# Recovering the **OpenOffice.org** Code History

# Why Code History?

- first-hand reference on how code evolved
- when the developer knew most about it
- detailed references to external resources
- developers have limited memories
- original developers leave projects

# OpenOffice Repositories History

- 1988-2000 Proprietary
- 2000-2003 CVS trunk-only
- 2003-2009 CVS with branches
- 2008-2009 Subversion
- 2009-2011 Mercurial
- 2011-2014 Subversion
- 2014-20XX Git (read-only now)

# OpenOffice VCS Transition Losses

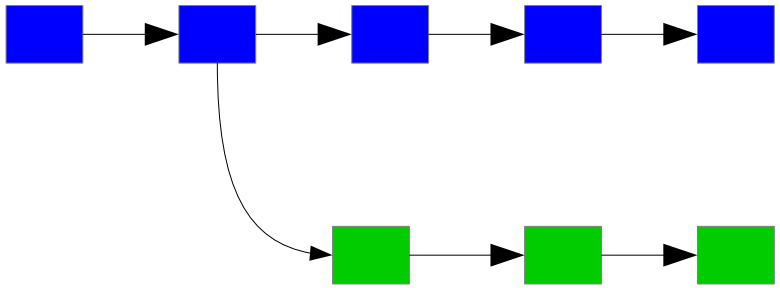
- 1988-2000 All history lost
- 2000-2003 CVS trunk preserved
- 2003-2009 CVS branches lost
- 2008-2009 SVN branches lost
- 2009-2011 HG mostly preserved
- 2011-2014 SVN still available
- 2014-20XX GIT look great

# The Lost Heritage

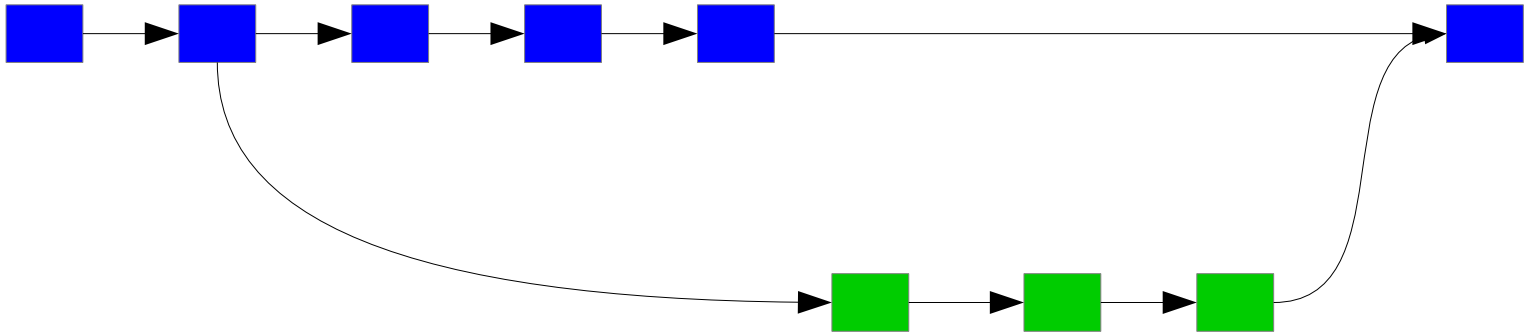
- OOo repository changes dropped  branches
- From 2003-2011 all development work was done on branches
  - ➔ about 5000 CVS branches lost
  - ➔ about 1000 SVN branches lost
  - ➔ the Mercurial branches are not easily available

# Why worry about lost branches?

Branch before merge

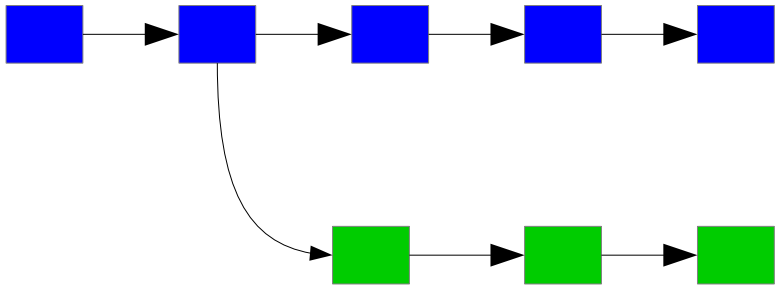


History-Preserving Merge

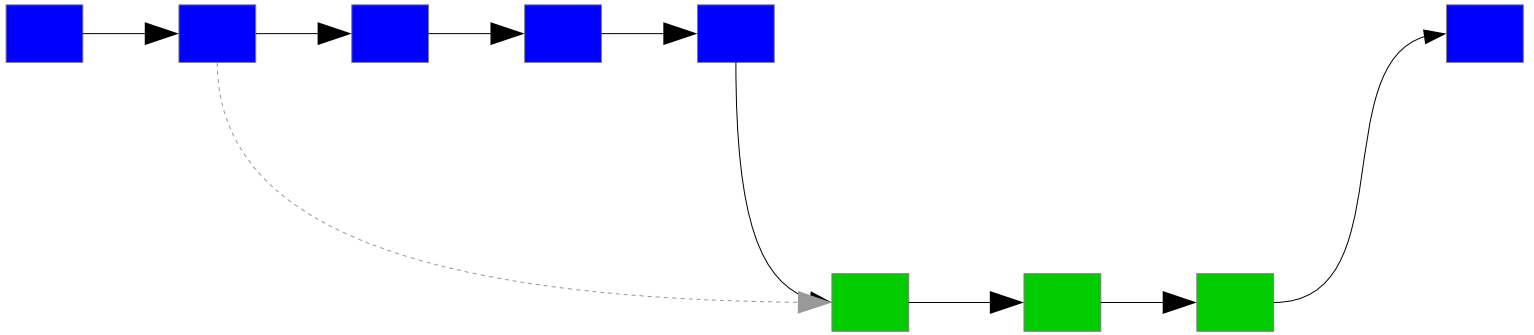


# A small excursion

## Branch before merge

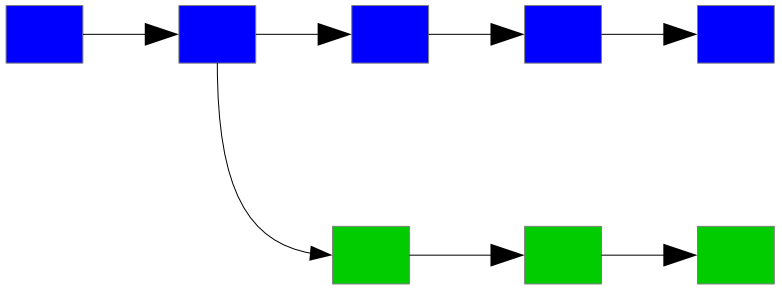


## History-Preserving Rebased Merge

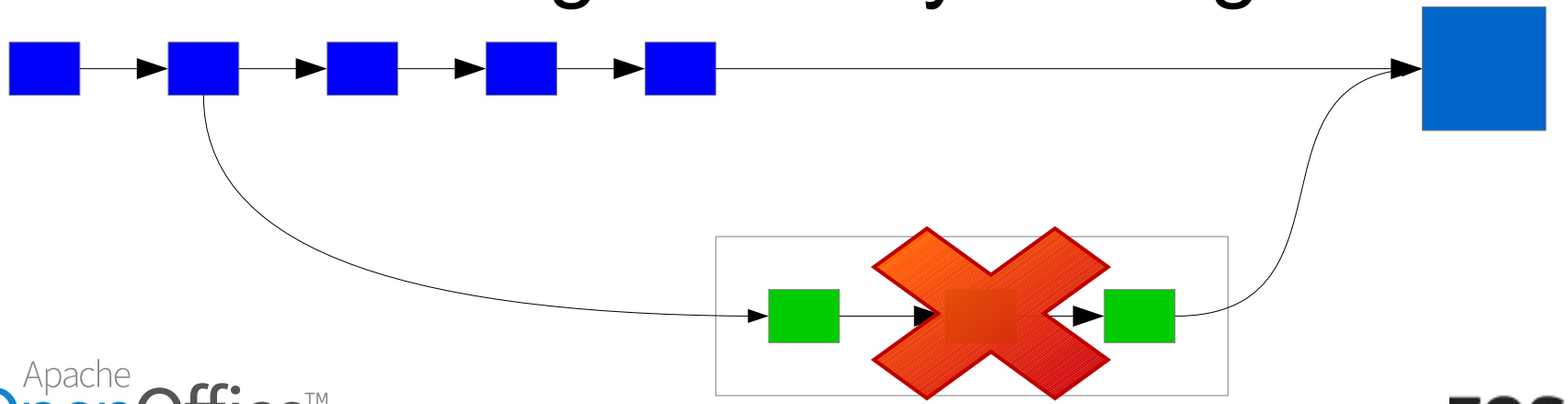


# OOo-Style Merging

## Branch before merge



## Branch-Crushing OOo-Style Merge



# What was lost?

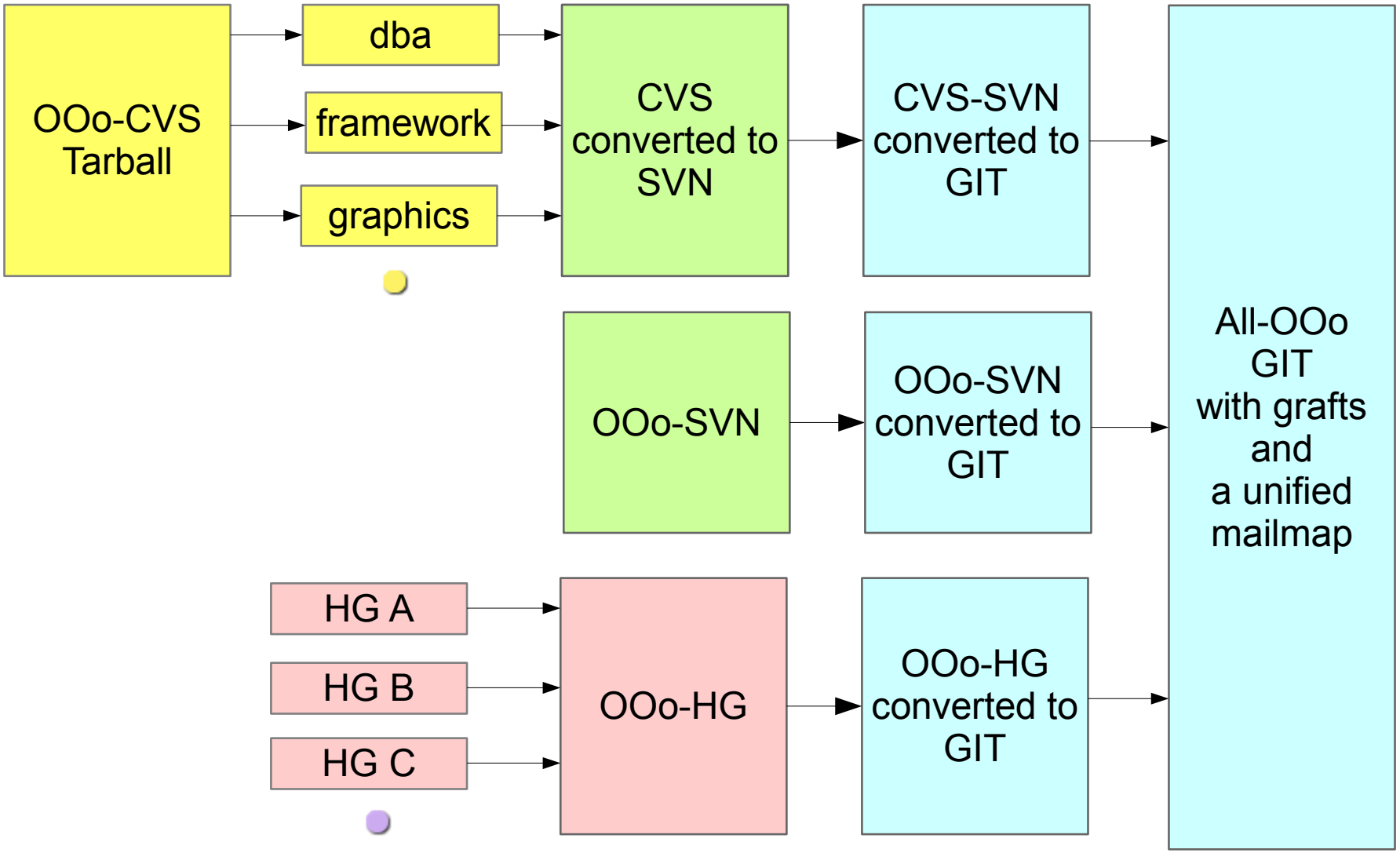
Commits from branches were squashed:

- most commit messages were lost
- file-level change relationships was lost
- commit message ↔ changeset was lost
- authorship was lost / re-attributed

# Chances to get the history back

- The CVS sub-repositories once were available as one rsync'able tarball
- the OOo SVN repository was available via svnsync
- the HG repositories were available unless they were integrated

# Making them Usable

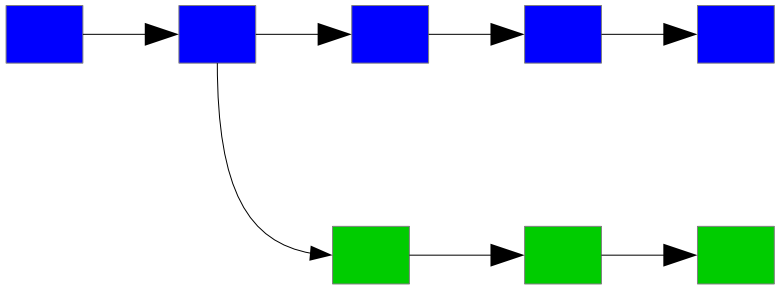


# Problems of the CVS-History

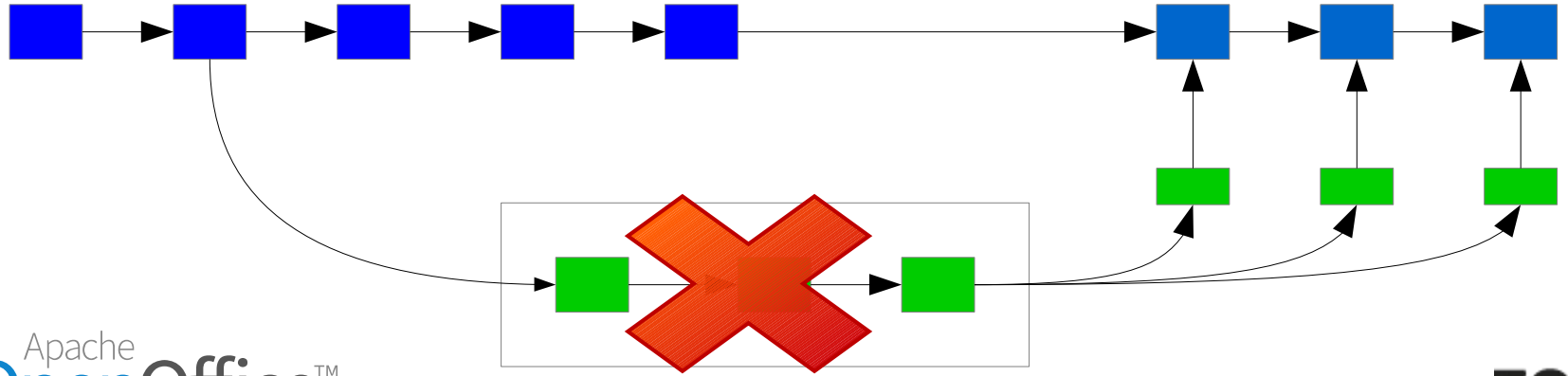
- squashed branch-accumulated commits
- codebase only partially tagged
  - ➔ branches have many missing files
  - ➔ the conversion has to introduce “glue” commits
- many partial merges (for each file)
  - no proper merge commits

# History Losing Partial Merges

## Branch before merge



## History-Crushing File-Based Merge



# Problems of the CVS-History

- “resyncs” messed up branch histories
- originated from multiple CVS-Repos

  e.g. framework, graphics, gsl, ...
- some branch names were deleted

  ➔ there are “unnamed branches”

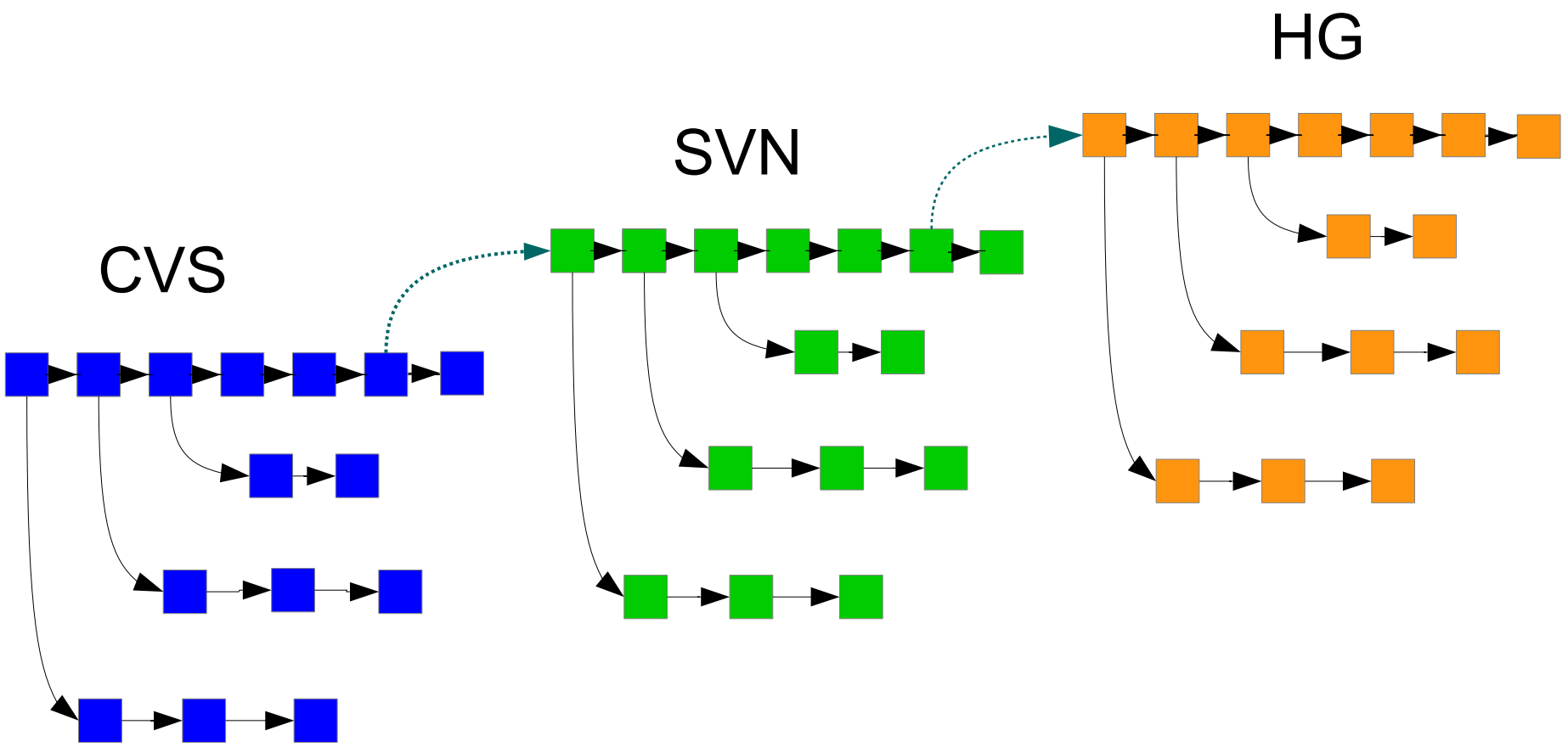
# Problems of the SVN-History

- squashed accumulation of commits
- no proper merge commits
- “resyncs” messed up branch histories
- Most SVN branches are not yet connected to their CVS counterparts

# Minor Problems of the HG-History

- many wrong author names
  - ➔ can be solved with mail-mapping
- HG-Commit-Hashes were lost
  - ➔ can be solved by a re-import

# The Repository Histories



# The HistOOory in GIT

- all former repositories were converted to GIT
- they have been merged into one archive

  (at http://people.apache.org/~hdu/HistOOory.zip)

  - all the code history is compressed into 2GB
  - it contains all branches, commits and files
  - except binary artifacts like GIFs, Templates, Fonts

# What can be done with it?

- All former repositories are preserved
- All non-empty branches are preserved
- All commits can be researched individually
- Historical sources can be recreated
- Bad merging means “blame” doesn't work

# Questions?