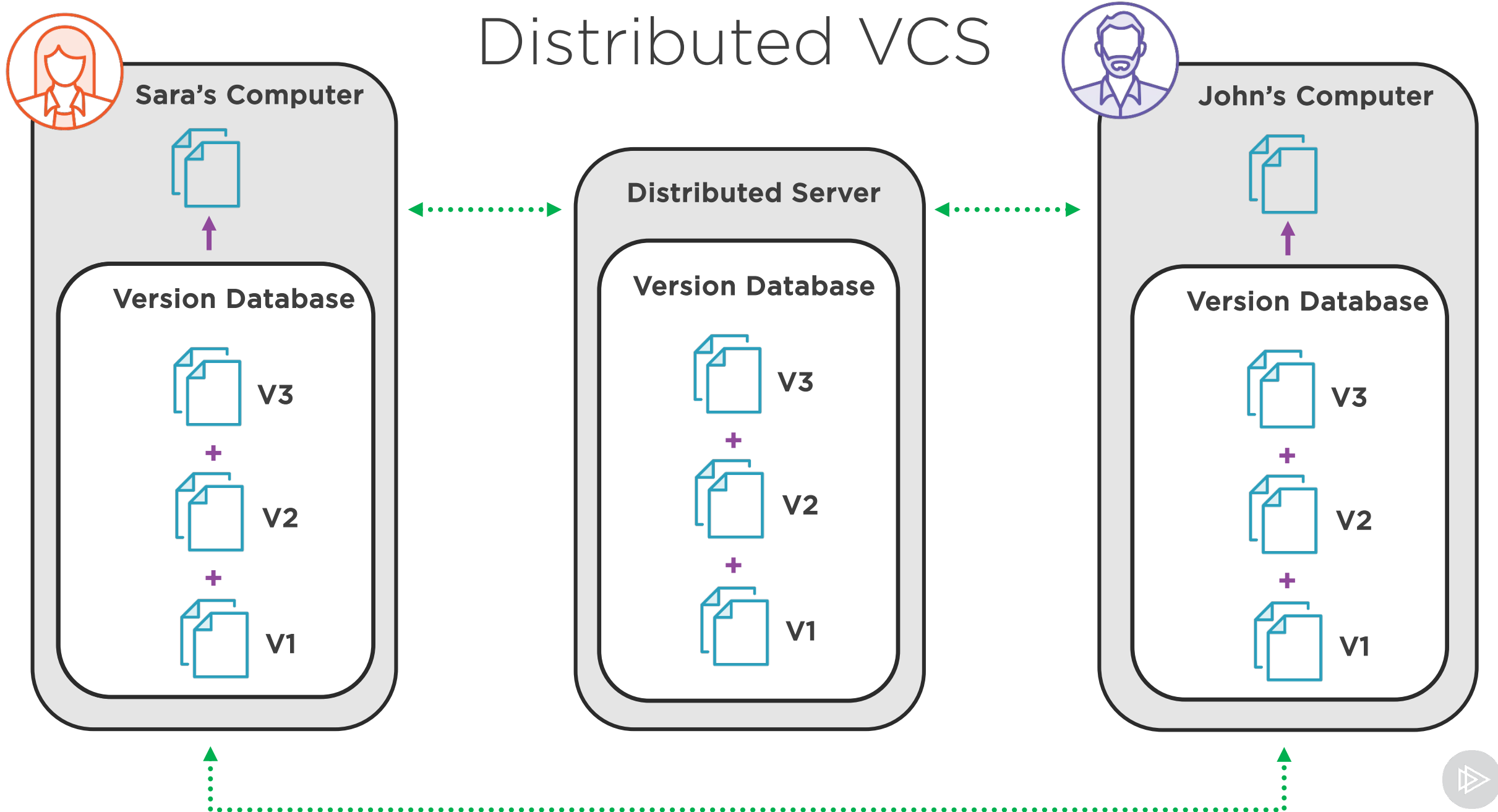
# Centralized VCS



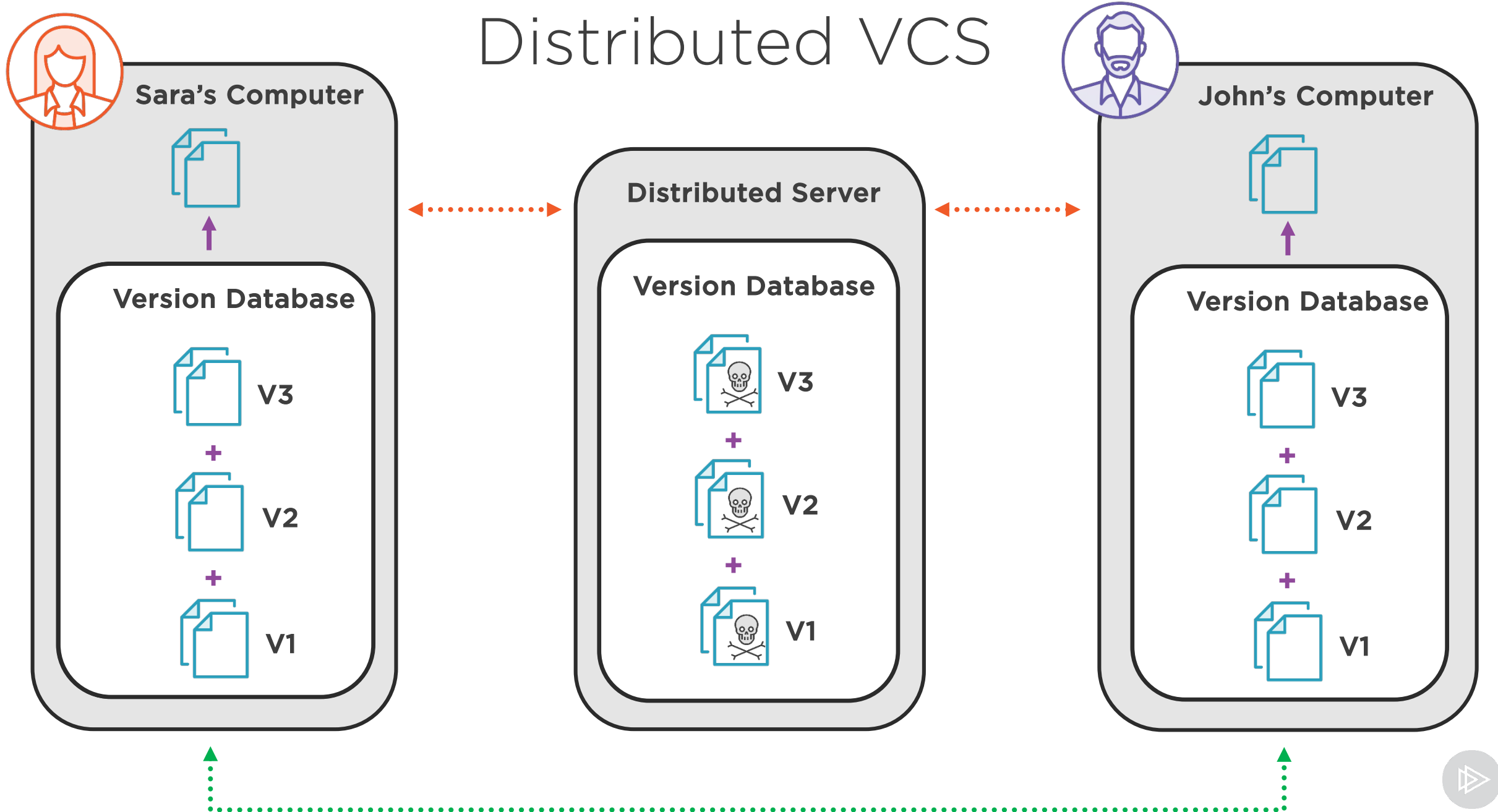
# Centralized VCS



# Distributed VCS



# Distributed VCS



# Short History of Git

1991

Linus Torvalds  
Linux kernel



2005

Revoke  
Free open source

BitKeeper

2002

Free open source  
DVCS

BitKeeper

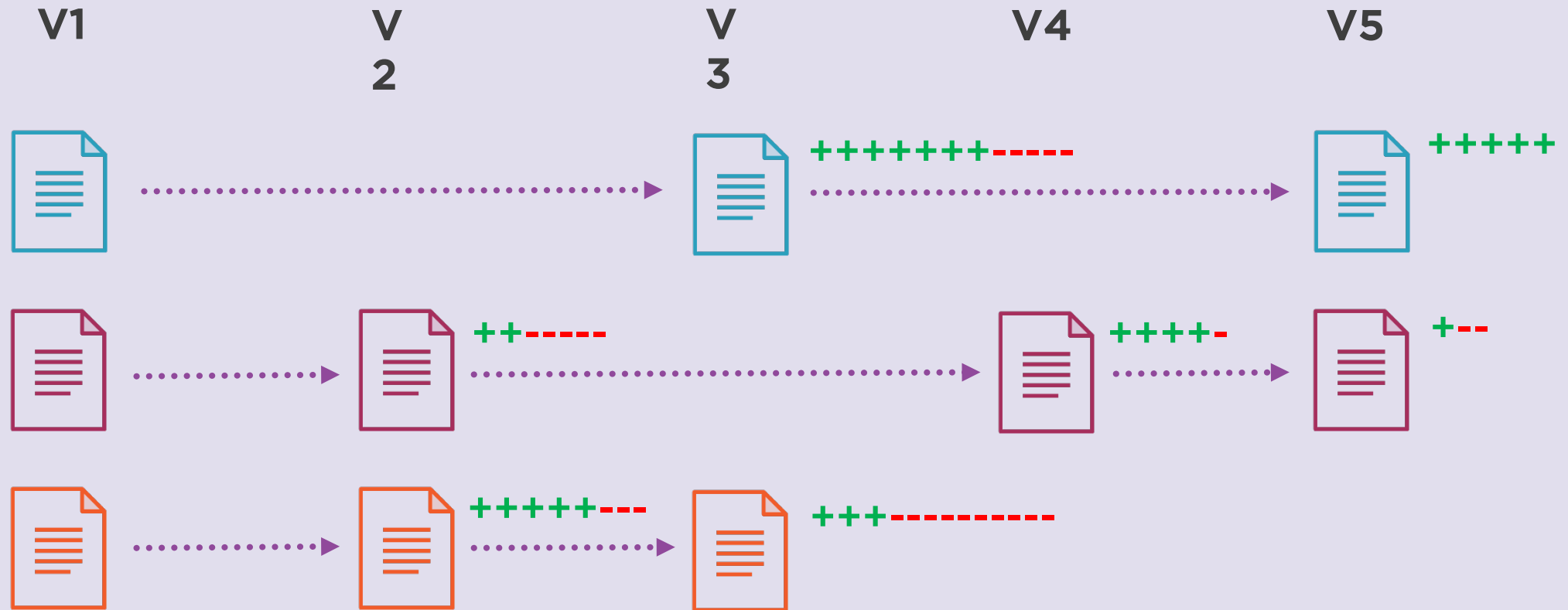
2005

Linus Torvalds  
Git

git

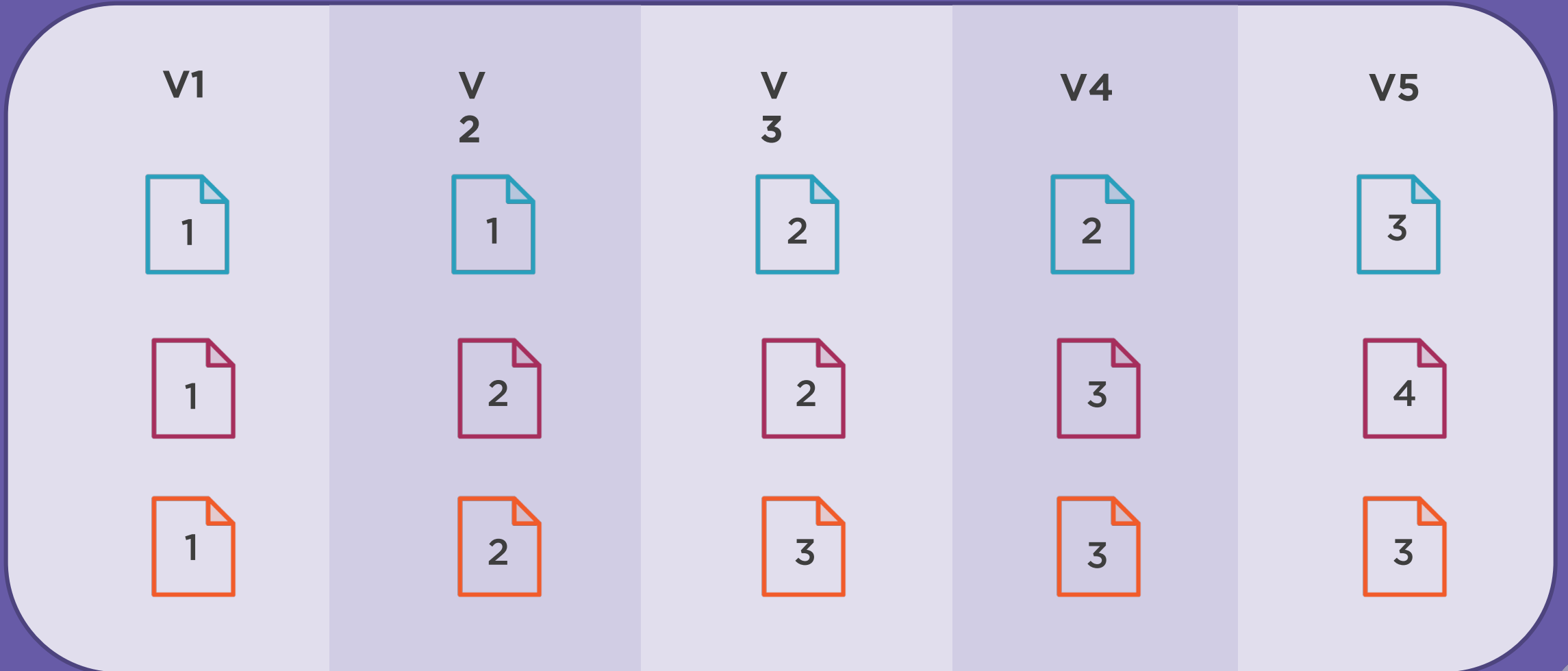


# Git Uses Snapshots, Not Differences

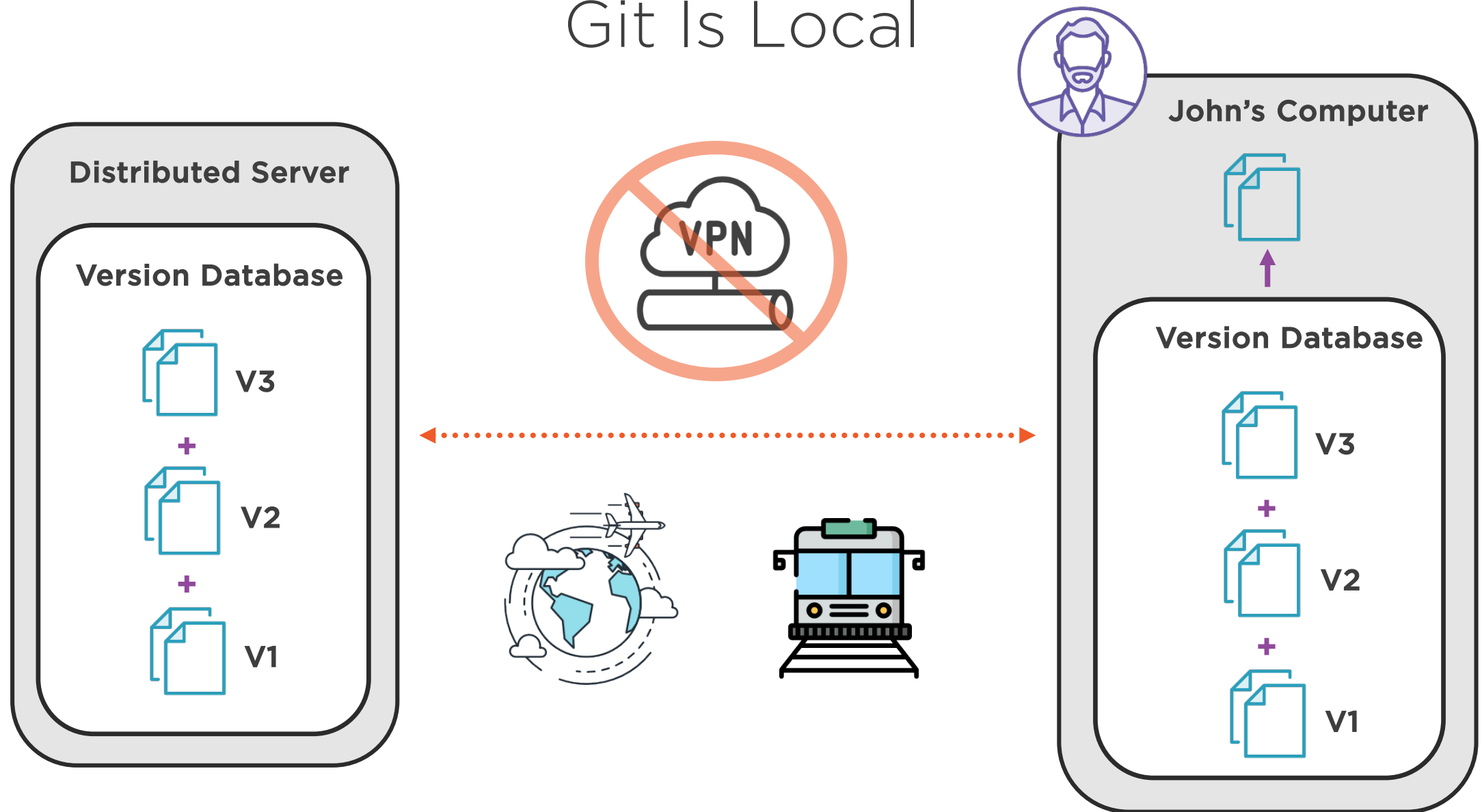




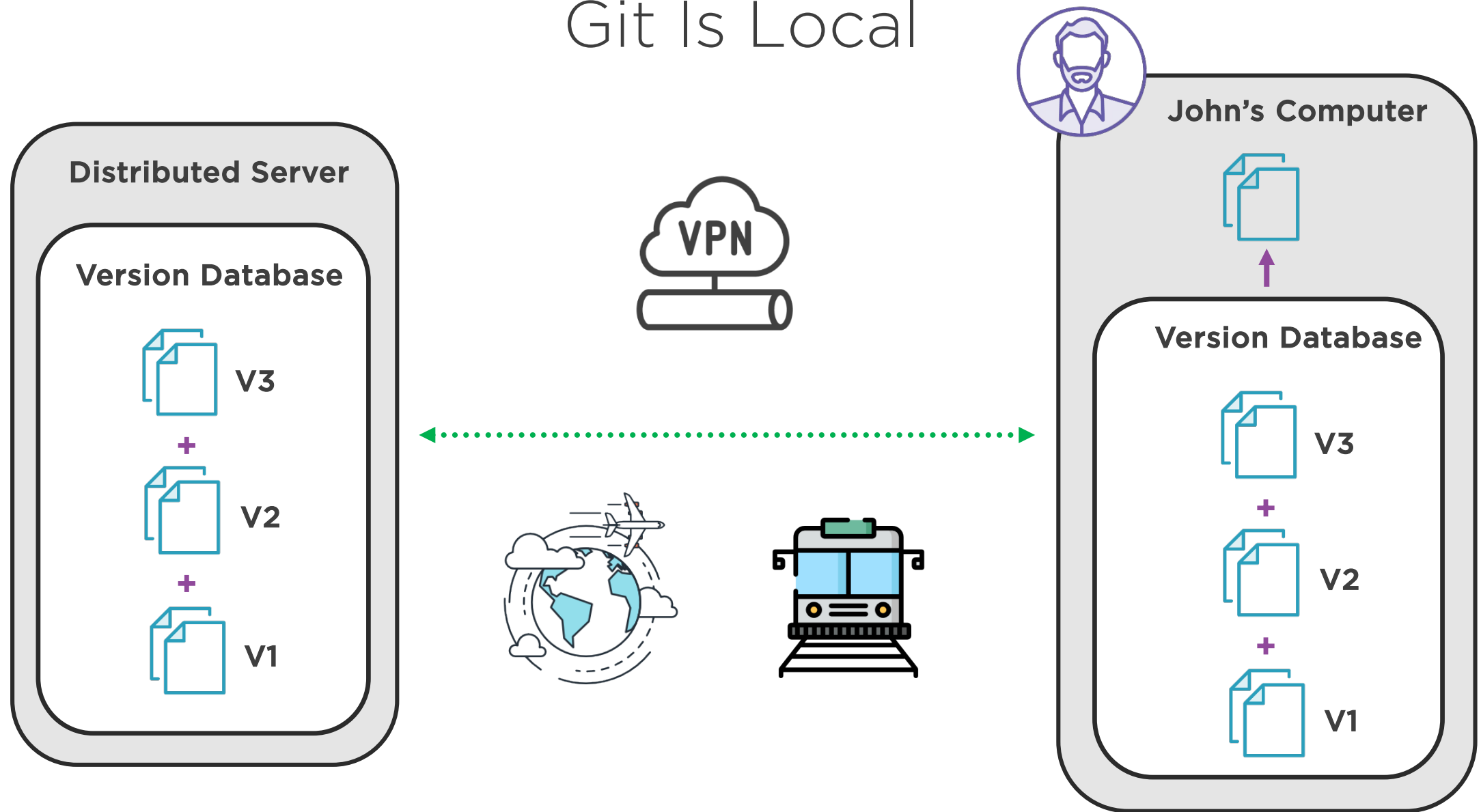
# Git Uses Snapshots, Not Differences



# Git Is Local



# Git Is Local





Everything in Git is check-summed

Not V0123, V0124, or V0125

Cf23df1206d99a74fbe169e3eba035e633b65d9  
4

SHA1 hashing algorithm

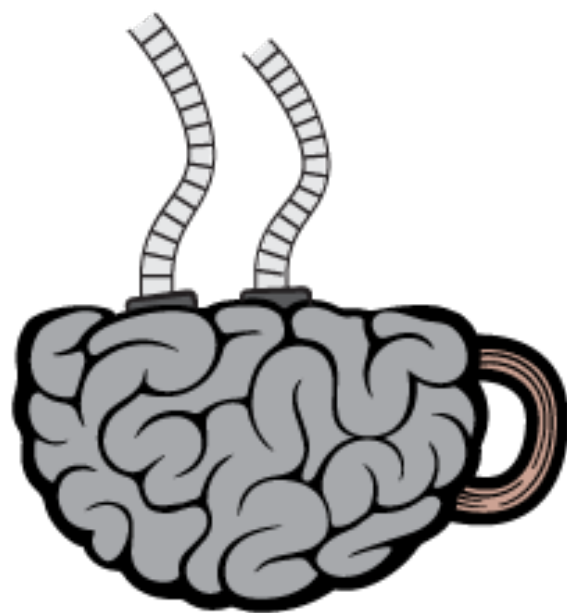
Two sets of data will not have same hash

Same data will always produce same hash



Understanding how Git  
manages data is the most  
important thing to  
remember about Git



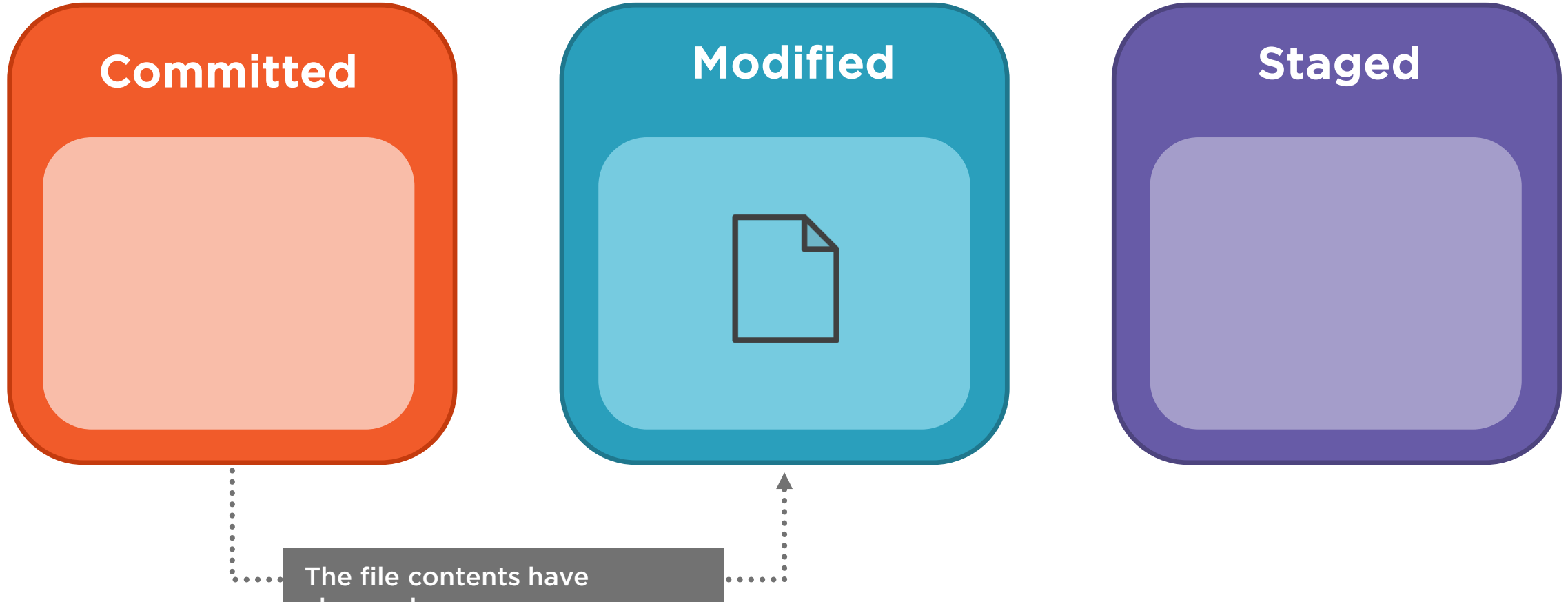


**WIRED BRAIN**

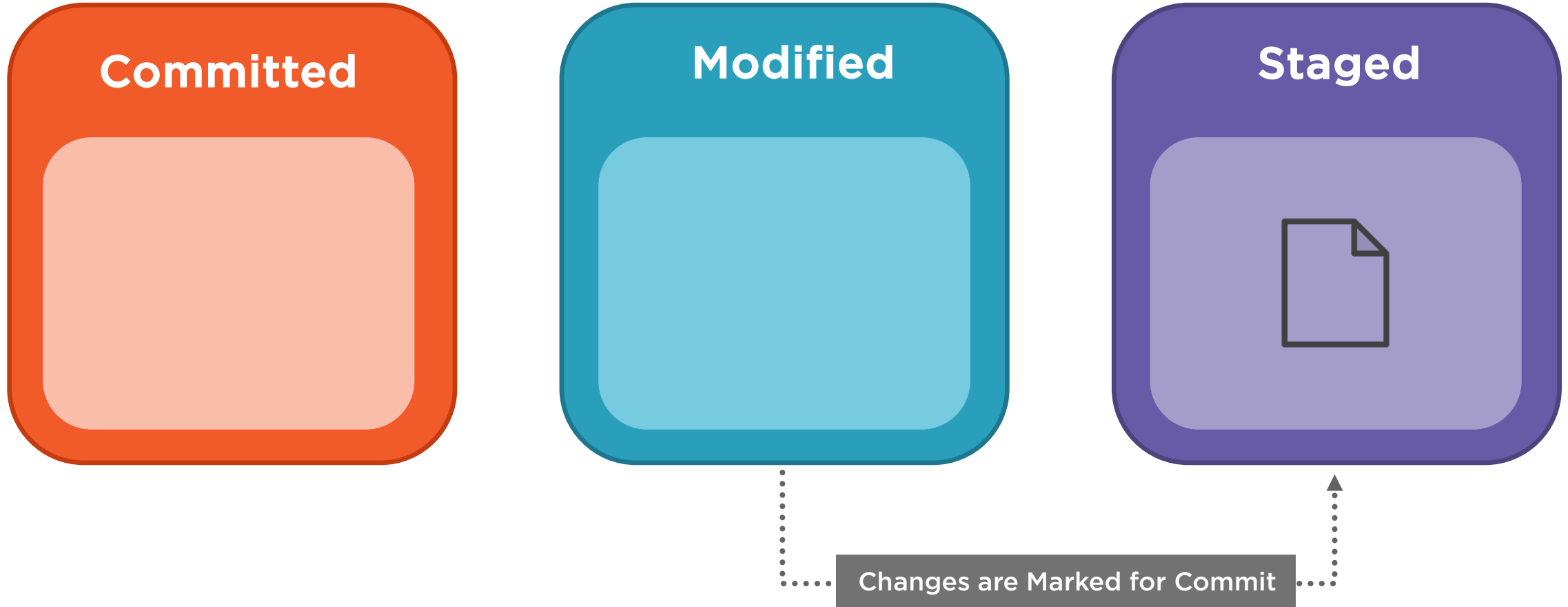
— COFFEE —



# The Three Stages of a File

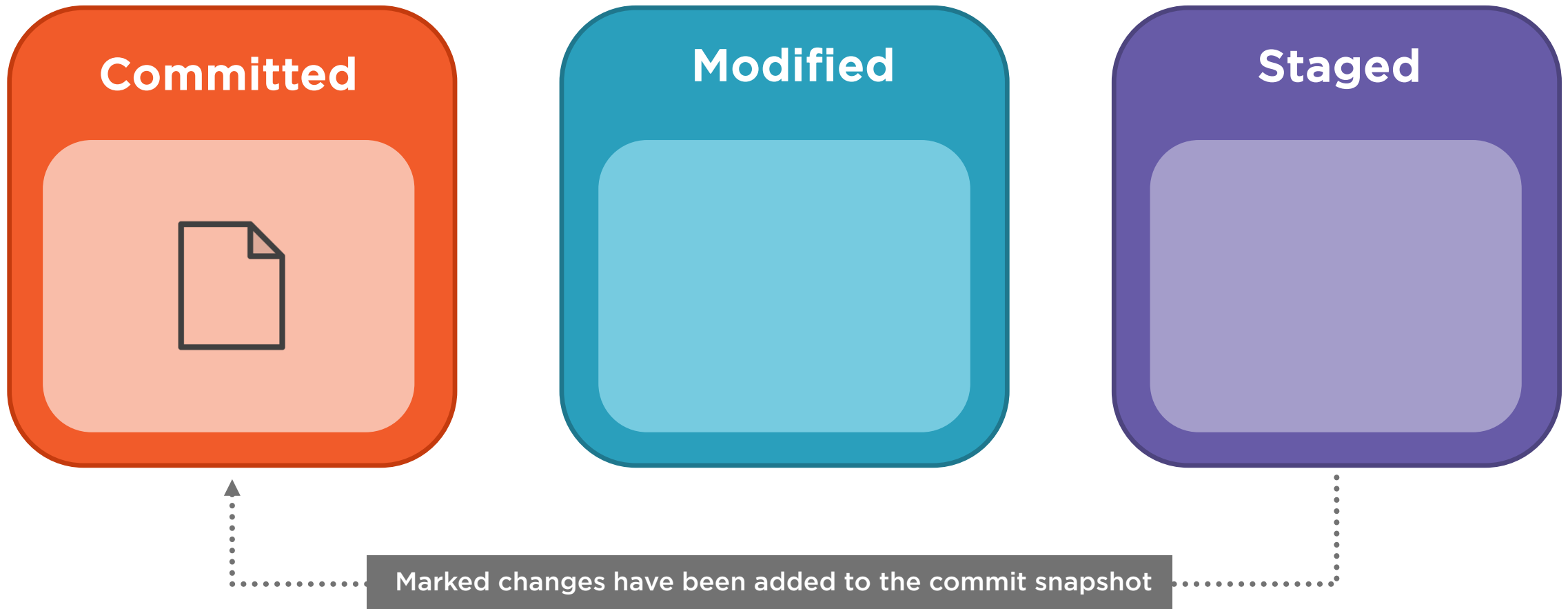


# The Three Stages of a File

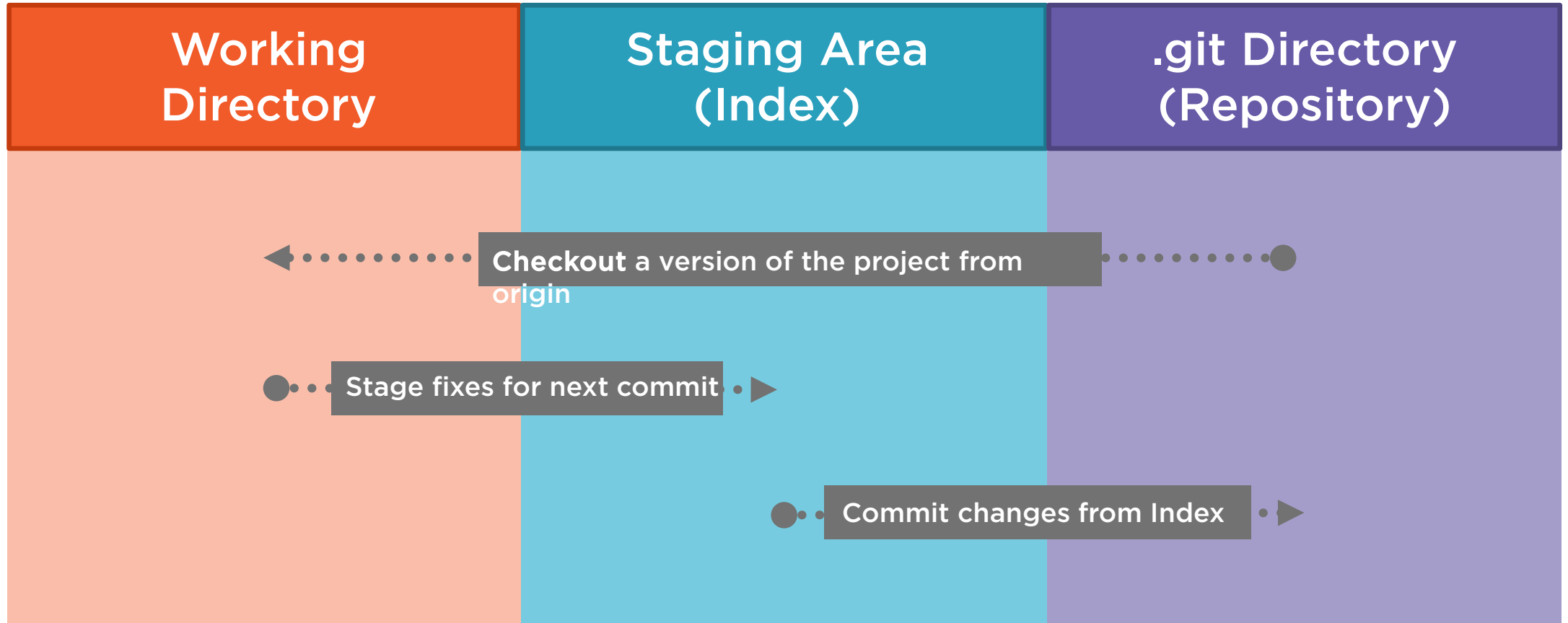




# The Three Stages of a File



# The Three States of a Git Project



# The Three States of a Git Project

Working Directory	Staging Area (Index)	.git Directory (Repository)
Changes to files since the last checkout have not yet been added to the staging area for commit	Files in this state have been modified and added to be staged in the next commit snapshot	Files in this state are committed and recorded to the project as version snapshots



# Summary



Git is a DVCS

Short history of Git

Git uses snapshots, not patch differences

Git is local

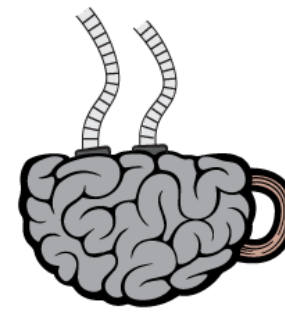
Git has integrity

Three stages of a file

Three main states of a Git project



# Summary



**WIRED BRAIN**  
— COFFEE —

+

**git**

+

**GitHub**

