

Git and Github

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Subversion pain

- **Branching/merging is clunky**
- **You cannot work on VCS when**
 - **you are offline**
 - **server is offline**
 - **no commit permission in 3rd party lib**
- **Subdirectory pollution**

Git to the rescue!

- **You can work with VCS**
 - **When offline**
 - **When server(s) are offline**
 - **Without permission on 3rd party lib**
- **Easy branching and merging**
- **Push/pull from several repositories**
- **Git-svn if your repo is stuck in svn**

SVN Branch/Merge

```
svn copy http://repo.org/trunk http://repo.org/branches/rat -m "Branching"  
svn switch http://repo.org/branches/rat
```

//you work on feature rat and want to merge back since it worked. all files are committed in branch rat

```
svn switch http://repo.org/trunk  
svn merge http://repo.org/branches/rat  
svn commit -m "Merge"  
svn remove http://repo.org/branches/rat -m "Remove branch"
```

GIT Branch/Merge

```
git checkout -b rat
```

//you work on feature rat and want to merge back since it worked. all files are committed in branch rat

```
git checkout master
```

```
git merge rat
```

```
git branch -d rat
```

History

- **Linux kernel**
 - **1991 -> 2002**
 - **Patches and archives to mailinglists**
 - **2002 -> 2005**
 - **Proprietary DVCS Bitkeeper**
 - **2005 -> present**
 - **Git**

Design goals

- **Speed**
- **Simple design**
- **Strong support for non-linear development (thousands of parallel branches)**
- **Fully distributed**
- **Able to handle large projects efficiently**

Features

- **Store snapshots not differences**
 - **like a file system**
- **Nearly every operation is local**
- **SHA1 hash integrity**
- **Generally only add data**
- **Repository is small, in bytes**
- **No subdirectory pollution**

Workflow

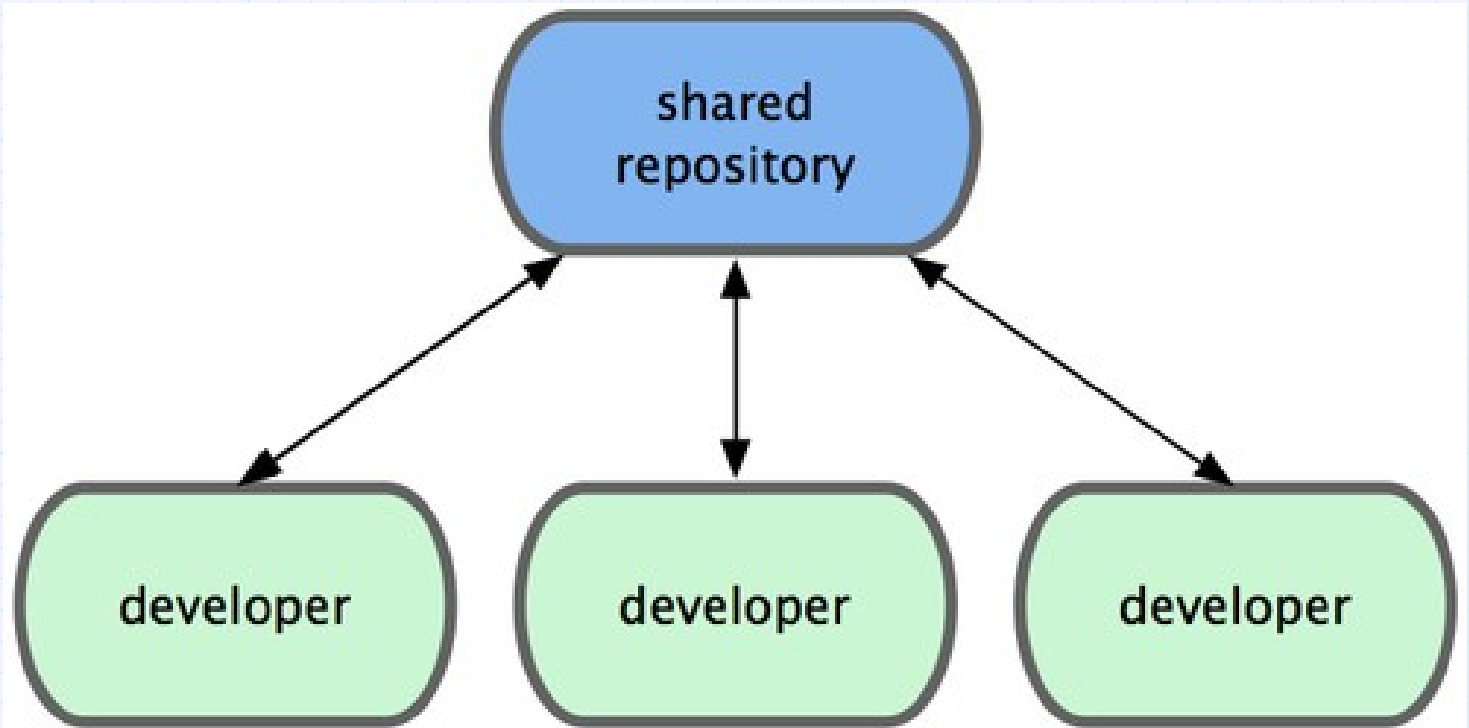
- **small commits often**
- **branch often, merge often**
 - **squash many small commits to big one when merging**
- **use git-status before you commit**
- **always pull before pushing to remote**

GUI tools

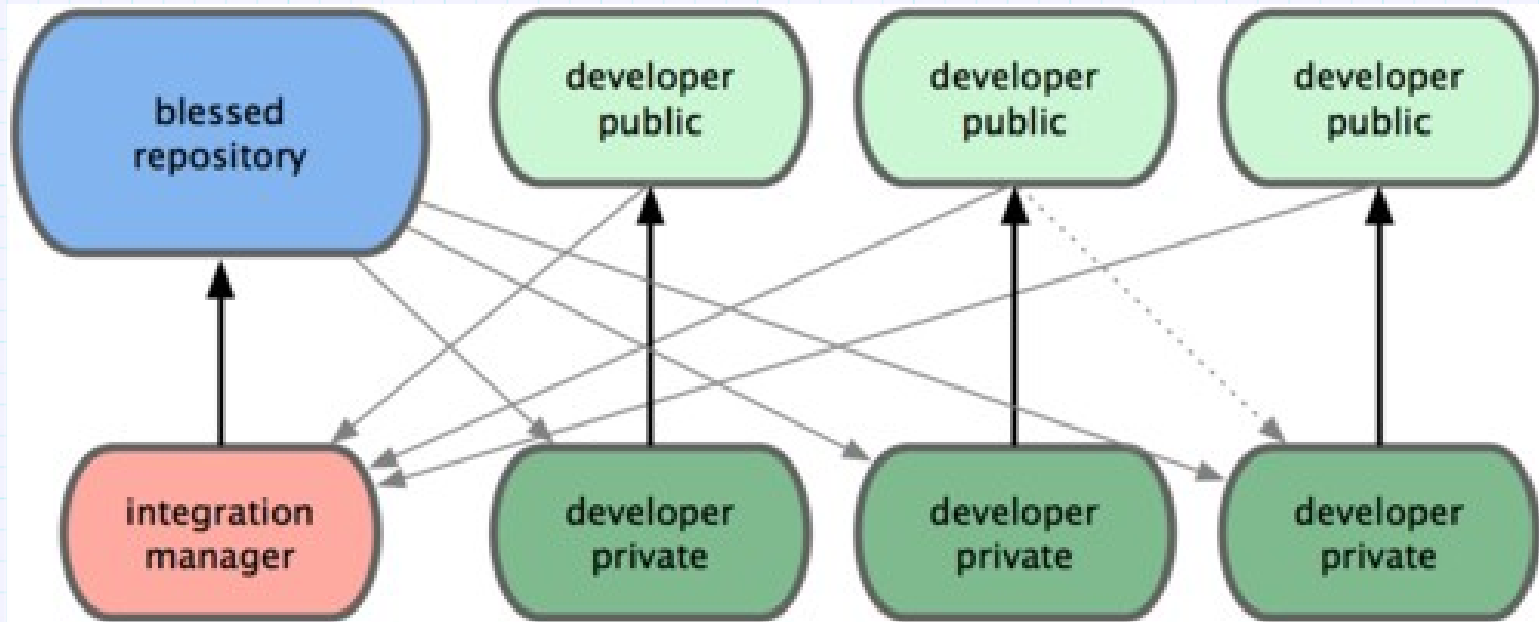
- **git-gui and gitk**
- **IDE support**
 - **bundled git plugin since 8 or git-idea**
 - **nbgit**
 - **EGit**
- **gitx for mac**
- **tig**
- **tortoise git**

Distributed Workflows

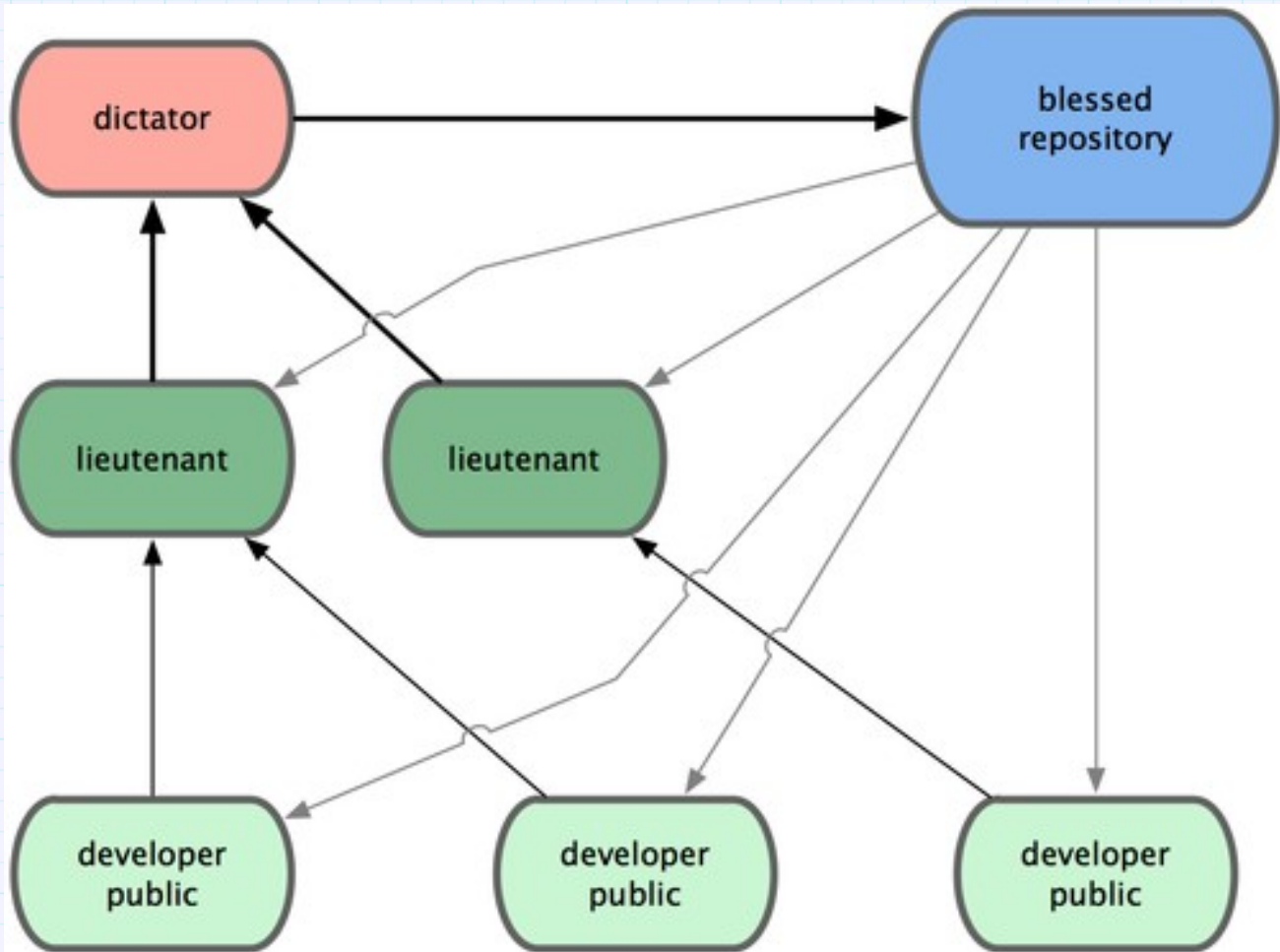
Centralized



Integration-Manager



Dictator and Lieutenants



Github

Introduction

- **Github is a user-centered hosted code-hosting site using git**
- **Free if you only want public repos**
- **Subscription for private stuff**

Features

- **Support for migrating svn repositories**
- **Push authentication via ssh keys**
- **Issue tracking**
- **Wiki**
- **github pages to create homepage for your project (or blog)**
- **integration via lots of webhooks to CI/ twitter/irc ++**

Collaboration

- You can add collaborators to a project
- Forking another github project is very easy
- Pull requests are built in. "I have fixed your bug, pull from me"
- Visualize collaboration history

Questions?

- Slides created with 280slides.com
- Images from <http://progit.org> free online CC book.
- Lots of resources online see
 - <http://github.com/guides/home>
 - <http://www.gitready.com>
 - <http://git-scm.com>
 - or use google-fu