

# Система контроля версий (СКВ)

и разработка программного обеспечения в команде

Version Control Systems (VCS)

- Задачи системы контроля версий
- История развития СКВ
- Принцип работы Git
- «Под капотом» Git
- Организация работы в команде
- GitHub
- Развитие СКВ, система Darcs
- Спасибо за внимание



git



mercurial



CVS



darcs



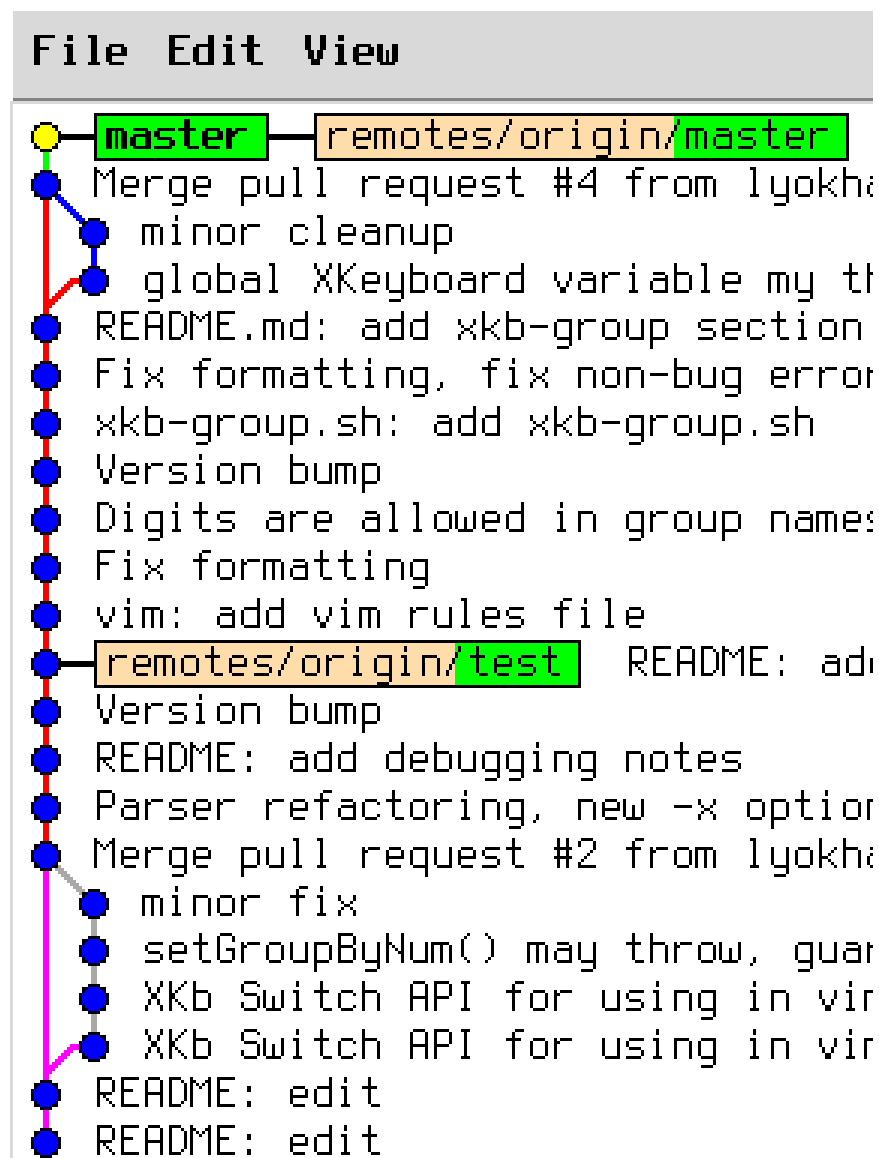
# Задачи системы контроля версий

- Параллельная разработка проекта несколькими разработчиками (создание / слияние веток)
- Одновременная разработка нескольких вариантов программы
- Поиск ошибок
  
- Обзор истории развития проекта
- Средство сбора статистики о ходе разработки
- Средство обмена информацией

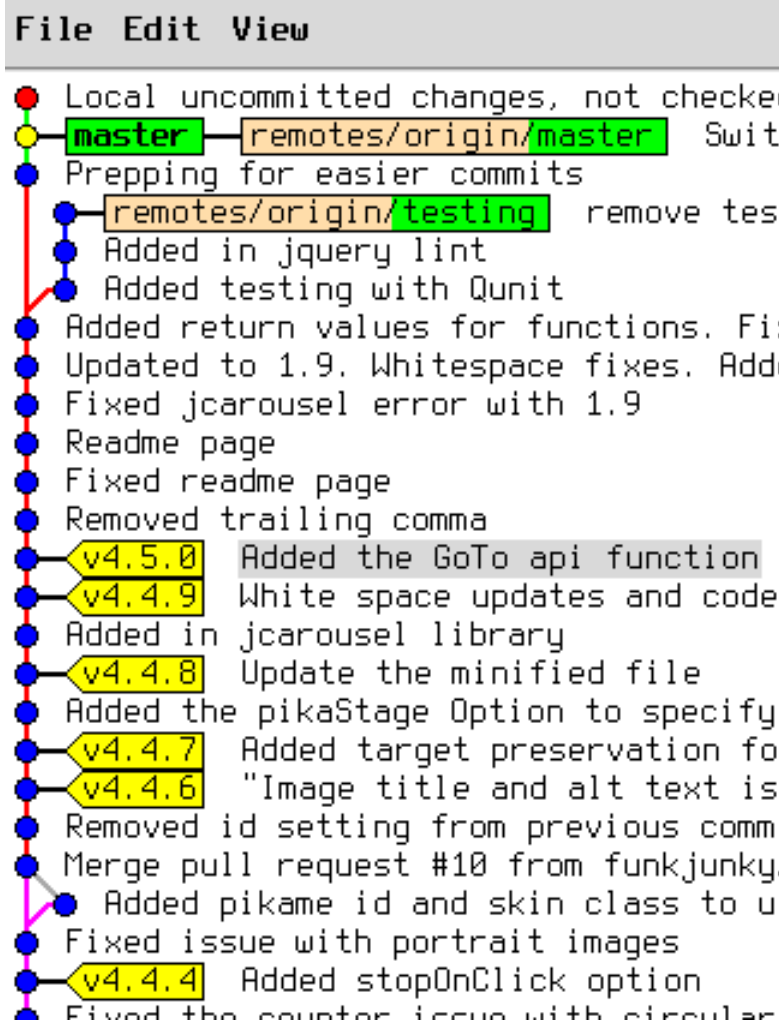
# Задачи системы контроля версий

- Параллельная разработка проекта несколькими разработчиками
- Разделение веток разработки
- Слияние веток разработки

Время ↑



# Задачи системы контроля версий

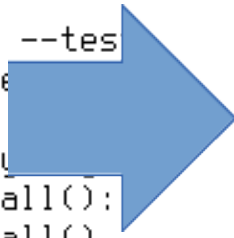


- Одновременная разработка нескольких вариантов программы
- Ветка master (активна)
- Ветка testing
- Тэги
- Незарегистрированные изменения

# Задачи системы контроля версий

## Поиск ошибок в ходе разработки

```
File Edit View
● master — remotes/origin/master Version 1.3
● Merge pull request #4 from lyokha/master
  ● minor cleanup
  ● global XKeyboard variable my throw
  ● README.md: add xkb-group section
  ● Fix formatting, fix non-bug error message
  ● xkb-group.sh: add xkb-group.sh
  ● Version bump
  ● Digits are allowed in group names
  ● Fix formatting
  ● vim: add vim rules file
  ● remotes/origin/test README: add VIM section
  ● Version bump
  ● README: add debugging notes
  ● Parser refactoring, new -x option, new --tes
  ● Merge pull request #2 from lyokha/maste
    ● minor fix
    ● setGroupByNum() may throw, guarded by
    ● XKb Switch API for using in vim libcall():
    ● XKb Switch API for using in vim libcall()
  ● README: edit
  ● README: edit
```



```
Find next prev commit containing: fix
Search
● Diff ● Old version ● New version Lines of
Author: Алексей Радьков <lyokha@localhost>
Committer: Алексей Радьков <lyokha@localh
Parent: cfbf2287e421973d7e68ad5d74ad34a95
Child: 625c5c3fd3c7c9d7f46fdb94c14060a8
Branches: master, remotes/origin/master,
Follows:
Precedes:

minor fix
----- XKbSwitch
index 0f872f1..ff42b0d 100644
@@ -57,8 +57,9 @@ extern "C"
    }
    catch( ... )
    {
-         return NULL;
+
+         return NULL;
    }
}
```

# Задачи системы контроля версий

## Поиск ошибок в ходе разработки

```
-StringVector XKeyboard::getSymNames()
+std::string XKeyboard::get_kb_string()
{
    XkbGetControls(_display, XkbAllControlsMask, _kbdDescPtr);
    XkbGetNames(_display, XkbSymbolsNameMask, _kbdDescPtr);
@@ -77,85 +75,150 @@ StringVector XKeyboard::getSymNames()
    Atom symNameAtom = _kbdDescPtr->names->symbols;
    CHECK(symNameAtom != None);

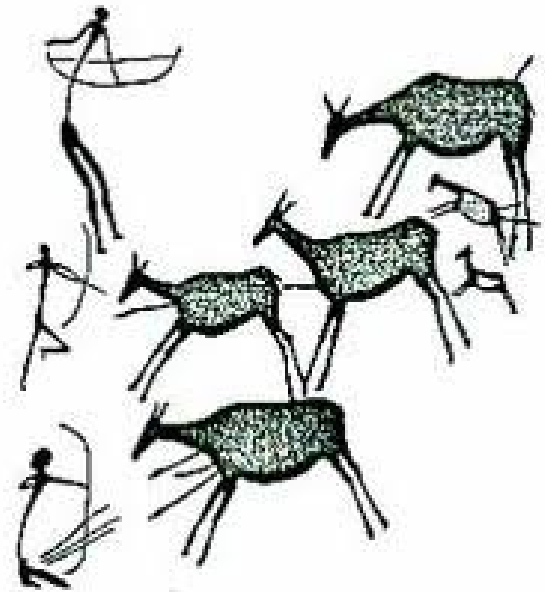
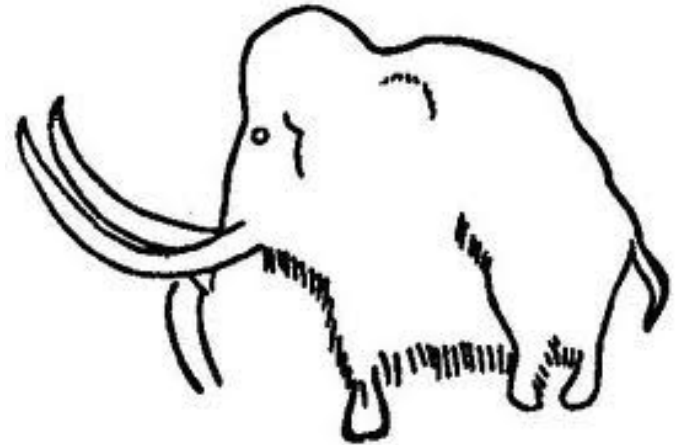
-    char* symNameC = XGetAtomName(_display, symNameAtom);
-    std::string symName(symNameC);
-    XFree(symNameC);
+    char* kbsC = XGetAtomName(_display, symNameAtom);
+    std::string kbs(kbsC);
+    XFree(kbsC);

-    CHECK(!symName.empty());
+    CHECK(!kbs.empty());
+    return kbs;

-    StringVector symNames;
-    XkbSymbolParser symParser;
-    symParser.parse(symName, symNames);
-    return symNames;
+/*      StringVector symNames; */
+/*      XkbSymbolParser symParser; */
```

# История развития СКВ

- (1972) SCCS (Bell Labs)
- (1981) RCS
- (1985) PVCS
- (1990) CVS
- (1991) SourceSafe
- (2000) Subversion
- (2000) BitKeeper
- (2002) Darcs
- (2002) DVCS
- (2005) Git
- (2005) Mercurial
- (2005) Microsoft TFS



# Принцип работы Git

<http://git-scm.com/>

 **git** --distributed-even-if-your-workflow-isnt

Search entire site...

Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is **easy to learn** and has a **tiny footprint with lightning fast performance**. It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like **cheap local branching**, convenient **staging areas**, and **multiple workflows**.



Learn Git in your browser for free with **Try Git**.

## Companies & Projects Using Git

Google

facebook

Microsoft

twitter

LinkedIn

NETFLIX

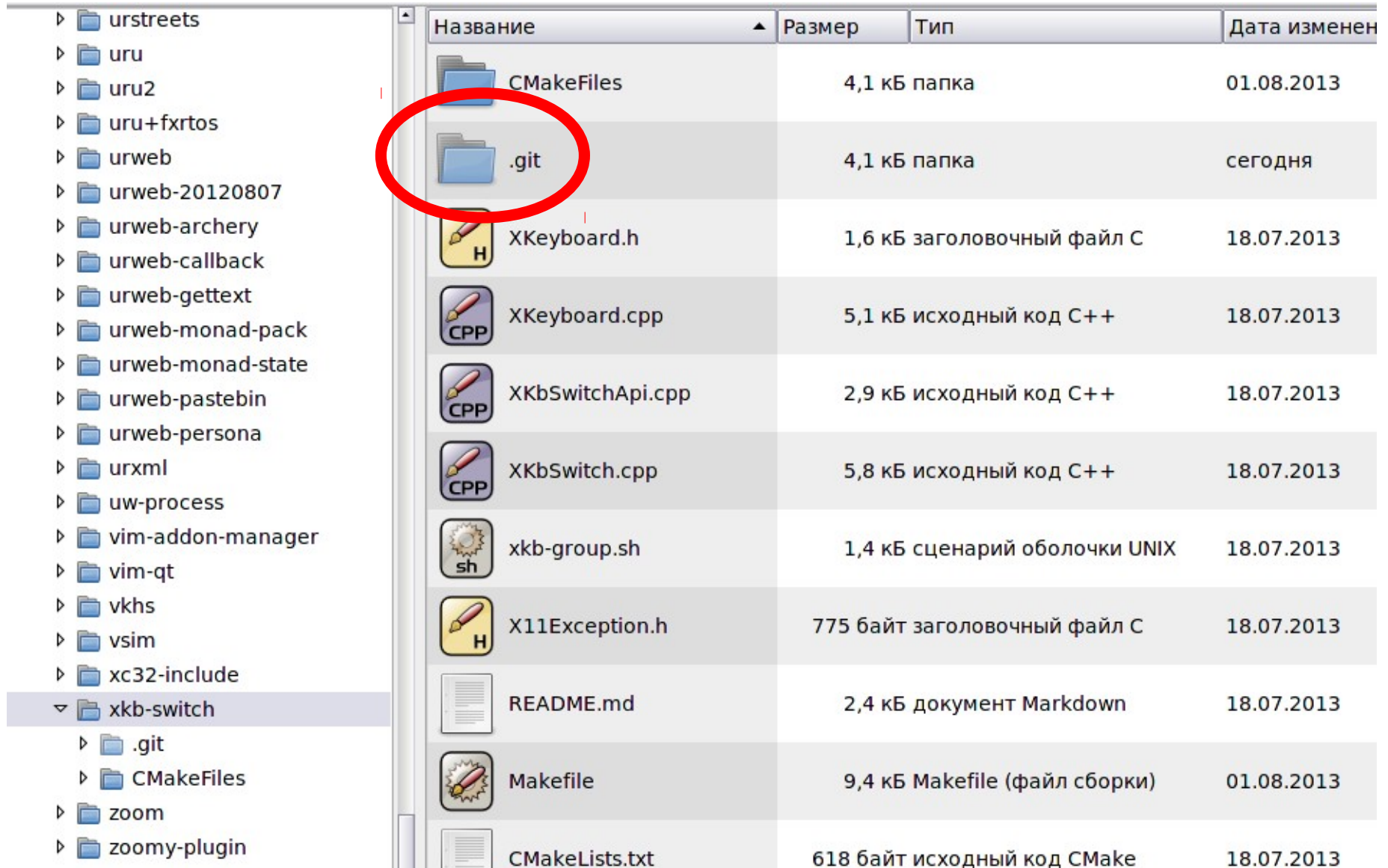


PostgreSQL



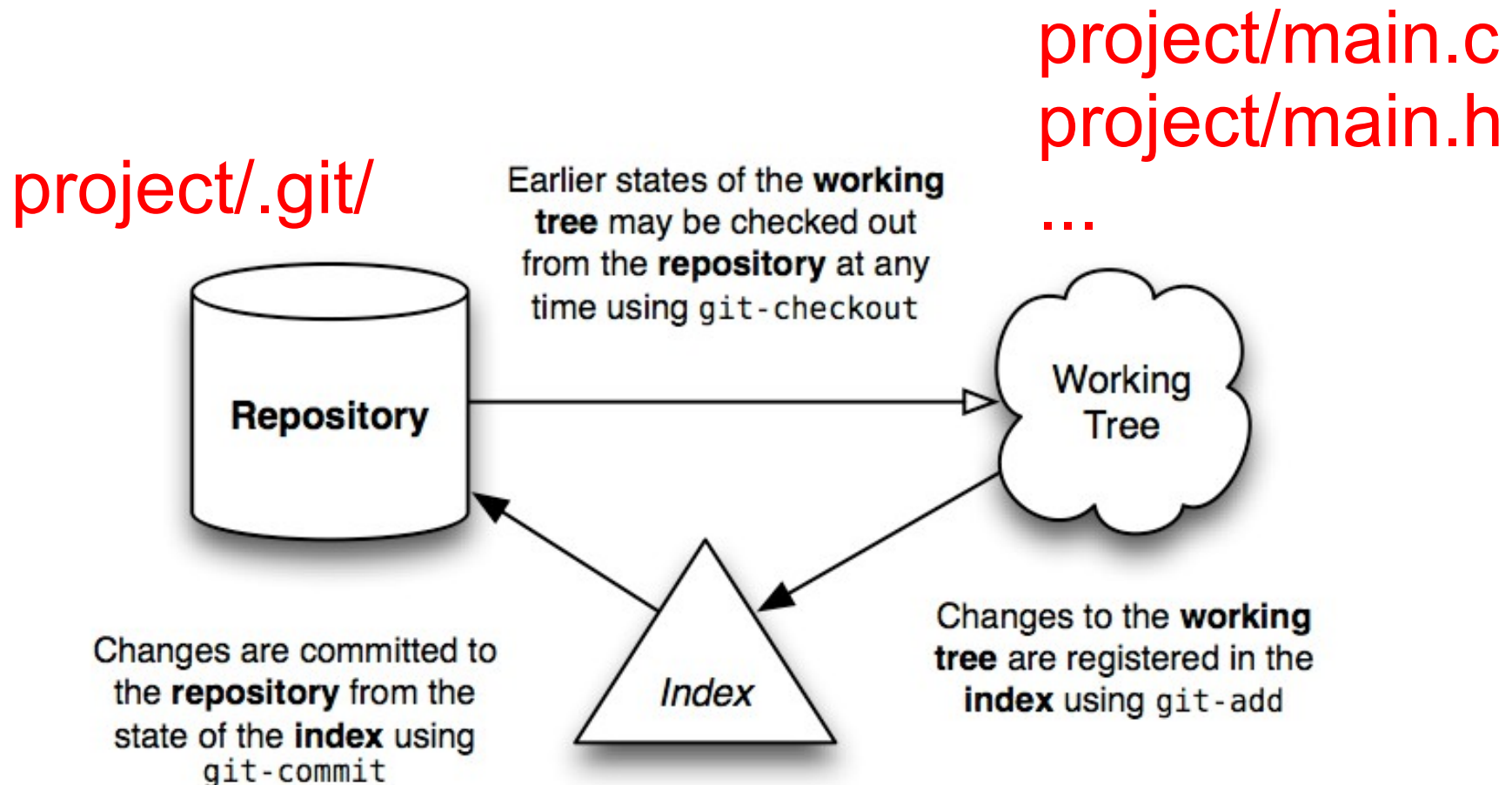


# Принцип работы Git



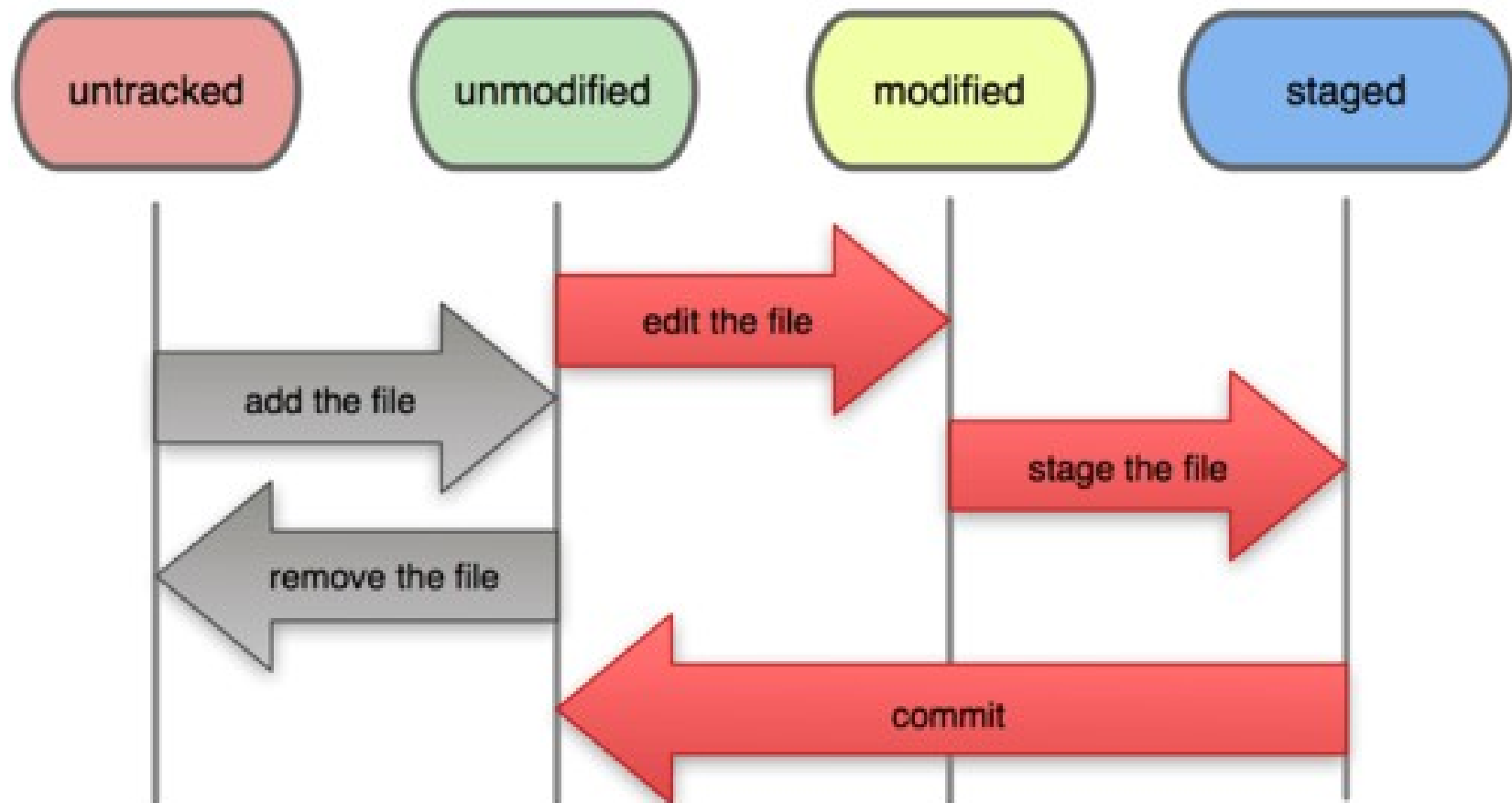
| Название         | Размер                        | Тип | Дата изменен |
|------------------|-------------------------------|-----|--------------|
| CMakeFiles       | 4,1 кБ папка                  |     | 01.08.2013   |
| <b>.git</b>      | 4,1 кБ папка                  |     | сегодня      |
| XKeyboard.h      | 1,6 кБ заголовочный файл C    |     | 18.07.2013   |
| XKeyboard.cpp    | 5,1 кБ исходный код C++       |     | 18.07.2013   |
| XKbSwitchApi.cpp | 2,9 кБ исходный код C++       |     | 18.07.2013   |
| XKbSwitch.cpp    | 5,8 кБ исходный код C++       |     | 18.07.2013   |
| xkb-group.sh     | 1,4 кБ сценарий оболочки UNIX |     | 18.07.2013   |
| X11Exception.h   | 775 байт заголовочный файл C  |     | 18.07.2013   |
| README.md        | 2,4 кБ документ Markdown      |     | 18.07.2013   |
| Makefile         | 9,4 кБ Makefile (файл сборки) |     | 01.08.2013   |
| CMakeLists.txt   | 618 байт исходный код CMake   |     | 18.07.2013   |

# Принцип работы Git



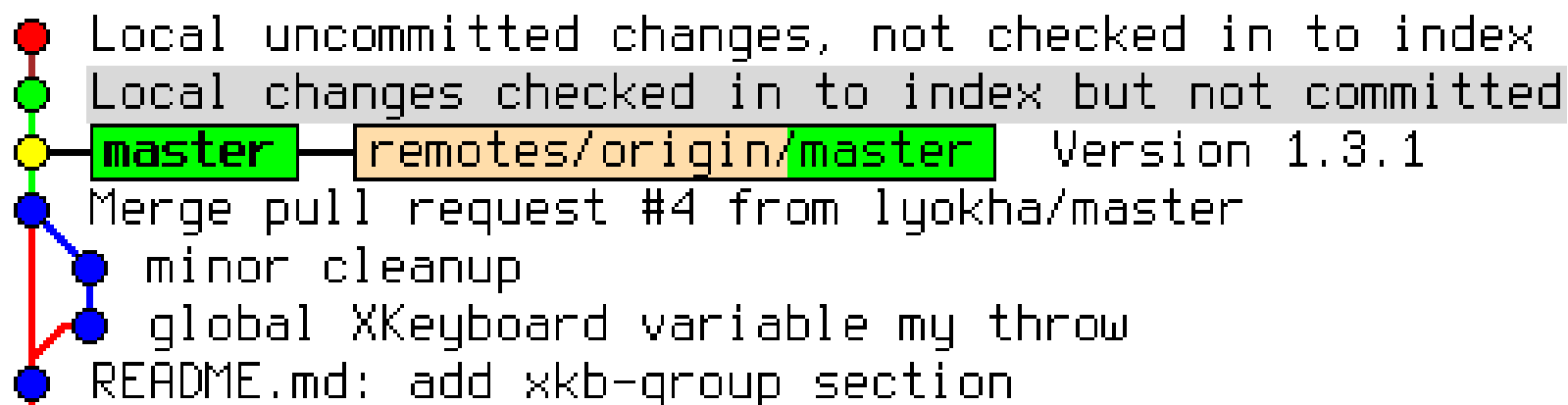
# Принцип работы Git

## File Status Lifecycle



# Принцип работы Git

File Edit View



A Git commit history diagram showing a sequence of commits. The root commit is a blue dot with the text "README.md: add xkb-group section". A red line leads to a blue dot "global XKeyboard variable my throw". A blue line leads to another blue dot "minor cleanup". A blue line leads to a blue dot "Merge pull request #4 from lyokha/master". A yellow dot "master" is connected to an orange box "remotes/origin/master" and a green box "Version 1.3.1". A green line leads to a green dot "Local changes checked in to index but not committed". A red dot "Local uncommitted changes, not checked in to index" is at the top left.

Local uncommitted changes, not checked in to index  
Local changes checked in to index but not committed  
master remotes/origin/master Version 1.3.1  
Merge pull request #4 from lyokha/master  
minor cleanup  
global XKeyboard variable my throw  
README.md: add xkb-group section

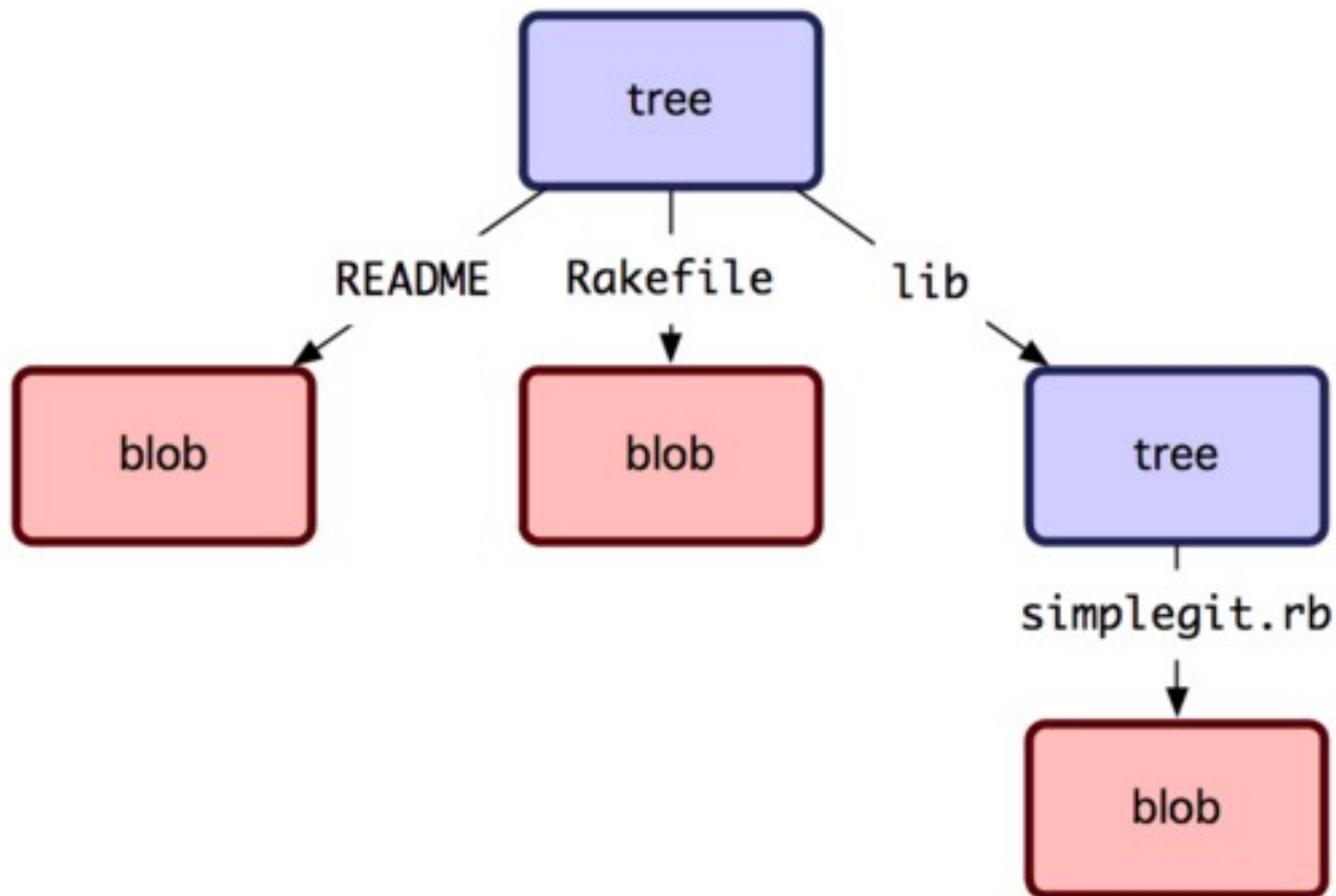
```
----- README.md -----  
index 90184f7..433adf3 100755
```

```
@@ -7,6 +7,7 @@ Originally ruby-based code written
```

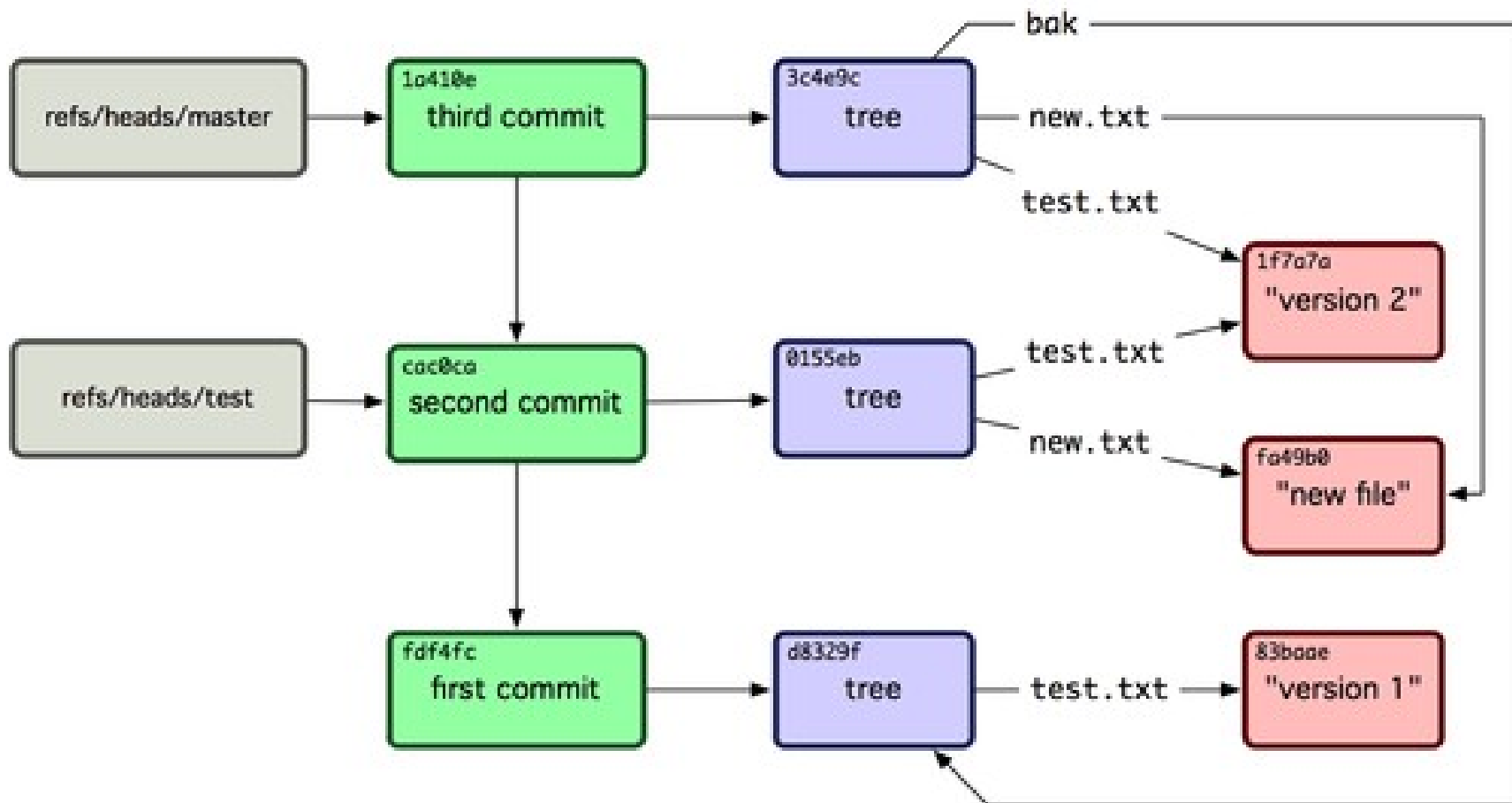
```
* XKeyboard.cpp Implementation for XKB query/set  
* XKbSwitch.cpp Main program  
+* XKbSwitchApi.cpp The Vim API bindings
```

The C++ class has no special dependencies on anyth

# Структуры данных хранилища .git

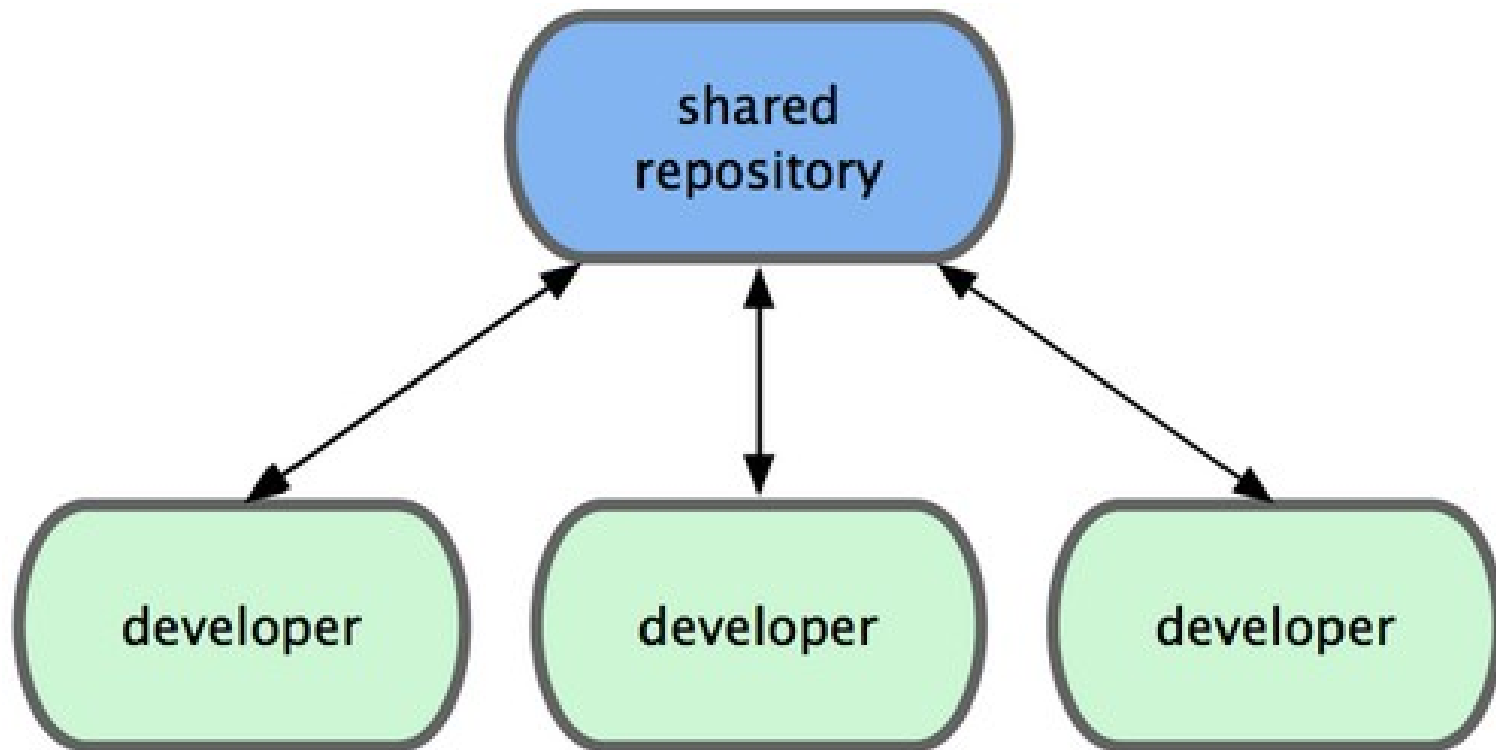


# Структуры данных хранилища .git



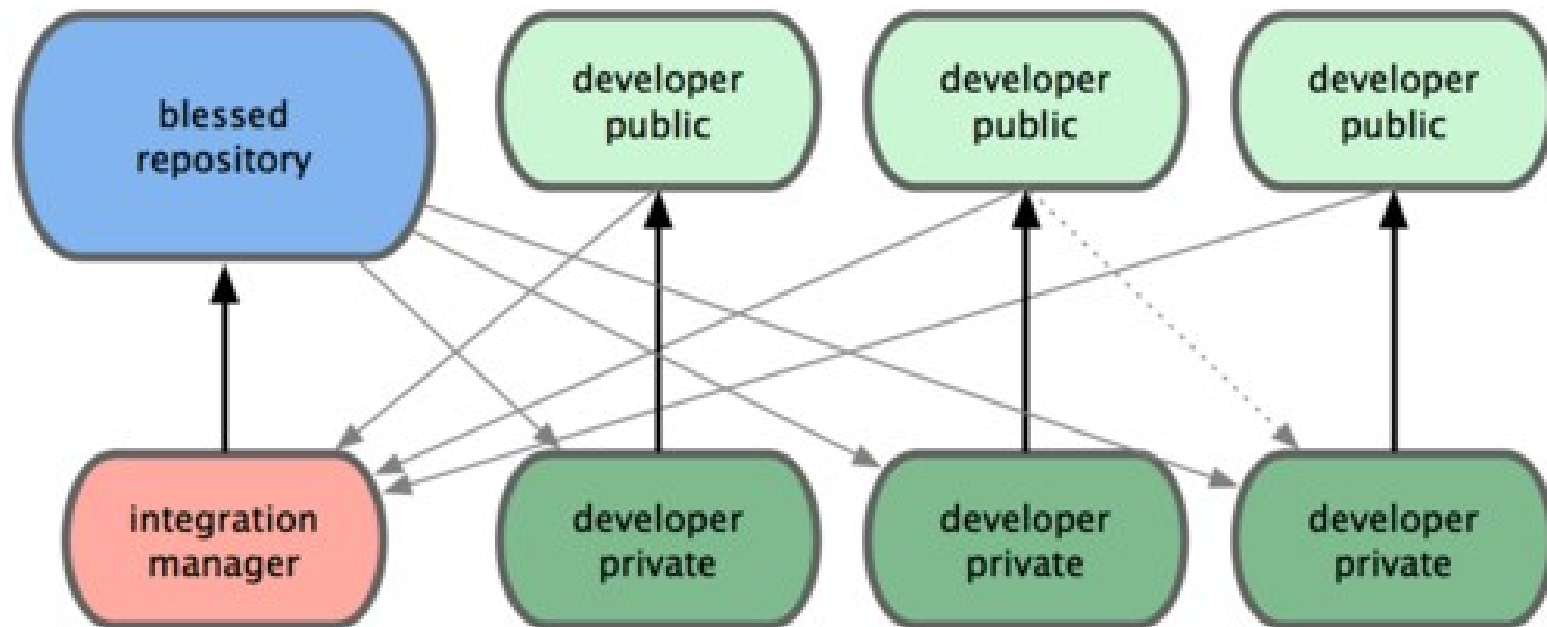
# Организация работы в команде

- Традиционная организация разработки
- Один общий репозиторий



# Организация работы в команде

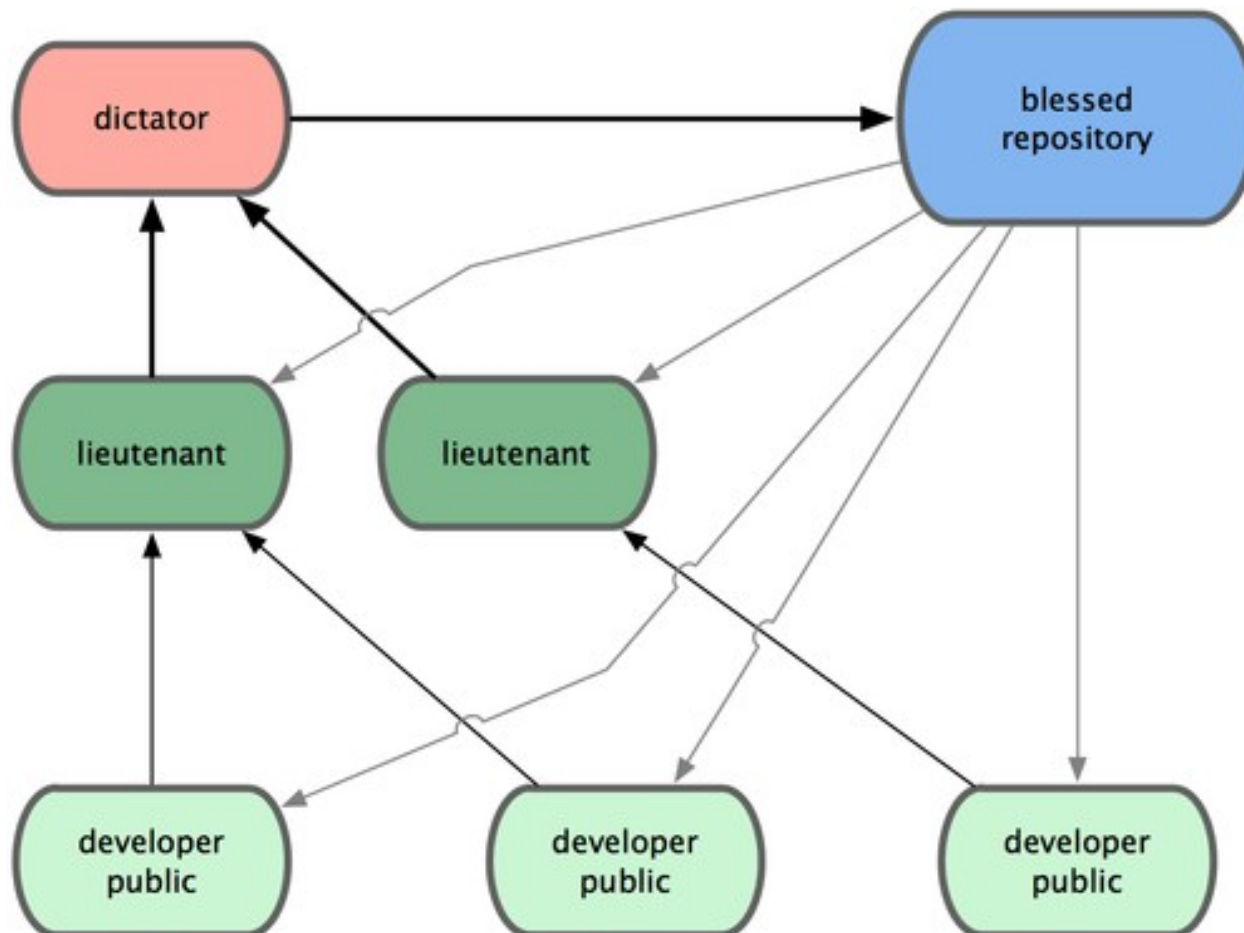
- Должность «ответственный за интеграцию»
- Выделенный «официальный» репозиторий





# Организация работы в команде

- Иерархия ответственных лиц
- Для больших проектов
- Linux kernel



# Организация работы в команде

А



- **master**
- Prepping for easier commits
- Added return values for functions
- Updated to 1.9. Whitespace fixes.
- Fixed jcarousel error with 1.9
- Readme page
- Fixed readme page
- Removed trailing comma
- **v4.5.0** Added the GoTo api func-
- **v4.4.9** White space updates and
- Added to jquery library

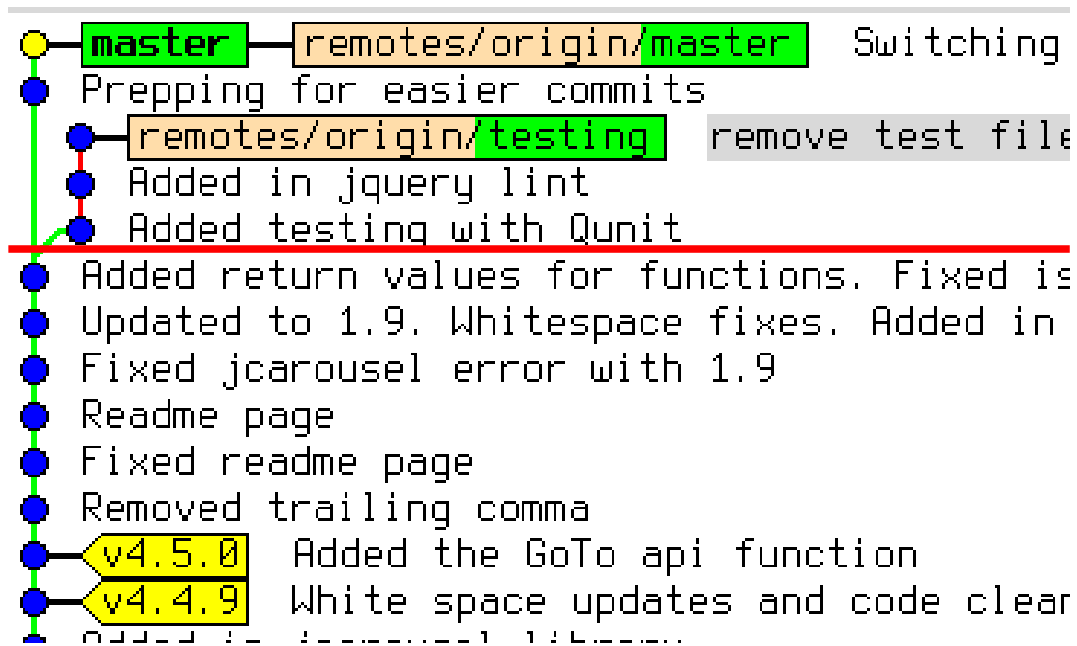
Б



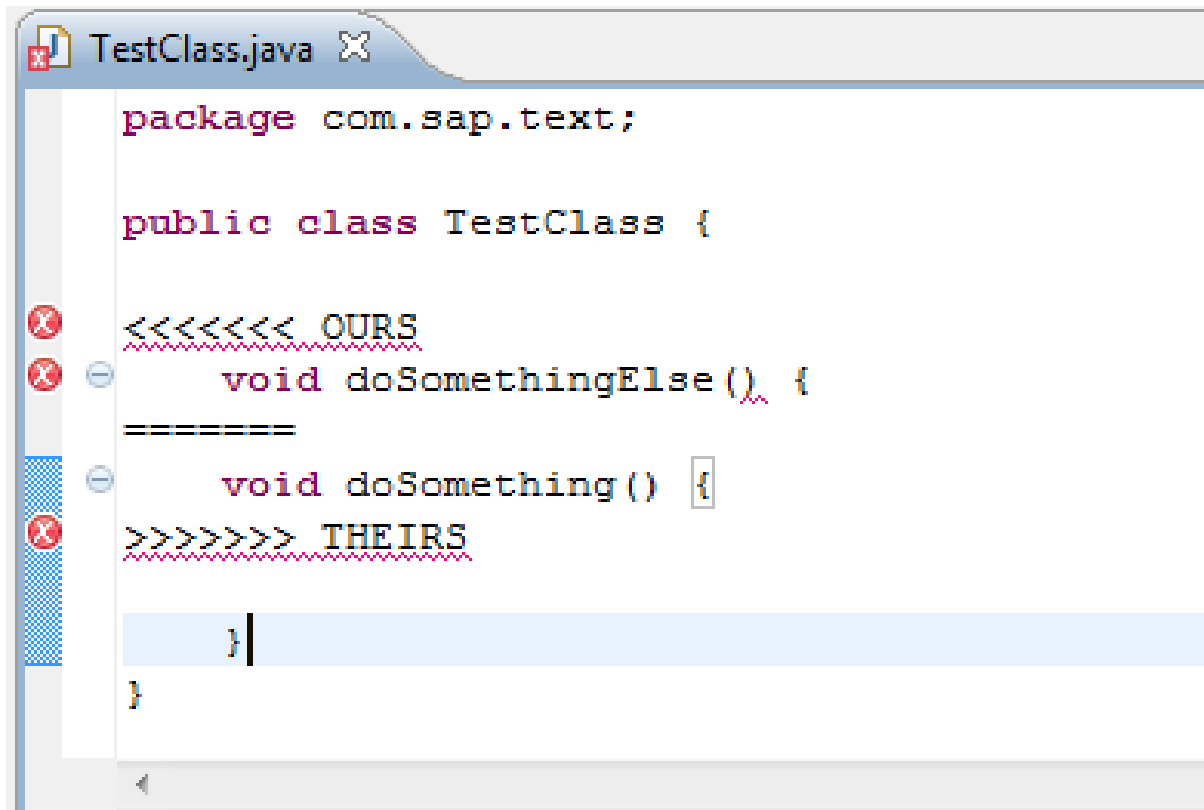
- **remotes/origin/testing** remove test file
- Added in jquery lint
- Added testing with Qunit
- Added return values for functions. Fixed is
- Updated to 1.9. Whitespace fixes. Added in
- Fixed jcarousel error with 1.9
- Readme page
- Fixed readme page
- Removed trailing comma
- **v4.5.0** Added the GoTo api function
- **v4.4.9** White space updates and code clear
- Added to jquery library

# Организация работы в команде

B



# Разрешение конфликтов



```
TestClass.java ✕  
  
package com.sap.text;  
  
public class TestClass {  
  
    <<<<<<<<<< OURS  
    void doSomethingElse () {  
    =====  
    void doSomething () {  
    >>>>>>>>>> THEIRS  
  
    }  
}
```

# GitHub: Социальная сеть для программистов

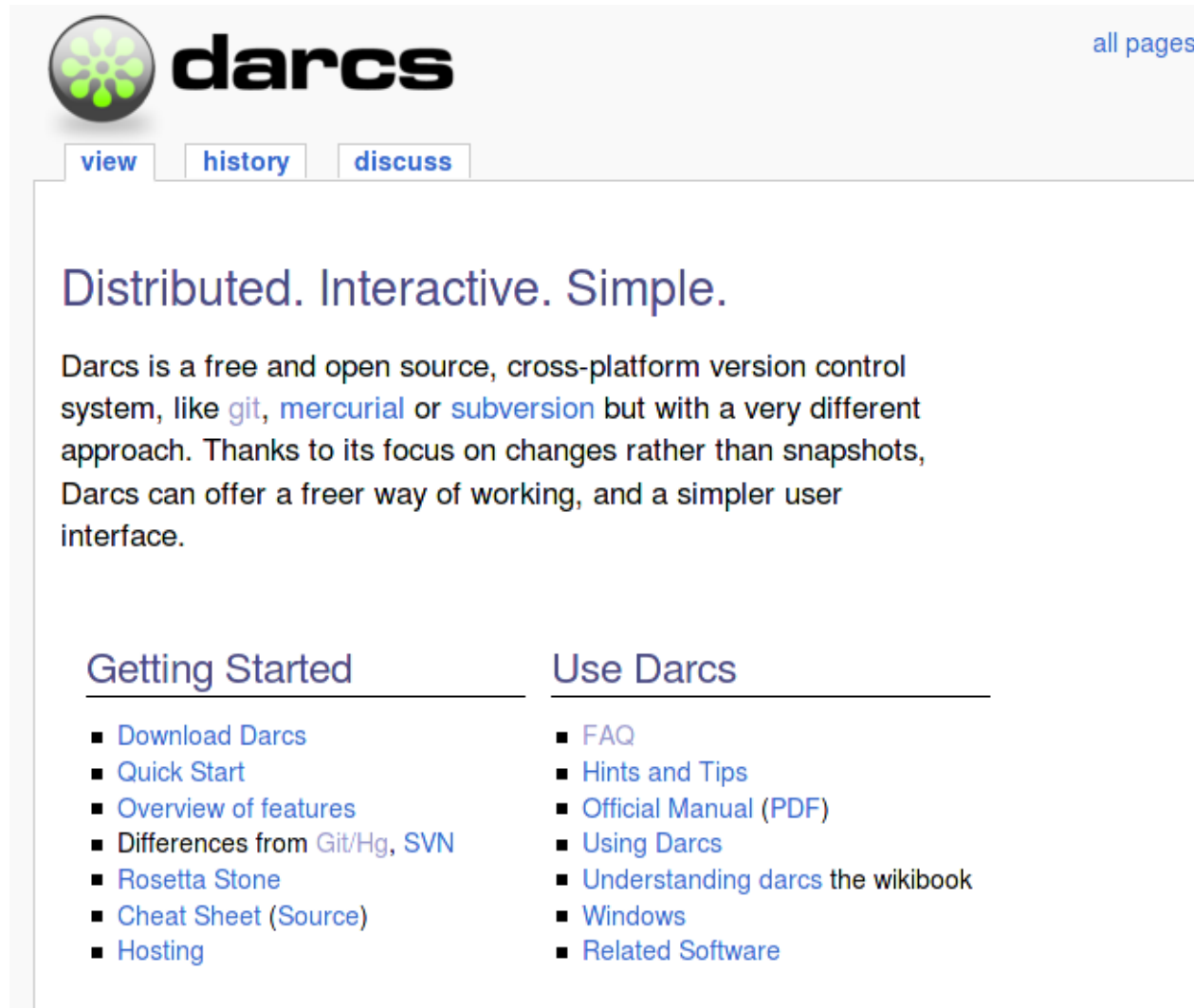
<https://github.com/>

The screenshot shows the GitHub profile of Shea Levy (shlevy). The profile includes a profile picture, name, location (Portsmouth, NH), email (shea@shealevy.com), website (http://blog.shealevy.com), and join date (Nov 18, 2010). It also displays statistics: 11 followers, 35 starred repositories, and 5 following. The 'Popular repositories' section lists 'dotfiles', 'nixos-types', 'gridify', 'nix', and 'AndroidModel'. The 'Repositories contributed to' section lists 'NixOS/nixpkgs', 'NixOS/nix', 'NixOS/hydra', 'NixOS/nixops', and 'NixOS/nixos'. A 'Public contributions' calendar shows activity from March 2013 to February 2014. Below the calendar is a summary of pull requests, issues, and commits, and a 'Contribution Activity' section showing recent commits and pull requests.


- Бесплатное хранилище OpenSource-проектов
- Удобный online-интерфейс для просмотра репозиторий и комментирования кода
- Удобный интерфейс для клонирования репозиторий
- Встроенные Bug-tracker и Wiki

# Развитие СКВ, система Darcs

<http://darcs.net/>



The screenshot shows the Darcs website homepage. At the top left is the Darcs logo, a green circular icon with a stylized flower-like pattern, followed by the word "darcs" in a bold, lowercase, sans-serif font. To the right of the logo is a link "all pages". Below the logo are three buttons: "view", "history", and "discuss". The main content area features the tagline "Distributed. Interactive. Simple." in a large, blue, sans-serif font. Below this is a paragraph of text describing Darcs as a free and open source, cross-platform version control system, comparing it to git, mercurial, and subversion. At the bottom, there are two columns of links under the headings "Getting Started" and "Use Darcs".

 **darcs** [all pages](#)

[view](#) [history](#) [discuss](#)

## Distributed. Interactive. Simple.

Darcs is a free and open source, cross-platform version control system, like [git](#), [mercurial](#) or [subversion](#) but with a very different approach. Thanks to its focus on changes rather than snapshots, Darcs can offer a freer way of working, and a simpler user interface.

### Getting Started

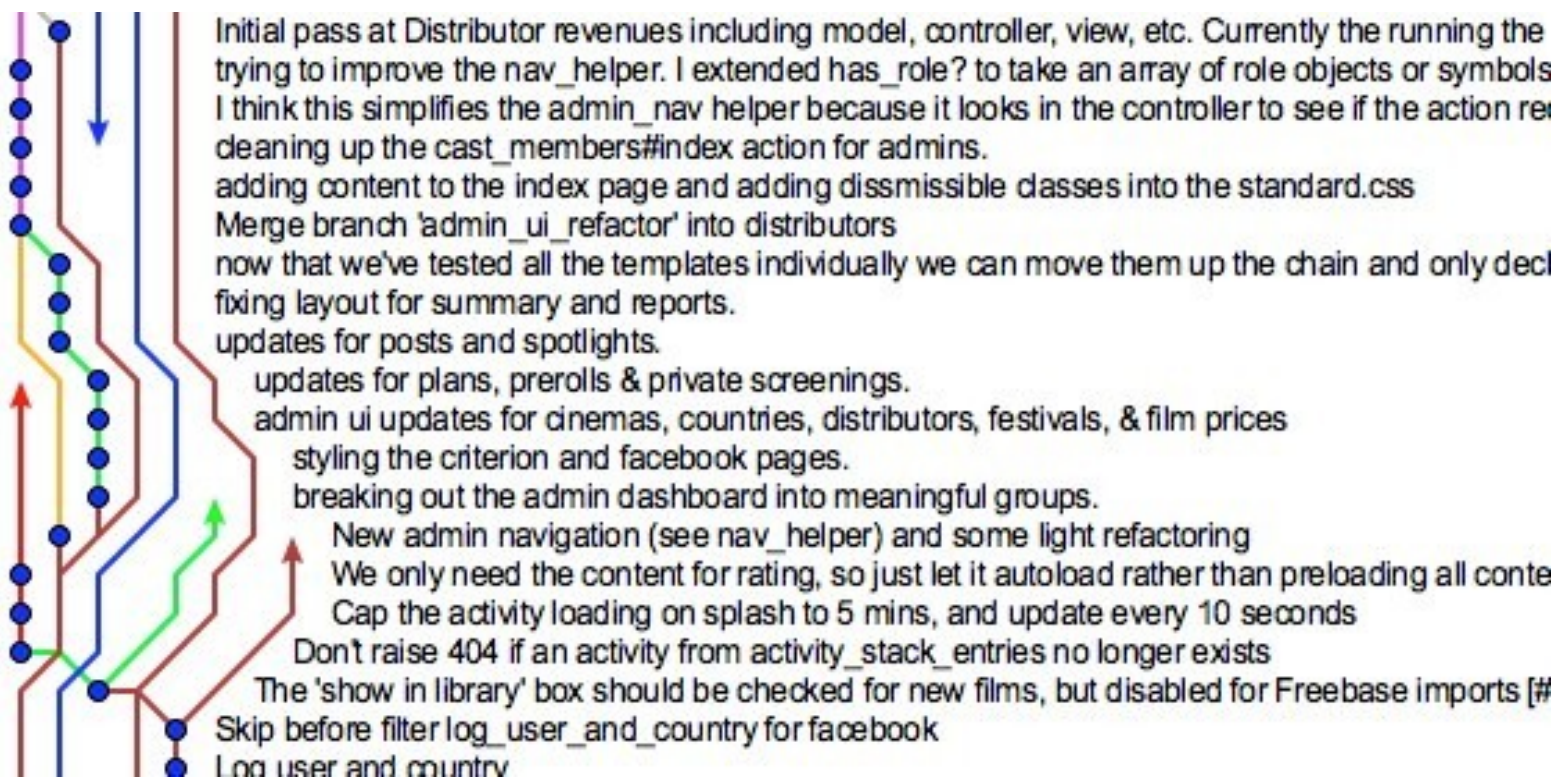
- [Download Darcs](#)
- [Quick Start](#)
- [Overview of features](#)
- [Differences from Git/Hg, SVN](#)
- [Rosetta Stone](#)
- [Cheat Sheet \(Source\)](#)
- [Hosting](#)

### Use Darcs

- [FAQ](#)
- [Hints and Tips](#)
- [Official Manual \(PDF\)](#)
- [Using Darcs](#)
- [Understanding darcs the wikibook](#)
- [Windows](#)
- [Related Software](#)

# Развитие СКВ, система Darcs

## Проблема Git



# Спасибо за внимание

Git

<http://git-scm.com/>

<http://rogerdudler.github.io/git-guide/>

Darcs

<http://darcs.net>

[http://en.wikibooks.org/wiki/Understanding\\_Darcs](http://en.wikibooks.org/wiki/Understanding_Darcs)

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2014