CSCI3660 – System Administration
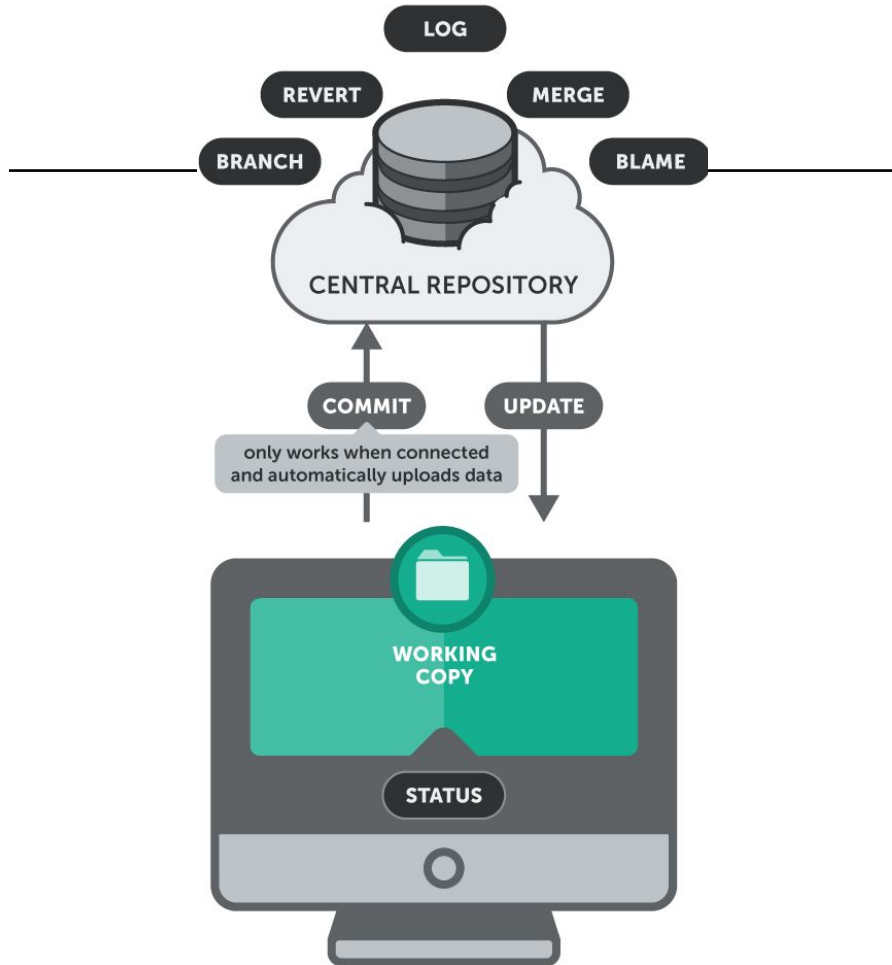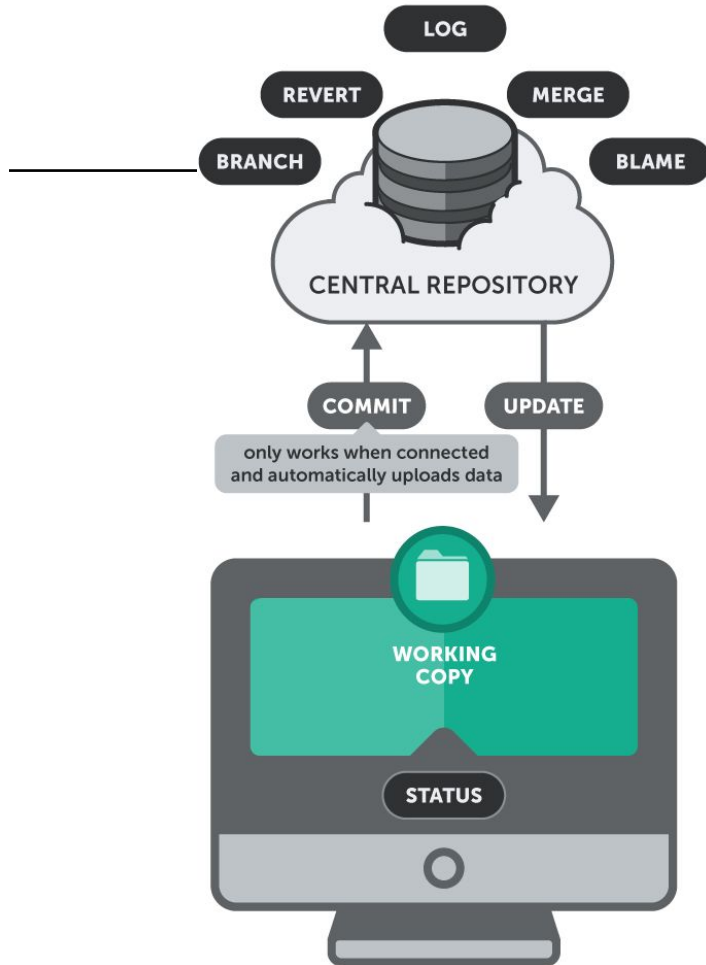
Prof. Fredericks

Git Overview

What is Git?

- *Distributed* source control management system
  - User has local repository (codebase)
  - Make changes, commit changes, etc.
  - Only becomes active for other users when you *push*

- Historical perspective:
  - Checkout code to local folder
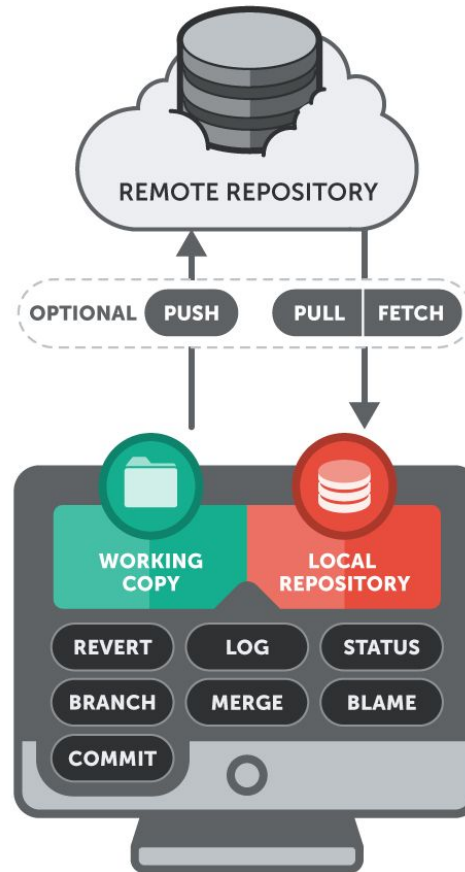 - Make changes
  - Check back in to main server

SUBVERSION

LOG

REVERT

MERGE

BRANCH

BLAME

CENTRAL REPOSITORY

COMMIT

UPDATE

only works when connected
and automatically uploads data

WORKING
COPY

STATUS

SUBVERSION

GIT

LOG

REVERT   MERGE

BRANCH   BLAME

CENTRAL REPOSITORY

COMMIT   UPDATE

only works when connected
and automatically uploads data

**WORKING
COPY**

STATUS

REMOTE REPOSITORY

OPTIONAL   PUSH   PULL   FETCH

**WORKING
COPY**   **LOCAL
REPOSITORY**

REVERT   LOG   STATUS

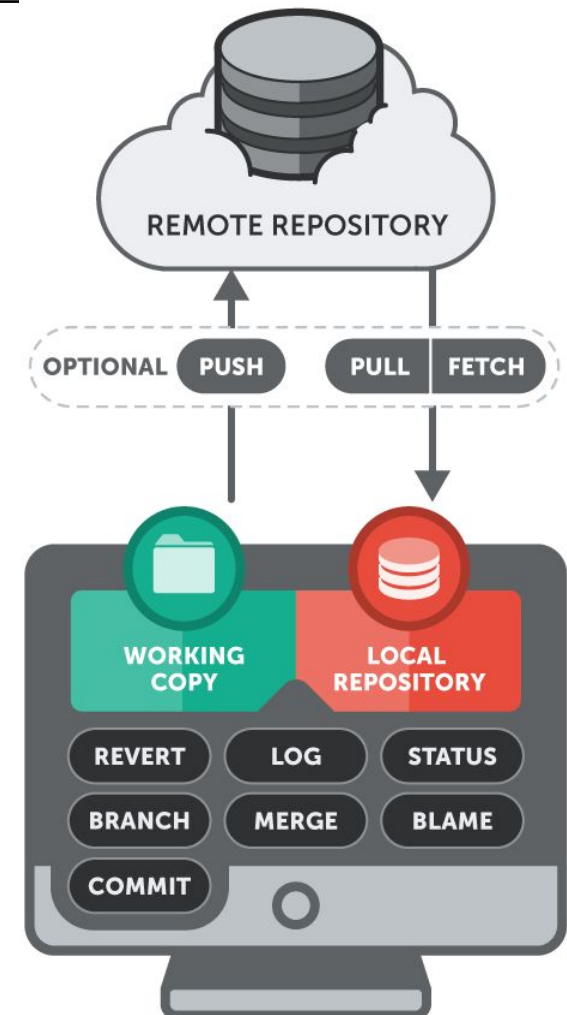BRANCH   MERGE   BLAME

COMMIT

Terms

- repo/repository
  - Database of objects
  - Histories, configurations, branches, etc.

- branch
  - Development line, based on some revision

- staging area
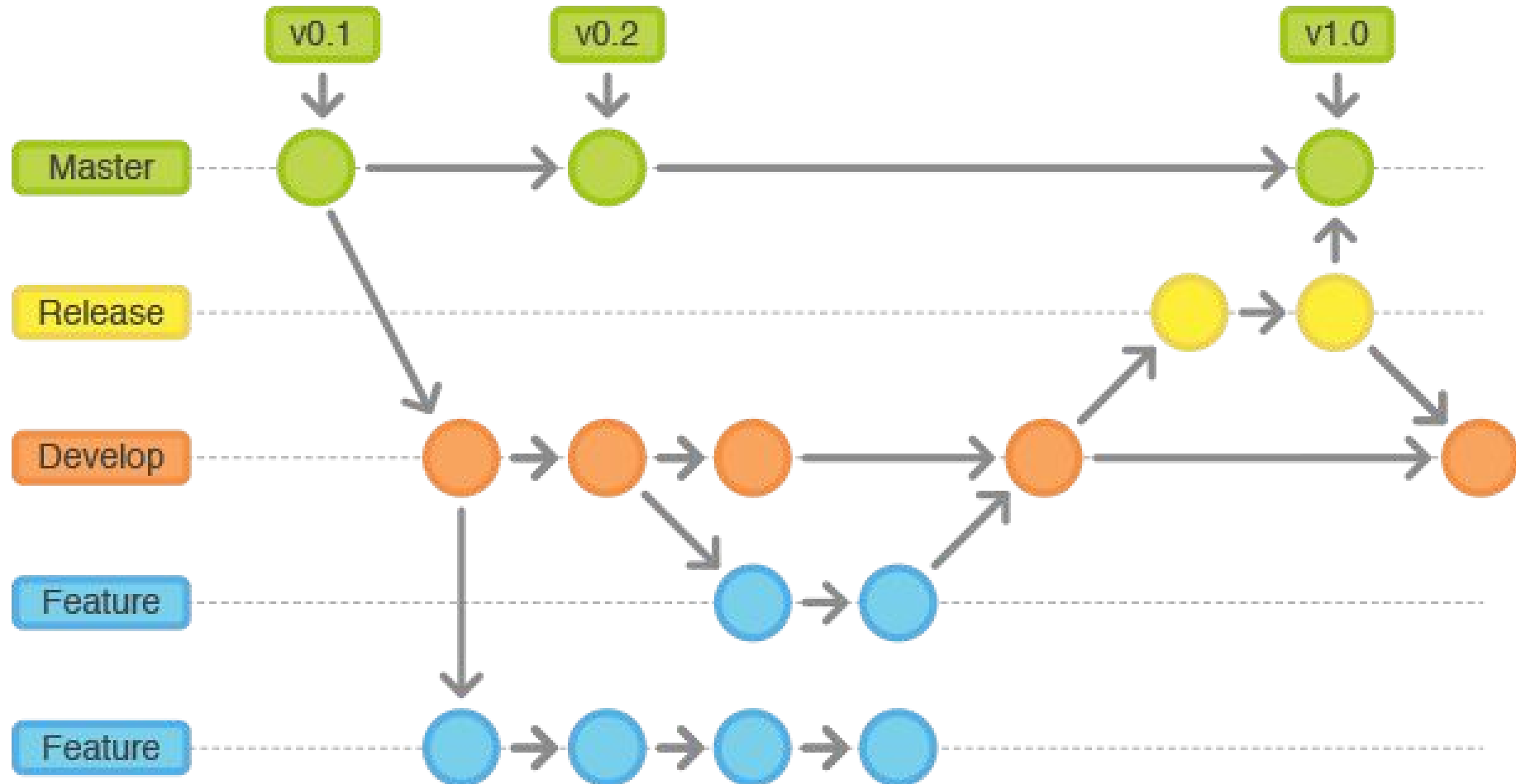 - Cache between your machine and server

Terms

- commit
  - State of project
  - Can compare one commit to another

- clone
  - Copy of repository on a machine

- tag
  - Descriptor of some commit state

Typical Process

- Initialize repository

- Developers clone repository

- Developers work on local copies
  - Commit as they hit important milestones

- Push to server when done
  - May need to rebase – pull latest "official" build and merge changes
  - Rebase occurs when another developer pushes changes before you

REMOTE REPOSITORY

OPTIONAL PUSH | PULL FETCH

WORKING COPY | LOCAL REPOSITORY

REVERT | LOG | STATUS
BRANCH | MERGE | BLAME
COMMIT

https://www.atlassian.com/git/tutorials/comparing-workflows/centralized-workflow

Branching

General Git Steps

Cloning a repository, making changes, pushing to server:

```
$ git clone <git link>
```

… make changes

```
$ git add <new dir or new files>
```

… if files were added

```
$ git commit -m "What this commit is"
```

… push to server

```
$ git push
```