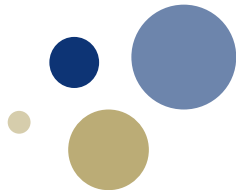# NTNU

Norwegian University of
Science and Technology

Version control for researchers

Sigurd Hofsmo Jakobsen

Department of electric power engineering

October 5, 2016

Outline

A basic example

— Only one person can work on a file at a time

Name	
experiment.m	
experiment_better_version.m	
experiment_final.m	
experiment_final_final_20161007...	
experiment_maybe_better_2016...	

A basic example

— Only one person can work on a file at a time
— Difficult to keep track on which file to use

Name

experiment.m

experiment_better_version.m

experiment_final.m

experiment_final_final_20161007...

experiment_maybe_better_2016...

A basic example

— Only one person can work on a file at a time
— Difficult to keep track on which file to use
— Difficult to compare the files

Name

experiment.m

experiment_better_version.m

experiment_final.m

experiment_final_final_20161007...

experiment_maybe_better_2016...

A basic example

— Only one person can work on a file at a time
— Difficult to keep track on which file to use
— Difficult to compare the files
— Do you have back up?

Name

    experiment.m

    experiment_better_version.m

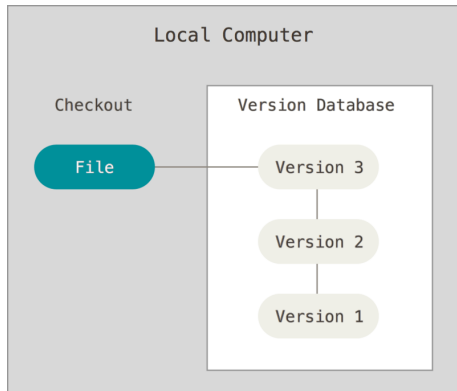   experiment_final.m

    experiment_final_final_20161007...

    experiment_maybe_better_2016...

A basic example

— Only one person can work on a file at a time
— Difficult to keep track on which file to use
— Difficult to compare the files
— Do you have back up?
— Probably more issues

Name

experiment.m

experiment_better_version.m

experiment_final.m

experiment_final_final_20161007...

experiment_maybe_better_2016...
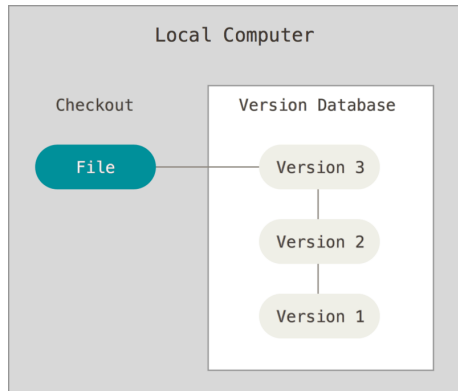
Smarter way of doing it

— Equivalent of storing your stuff
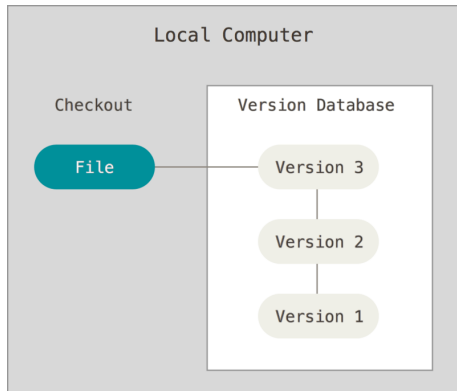on M

Smarter way of doing it

— Equivalent of storing your stuff on M

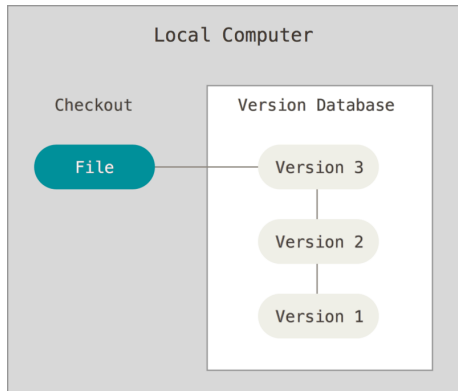— Included in MAC

Smarter way of doing it

— Equivalent of storing your stuff
on M
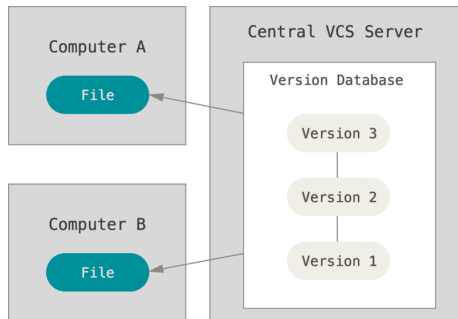— Included in MAC
— Easy to set up

Smarter way of doing it

— Equivalent of storing your stuff on M
— Included in MAC
— Easy to set up
— Still difficult to collaborate
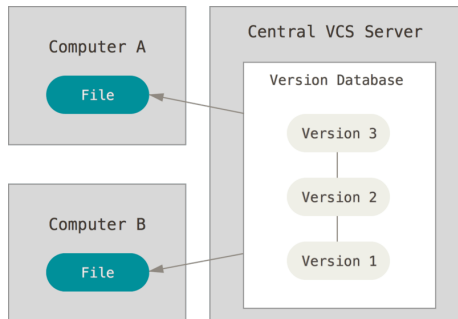
Centralized version control

— Examples:

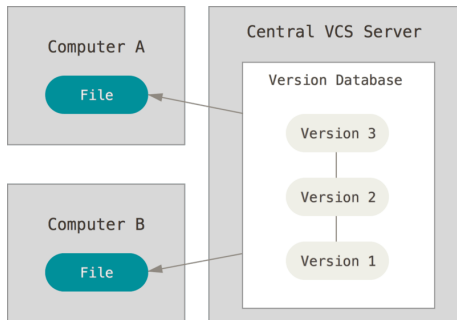# Centralized version control

— Examples:
  - CVS

Centralized version control
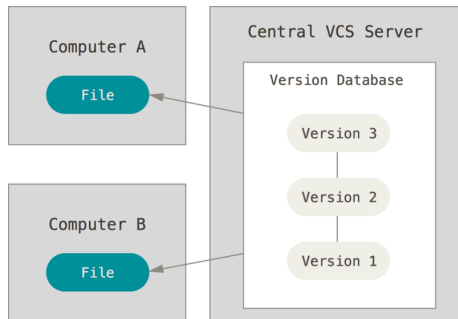
— Examples:
  - CVS
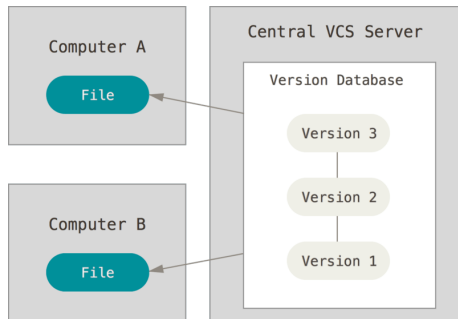 - subversion

Centralized version control

— Examples:
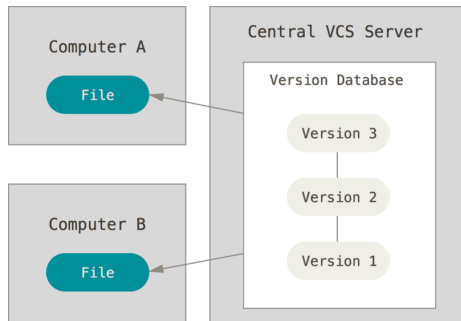- CVS
- subversion
- perforce

Centralized version control

— Examples:
  - CVS
  - subversion
  - perforce
— Easy to collaborate

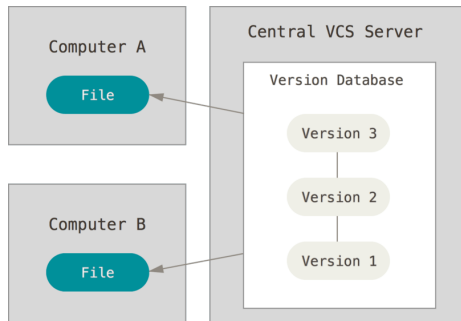# Centralized version control

— Examples:
  - CVS
  - subversion
  - perforce
— Easy to collaborate
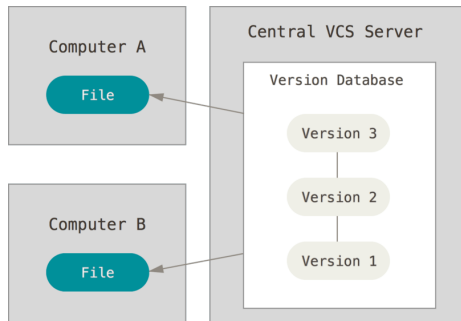— Check out specific versions

Centralized version control

— Examples:
  - CVS
  - subvision
  - perforce
— Easy to collaborate
— Check out specific versions
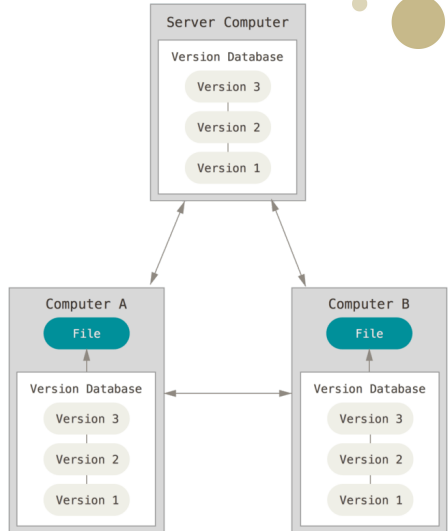— Single point of failure (N-0)

Centralized version control

— Examples:
  - CVS
  - subversion
  - perforce
— Easy to collaborate
— Check out specific versions
— Single point of failure (N-0)
— If the server dies only checked out versions can be saved
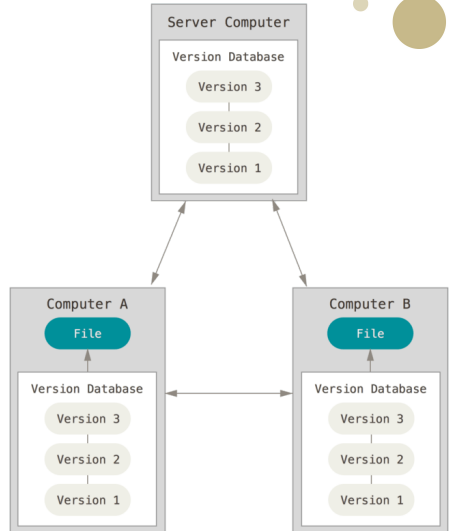
Distsributed version control

— Examples:

Distsributed version control
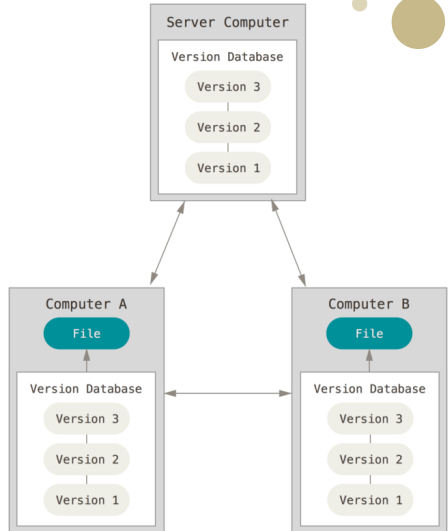
— Examples:
  - Git

Distsributed version control

— Examples:
  - Git
  - Mercurial

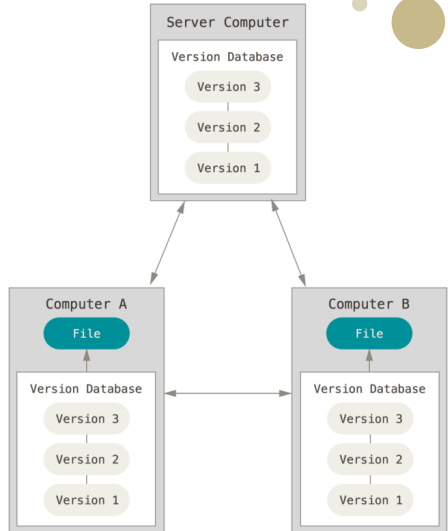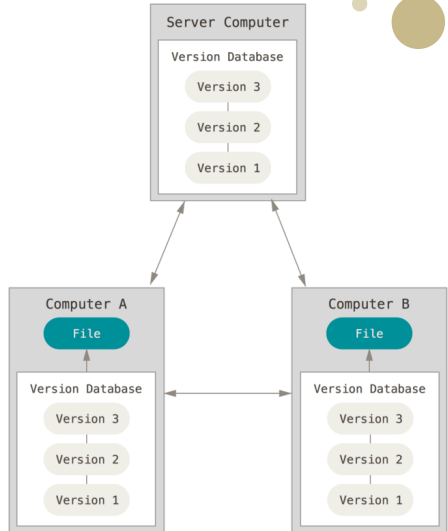# Distsributed version control

— Examples:
  - Git
  - Mercurial
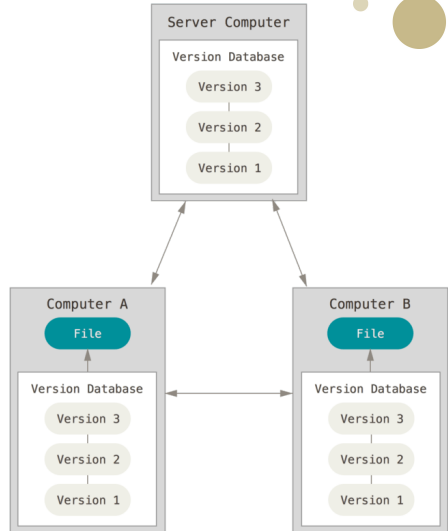 - Bazaar

Distsributed version control

— Examples:
  - Git
  - Mercurial
  - Bazaar
  - Darcs

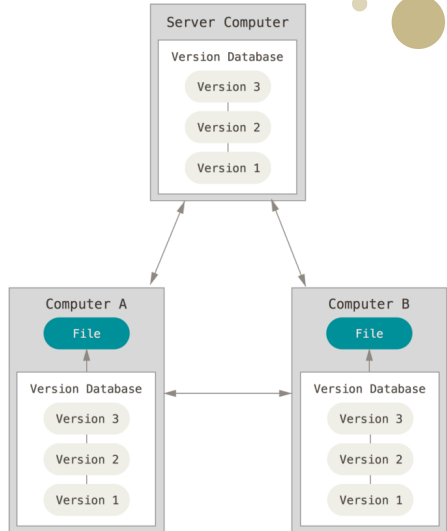# **Distsributed version control**

— Examples:
  - Git
  - Mercurial
  - Bazaar
  - Darcs
— Same advantages as
  centralized version control
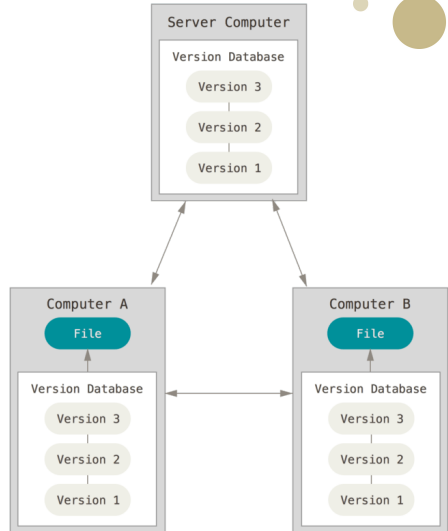
Distsributed version control

— Examples:
  - Git
  - Mercurial
  - Bazaar
  - Darcs
— Same advantages as centralized version control
— All users can reconstruct the project

Distsributed version control

— Examples:
  - Git
  - Mercurial
  - Bazaar
  - Darcs
— Same advantages as centralized version control
— All users can reconstruct the project
— Easy to work against multiple servers

Outline

Introduction to version control

References

References

— Most pictures and a lot of information from:
  `www.git-scm.com/book/en/v2/`
— This presentation:
  `https://github.com/Hofsmo/presentations/tree/vc`