Understanding Git with Alloy

Milestone 1

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Introducing Git

Distributed Version Control System

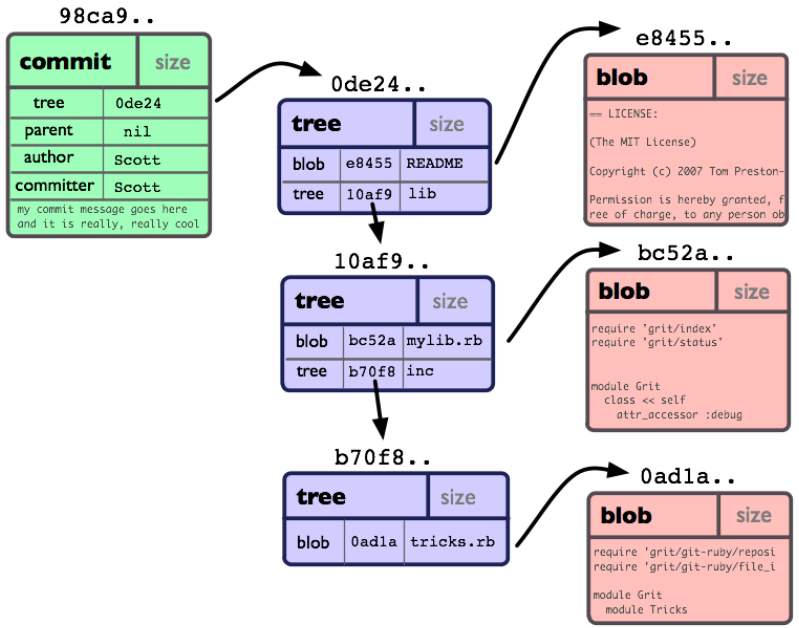
- Records changes on files over time
- Recall old versions of files
- Each client has a mirror of the repository

Main differences with others VCS

- Snapshots, Not Differences

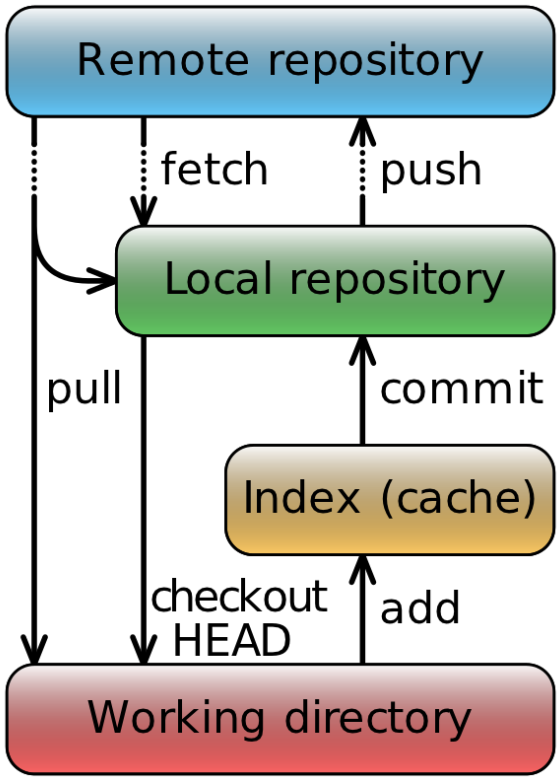
The Git Object Model

- Sort of filesystem
- Each git object is named by a sha
- Blob stores file data
- Tree references a branch of others trees and blobs
- Commit points to single tree



CSAIL

Git simplified workflow



Project Goals

- Build a precise model of how Git works
- Analyze the model
- Check which properties the model (not) guarantee
- Compare to other systems
- Build a concise user manual based on the model

What has been done so far

First Approach

- Model Working Directory
- Model Index
- Model Object Model
  - Object hash are modeled

Problem

Model got too complex when adding operations

What has been done so far

INSTANCIA

What has been done so far

Second Approach

- Focus on Object Model and Index
- Files are just a set of paths
- Object hash are the alloy atom's name

What has been done so far

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