Introduction to Git

GEO2020 - 15/12/2017

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Outline for Section 1

Versioning and Collaboration

The general concept

It's useful because:

- It tracks history of our work
- It allows us to work as a team
- It can be used to extract statistics about a project

Is it really new?

Cloud already uses it

You have probably used it on documents if you use:

- Dropbox + MS Office
- Google Drive + Google Docs
- OneDrive + MS Office

Version Control System (VCS)

Definition

Definition

Version Control is the management of changes to documents, computer programs, large web sites, and other collections of information.[1]

[1] Wikipedia

Version Control System (VCS)

Benefits

A VCS:

- keeps revisions
- allows for true collaboration
- encapsulates workflow (e.g. track time, issues, project management)

VCS vs Cloud

Although not really a comparison

	VCS	Cloud
Revisions	Manual	Auto
Revision Information		
Author	✓	✓
Timestamp	✓	✓
Message	✓	✗
Collaboration		
Sharing	✓	✓
Concurrent working	✓	?
Branching	✓	✗

But don’t be confused… It can’t replace your cloud file storage!

VCS

Definitions

Repository

A storage location where all versions and information about them are stored.

Workspace

The actual working directory of the user.

Types of VCS

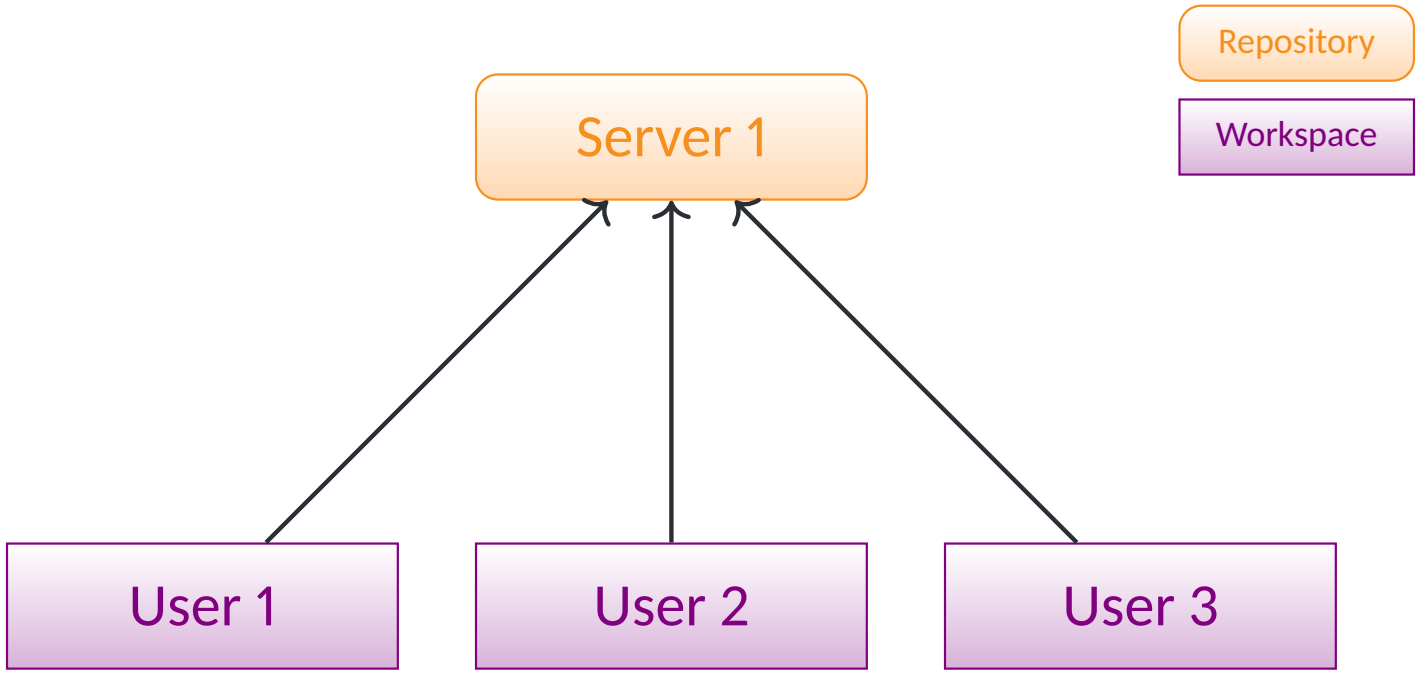
There are two types:

- Centralised
  - Subversion (SVN)
  - Microsoft Team Foundation Server (TFS)
  - Concurrent Versions System (CVS)
- Distributed
  - Git
  - Mercurial

Centralised

Architecture

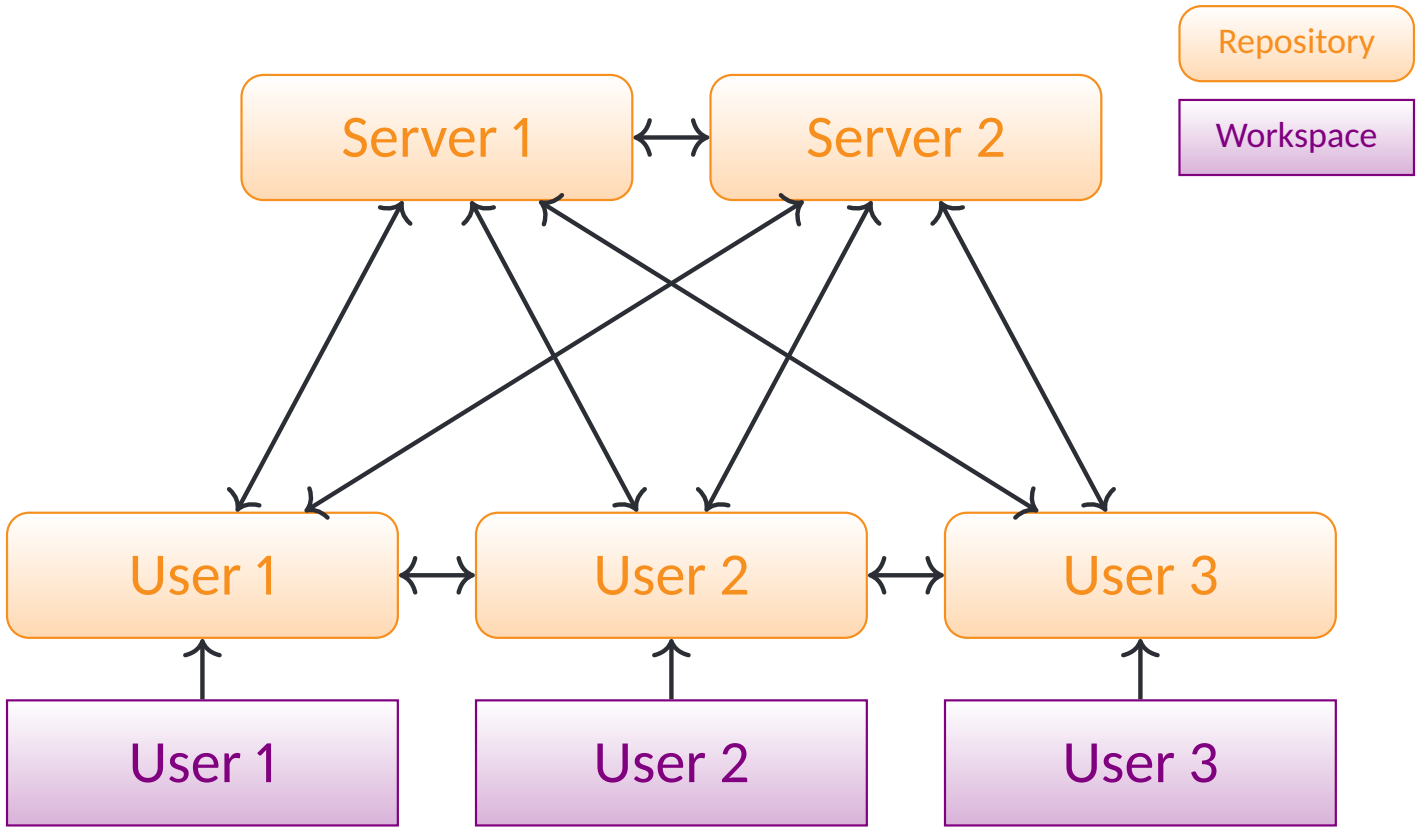
A server is the only repository and every user has a workspace.



Distributed

Architecture

No “master” server. Every user has a repository and a workspace.



Repository “internals”

It’s a graph

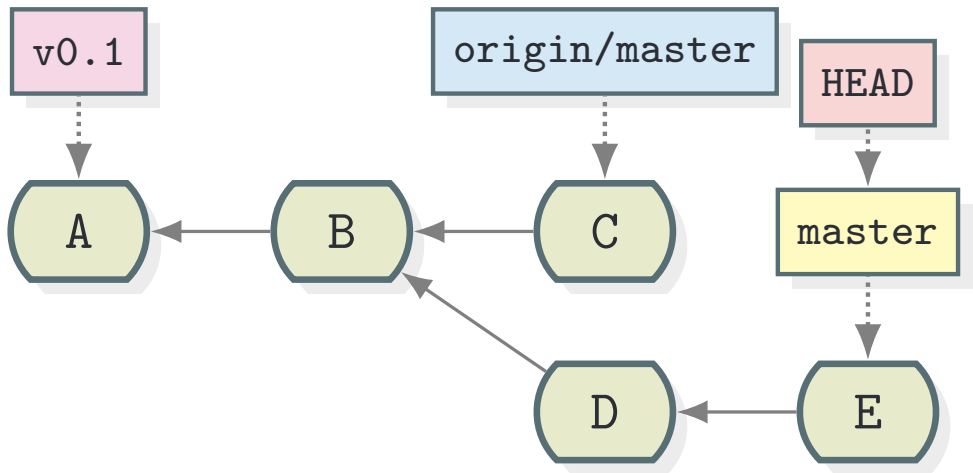


Figure: Demonstrating a typical `rebase`