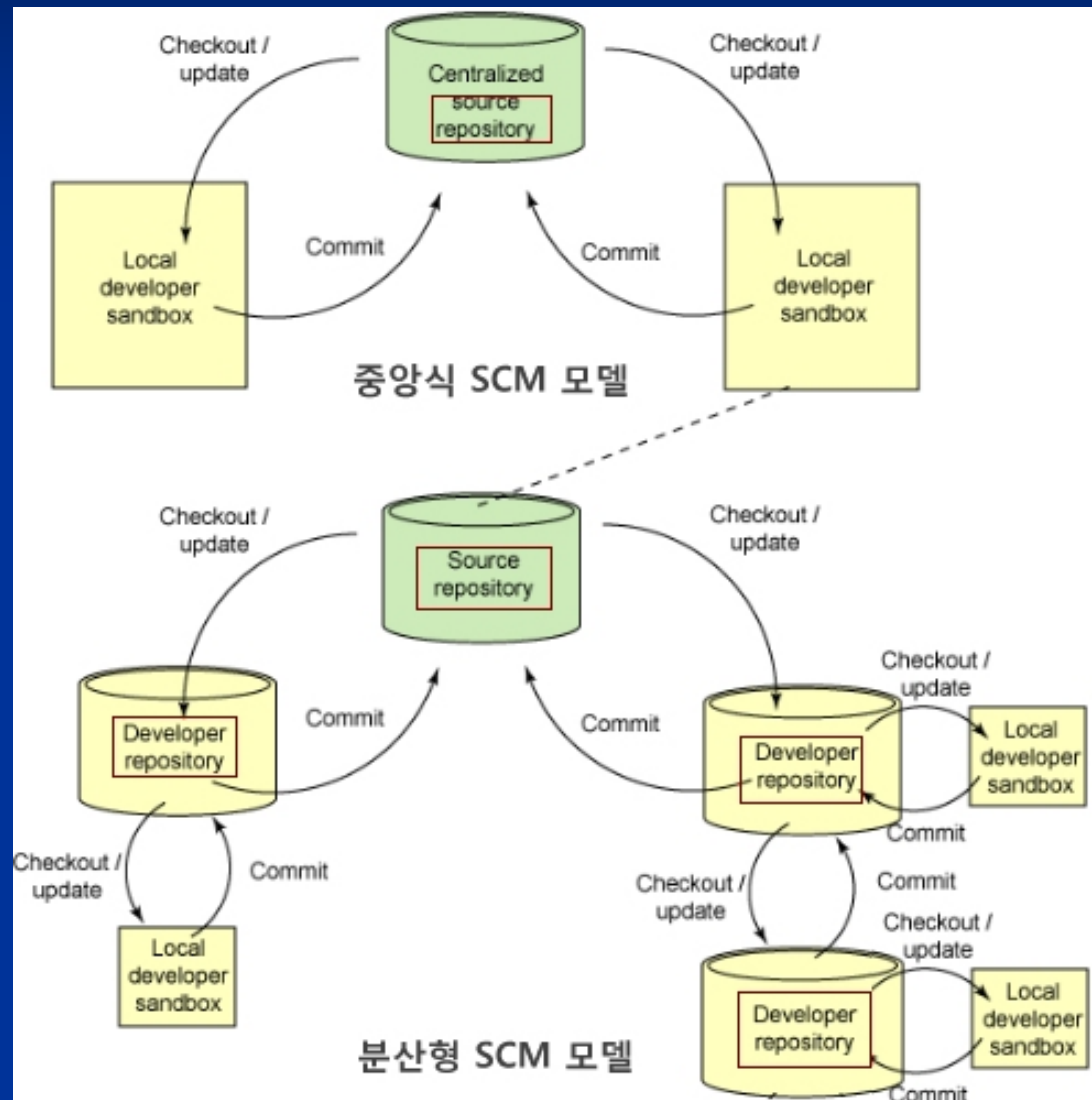




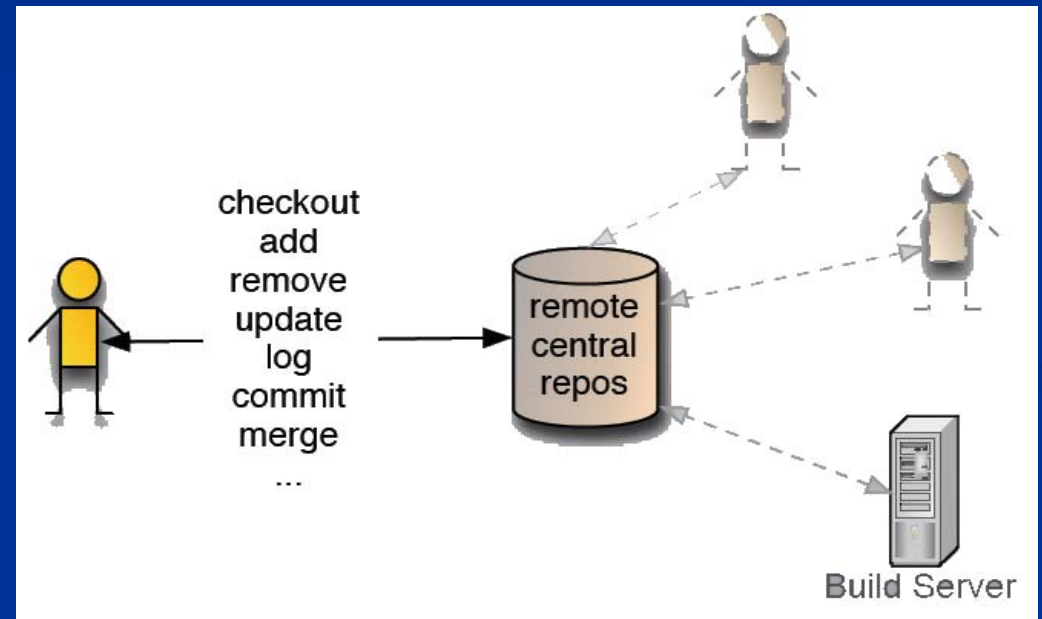
# 4. 분산 소스 컨트롤 및 사용법

# 중앙식 vs. 분산식

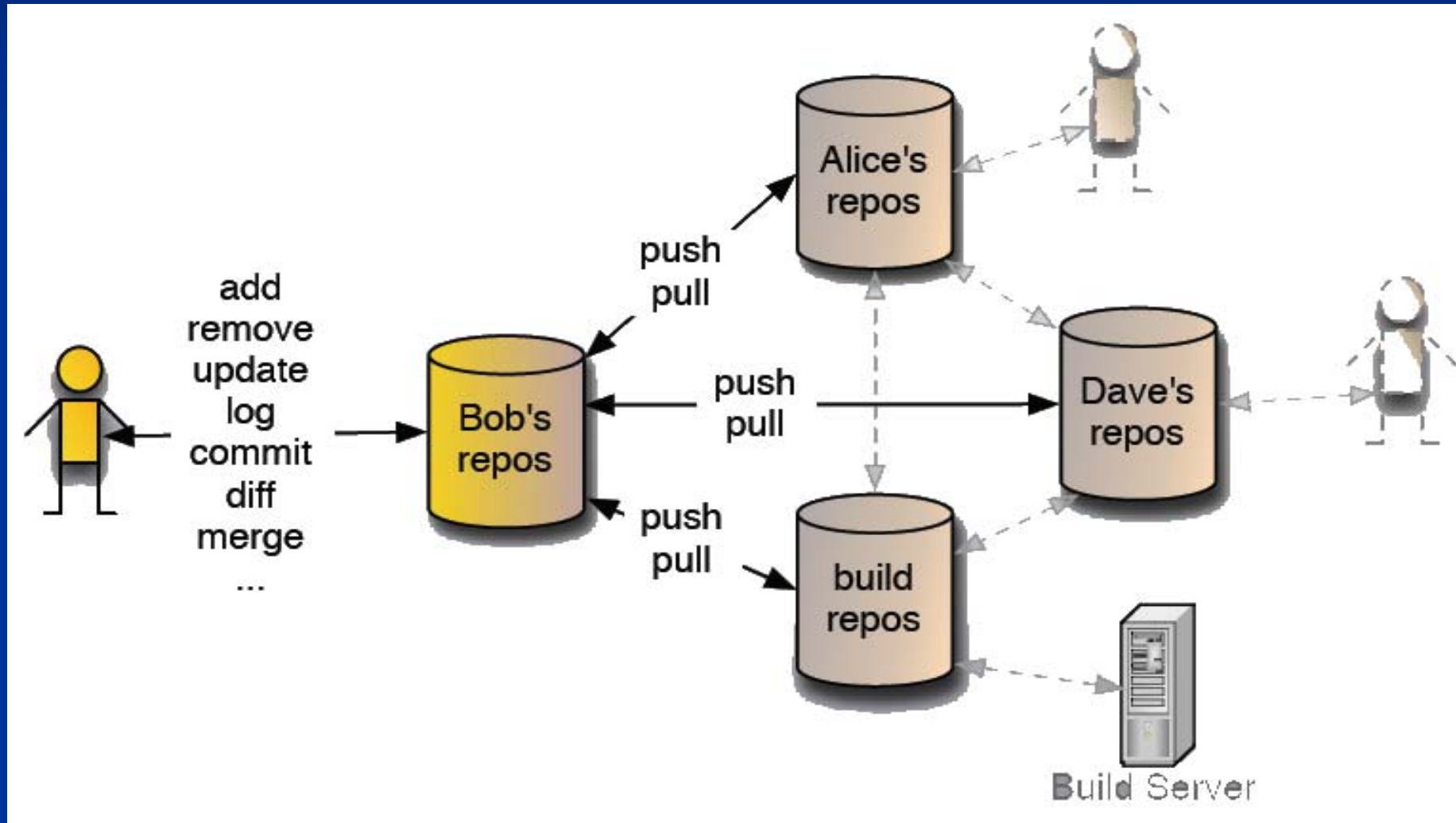


# 중앙식 소스컨트롤

- 하나의 레포지터리에 의존적
- 대규모 시스템인 경우 업데이트가 느림
- 머징 비용이 높음
- 쉬운 개발 및 테스트에 대한 비용이 높음



# 분산형 소스 컨트롤





# 분산형 소스 컨트롤의 장점

- 브랜칭(Branching) 및 머징(Merging) 쉬움
- 대형 프로젝트 경우, 업데이트 시간 절약
- 온라인 상태가 아니라도 개발 가능
- 쉽게 브랜칭 및 테스트 기능 개발 가능
- 일부 사람에게만 개발 내용 공유 가능
- 이름을 바꾸더라도 머징이 쉬움

# 단점

- 대형 프로젝트에 용이하므로 상대적으로 작은 프로젝트의 효용성이 낮음
  - c.f. GitHub등 쉬운 forking을 기반한 Social Development에 용이하게 발전하는 추세임
- 개발자들이 실제 버전 콘트롤 시스템에 대해 잘 알아야함
- Trunk 서버의 위치가 없어 혼란스러움
- 아직 개발 도구의 지원이 적음



# 분산 소스 컨트롤 종류

- Bazaar
- Git and GitHub
- Mercurial and Google Code

# Bazaar



- Python으로 개발
- SubVersion과 유사하나 마이그레이션 속도가 느림
- 사용자수가 많지는 않음
- 주요 사용 프로젝트
  - Ubuntu, Drupal, Python
    - Website: <http://bazaar-vcs.org/>
    - Hosting: <https://launchpad.net/>

# Git



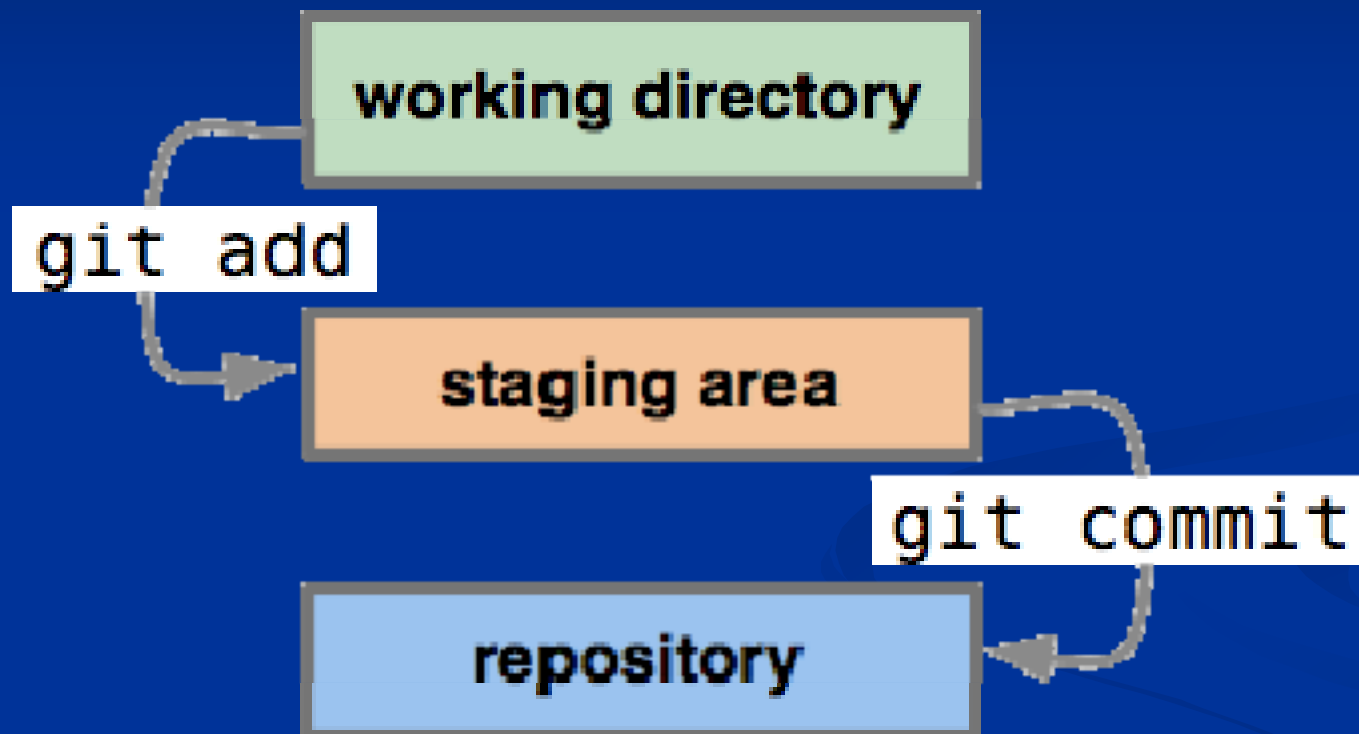
- BitKeeper debacle로 부터 출발 (C로 개발)
- 주요 특징
  - Distributed workflow
  - Strong safeguards against corruption
  - Very high performance
  - 라이너스 토발즈가 직접 개발
  - Linux 커널 개발에 이용
- Website: <http://git.or.cz/>
  - Hosting:
    - <http://github.com>
    - <http://repo.or.cz>

# Git 특징

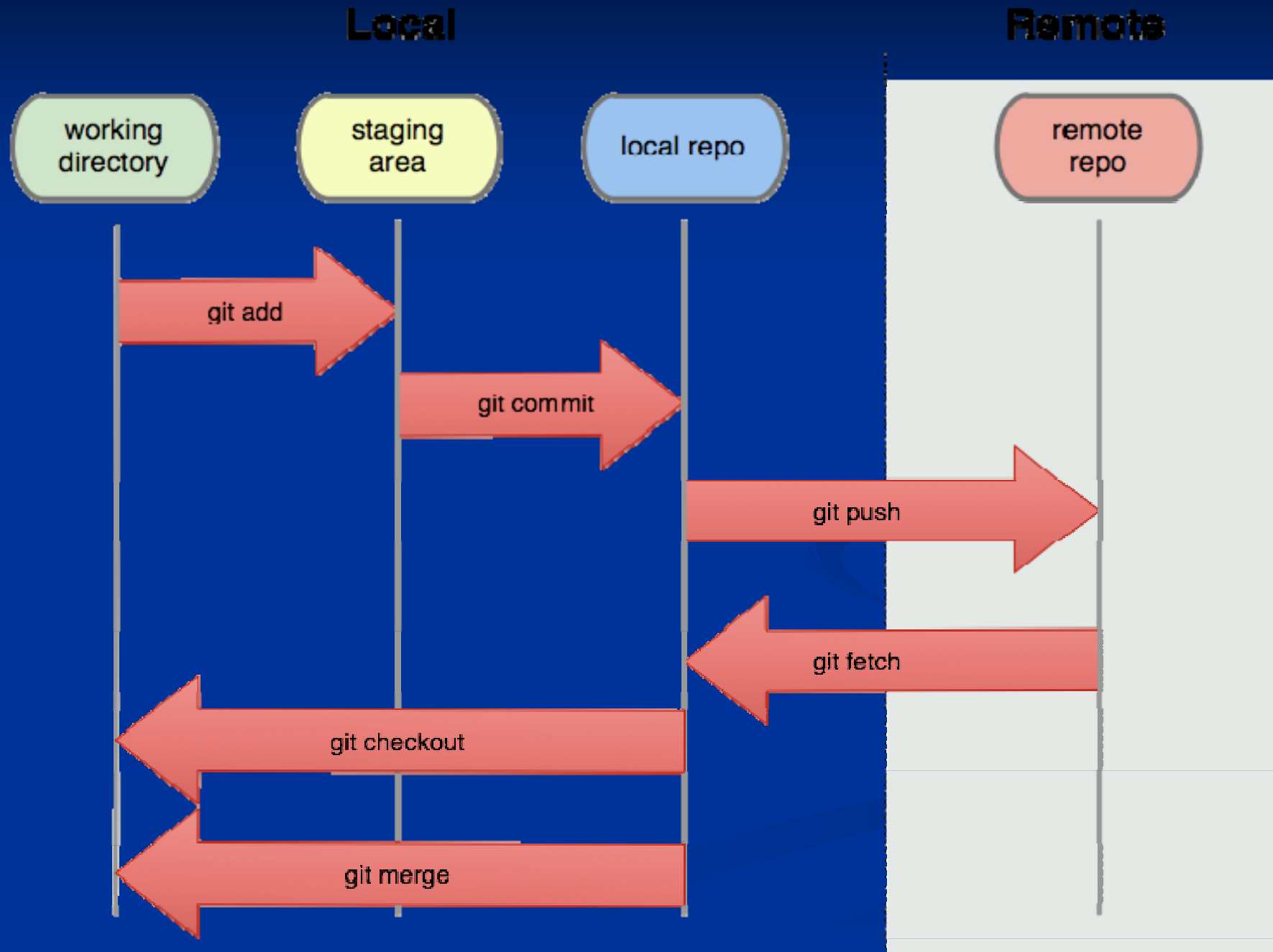
- 가장 빠른 분산형 시스템
- 리눅스/유닉스 시스템 친화적
- 조금 복잡함. 150여개의 커맨드
- 리눅스 커널 및 루비 커뮤니티에서 인기
- 주요 사용 프로젝트



# 사용 방법



# Local vs. Remote



# Branching

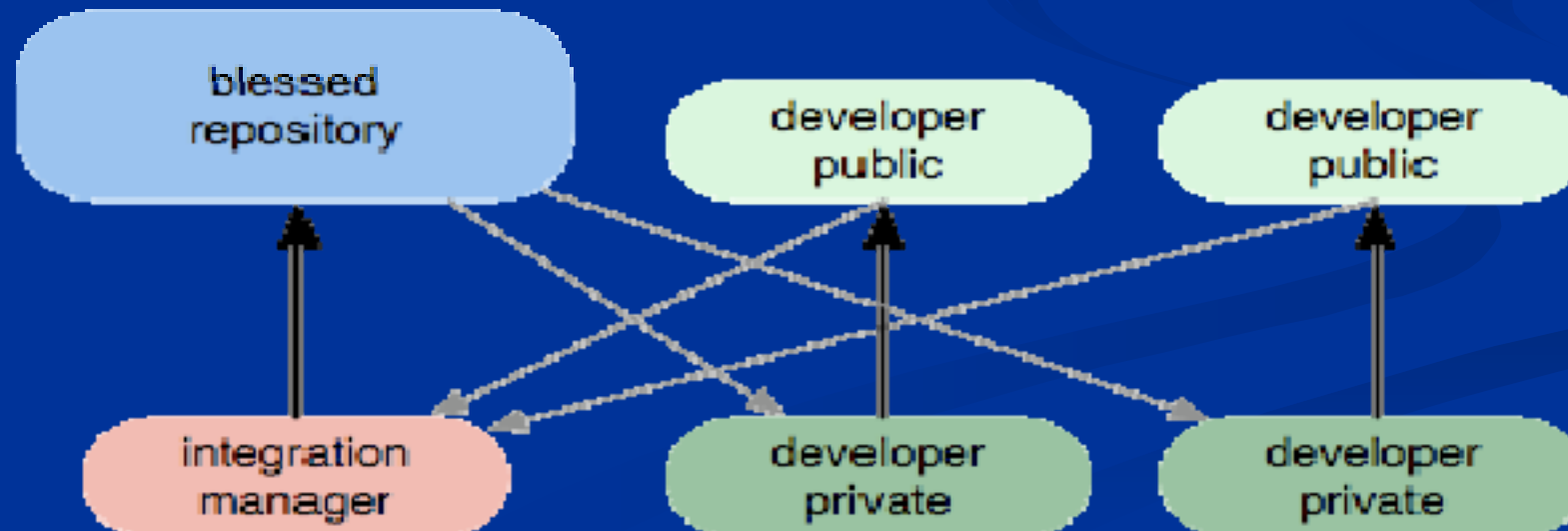
master

develop

topic

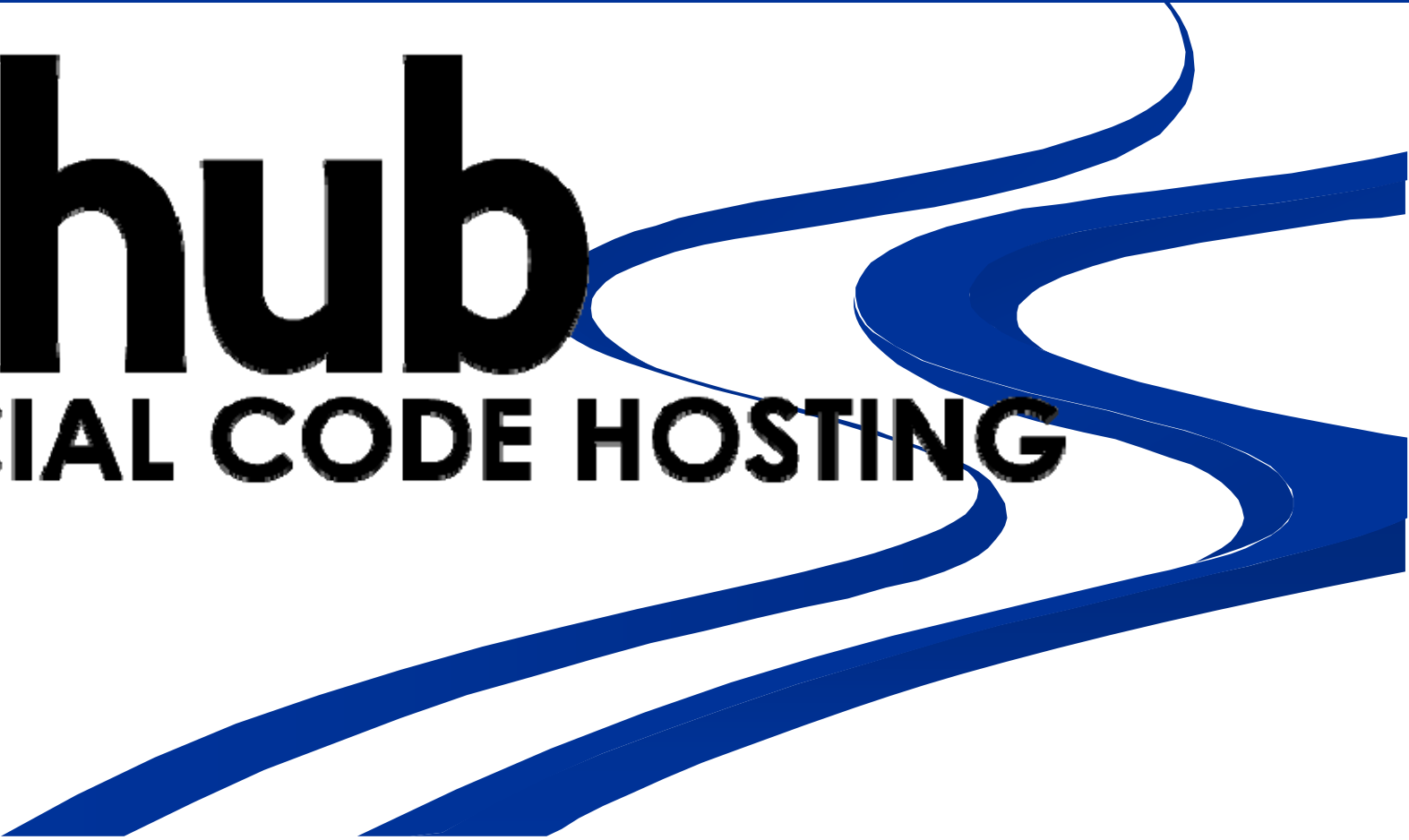


# Integration Manager





**github**  
**SOCIAL CODE HOSTING**

A large, stylized blue graphic consisting of several overlapping, wavy lines that flow from the right side of the text towards the bottom right corner of the slide.

# Now with git goodness as well

**SOURCEFORGE.NET®**



qrush

0

[account](#) | [profile](#) | [guides](#) | [log out](#)

repositories: [all](#) | [search](#)



## qrush

Name: Nick Quaranto [edit](#)  
Email: [nick@quaran.to](mailto:nick@quaran.to) [edit](#)  
Blog: <http://litanyagainstfear.com/> [edit](#)  
Company: The College Driver [edit](#)  
Location: Rochester, NY [edit](#)  
Followers: 16  
Public Repos: 7  
Member Since: Jun 04, 2008

### acts\_like\_git

A Rails plugin that uses git to version ActiveRecord fields, like acts\_as\_versioned, but a git.

Forked from [courtenay/acts\\_like\\_git](#) about 18 hours ago

all commits | commits by owner

52 week participation

### attendant

Rake tasks to use Phusion Passenger (mod\_rails) for development instead of Mongrel.

Created August 20, 2008

all commits | commits by owner

52 week participation

### cucumber\_seeds

Example features and step browser for Cucumber.

Created November 27, 2008

all commits | commits by owner

52 week participation

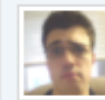
## Following



## Public Activity

- qrush created gist: 31428** about 16 hours ago  

```
irb(main):014:0> 100.times { (output = `rake spec --trace`; p output unless output =~ /0 failures/) } /usr/lib/ruby/gems/1.8/gems/rake-0.8.3/lib/rake/gempackagetask.rb:13:Warning: Gem::manage_gems is deprecated and will be removed on or after March 2009. /usr/lib/ruby/gems/1.8/gems/rake-0.8.3/lib/rake/gempackagetask.rb:13:Warning: Gem::manage_gems is deprecated and will be removed on or after March 2009.
```
- qrush pushed to master at qrush/acts\_like\_git** about 16 hours ago  
HEAD is [878f6ff8fb8900ceda7cca74f977b03b4513de51](#)  
 **qrush** committed [878f6ff8](#):  
Trying to fill out the spec for this
- qrush committed to qrush/acts\_like\_git** about 16 hours ago  
[878f6ff8fb8900ceda7cca74f977b03b4513de51](#)  
Trying to fill out the spec for this



Source

Commits

Graphs

Wiki (3)

Watchers (2520)

Network (388)

master

all branches

all tags

rails / rails



Description: Ruby on Rails

Homepage: <http://rubyonrails.org>

Public Clone URL: <git://github.com/rails/rails.git>

Make `TemplateRunner#generate` accept any number of arguments



lifo (author)

about an hour ago

commit [ef0b1cbb1b8e328fb3ac3b82ac5654bb95dbb2d6](#)  
tree [fabfe4ea2f3fe8adad8c2198b7c386a9605bc106](#)  
parent [7c0dfa35dbcfdb60f4cbd07b55f194a04e1b48c1](#)

rails /

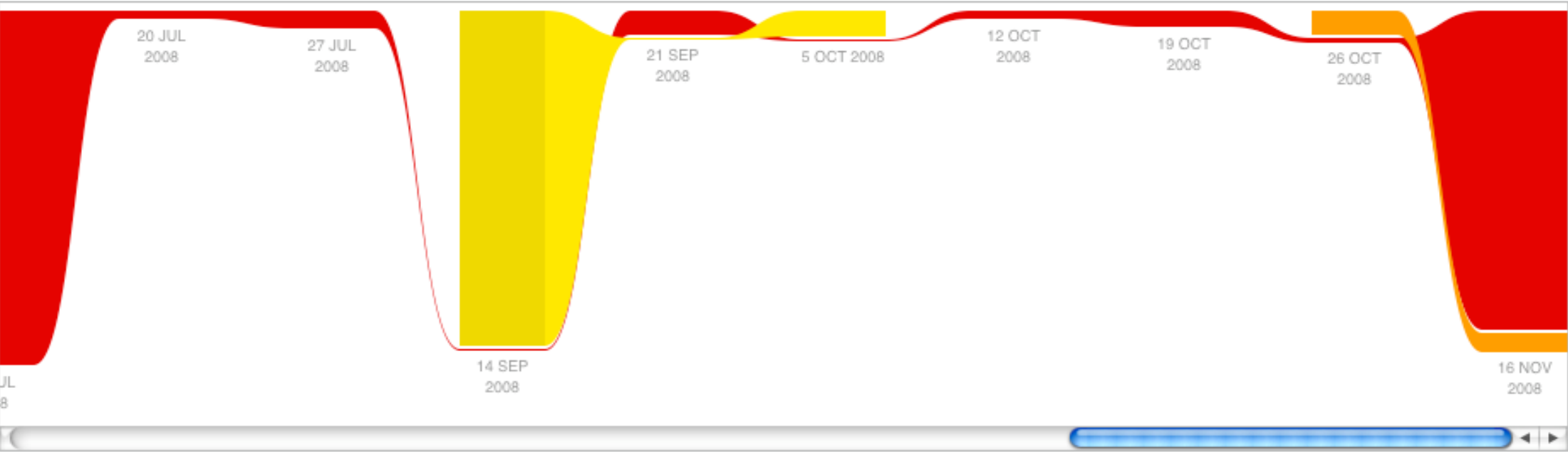
name	age	message	history
<a href="#">.gitignore</a>	October 21, 2008	Merge with docrails. Also add a rake task to ge... <a href="#">[lifo]</a>	
<a href="#">Rakefile</a>	June 22, 2008	Horo rdoc template <a href="#">[jeremy]</a>	
<a href="#">actionmailer/</a>	about 2 hours ago	Register bogus template handlers for ActionMail... <a href="#">[josh]</a>	
<a href="#">actionpack/</a>	about 2 hours ago	Register bogus template handlers for ActionMail... <a href="#">[josh]</a>	
<a href="#">activemodel/</a>	November 25, 2008	Explicitly require Active Support for tests <a href="#">[jeremy]</a>	
<a href="#">activerecord/</a>	2 days ago	Add :having option to find, to use in combinati... <a href="#">[miloops]</a>	
<a href="#">activeresource/</a>	1 day ago	Make new_record? an alias of new? in ActiveReso... <a href="#">[miloops]</a>	
<a href="#">activesupport/</a>	about 5 hours ago	Add Memoizable#flush_cache to clear the cache o... <a href="#">[josh]</a>	
<a href="#">ci/</a>	November 18, 2008	Spam more people, the list is next <a href="#">[NZKoz]</a>	
<a href="#">doc/</a>	June 22, 2008	Horo rdoc template <a href="#">[jeremy]</a>	
<a href="#">webassets.rb</a>	May 11, 2008	No more gem version numbers to worry about... <a href="#">[dhh]</a>	

nakajima / aintablog



Description: Open source tumblog/aggregator.

 qrush (click from more info)



Blocks represent "impact". Impact is (lines added + lines deleted) for all non-merge commits during a week period.

Description: Ruby on Rails

Homepage: <http://rubyonrails.org>Public Clone URL: <git://github.com/rails/rails.git>

## Validate template extensions [#1187 state:resolved]



josh (author)

about 6 hours ago

```
commit 2fc6c7dd05b9481ed81fe19c8fc0cc7915868404
tree   9f2fa4112507c50645c55cf990a22256e502ebde
parent 99f2cb4918786382413bdd29b3cacfd5b9377677
```

[actionpack/lib/action\\_view/template.rb](#) [actionpack/test/fixtures/test/dont\\_pick\\_me](#)[actionpack/lib/action\\_view/template.rb](#)

```
...   ...   @@ -115,16 +115,14 @@ module ActionView #:nodoc:
115 115       # [base_path, name, format, extension]
116 116       def split(file)
117 117         if m = file.match(/^(.*\/)?(([\^\.]*)\.(?(\w+)?\.(?(\w+)?\.(?(\w+)?$/))
118 -         if m[5] # Multipart formats
118 +         if valid_extension?(m[5]) # Multipart formats
119 119           [m[1], m[2], "#{m[3]}.#{m[4]}", m[5]]
120 -         elsif m[4] # Single format
120 +         elsif valid_extension?(m[4]) # Single format
121 121           [m[1], m[2], m[3], m[4]]
122 -         else
123 -         if valid_extension?(m[3]) # No format
124 -         [m[1], m[2], nil, m[3]]
125 -         else # No extension
126 -         [m[1], m[2], m[3], nil]
127 -         end
122 +         elsif valid_extension?(m[3]) # No format
123 +         [m[1], m[2], nil, m[3]]
124 +         else # No extension
125 +         [m[1], m[2], m[3], nil]
128 126         end
129 127       end
130 128     end
```

# GitHub 사용 방법

- GitHub에서 자유롭게 Fork한다.
- 자신의 PC에 로컬 레포지토리를 만든다.
- 원하는 기능을 만들고 테스트를 한다.
- 자신의 레포지토리에 커밋 한다.
- 변경 사항을 나의 Fork로 Push한다.
- 원래 개발자에게 Pull 요청을 한다.
- Pull 하면 좋고 아니면 말고!

# Mecurial

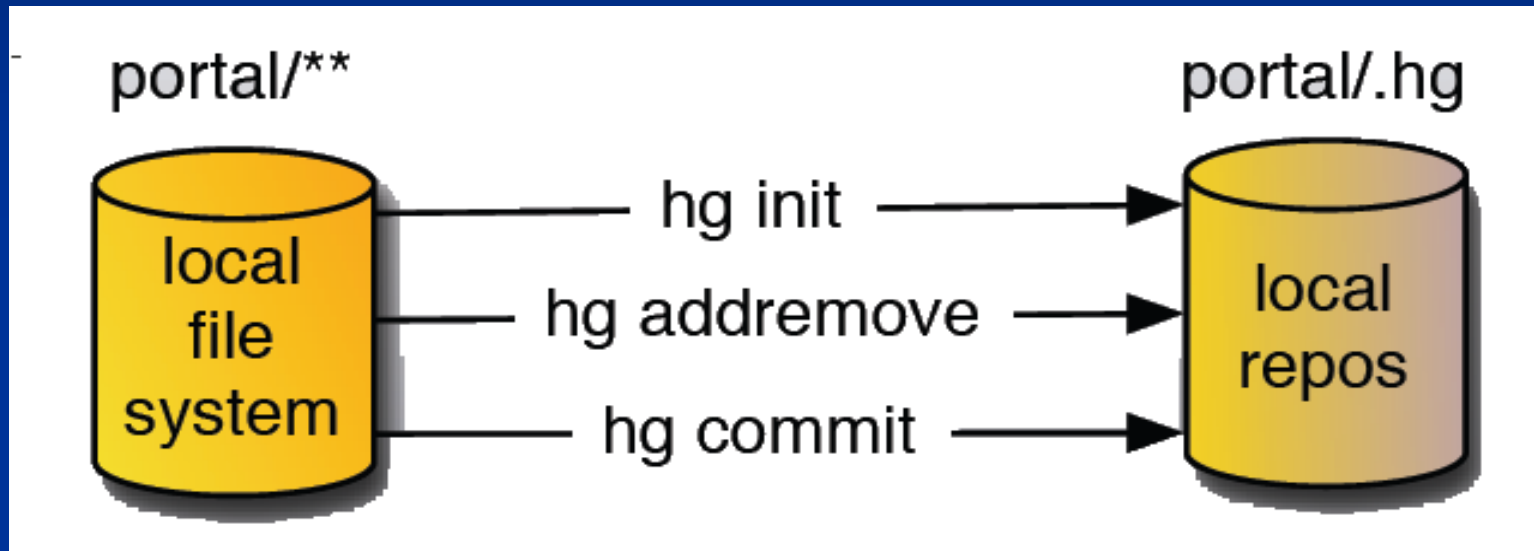


- Matt Mackall이 BitKeeper에서 개발
- SubVersion과 매우 유사
- 다양한 환경 지원
- Java 커뮤니티에서 많이 이용
  
- 주요 사용 프로젝트
  - OpenJDK, OpenSolaris, Mozilla
  
- Website: <http://www.selenic.com/mercurial/>
  - Hosting:
    - <http://freehg.org/>
    - <http://sharesource.org/>

# 주요 명령어

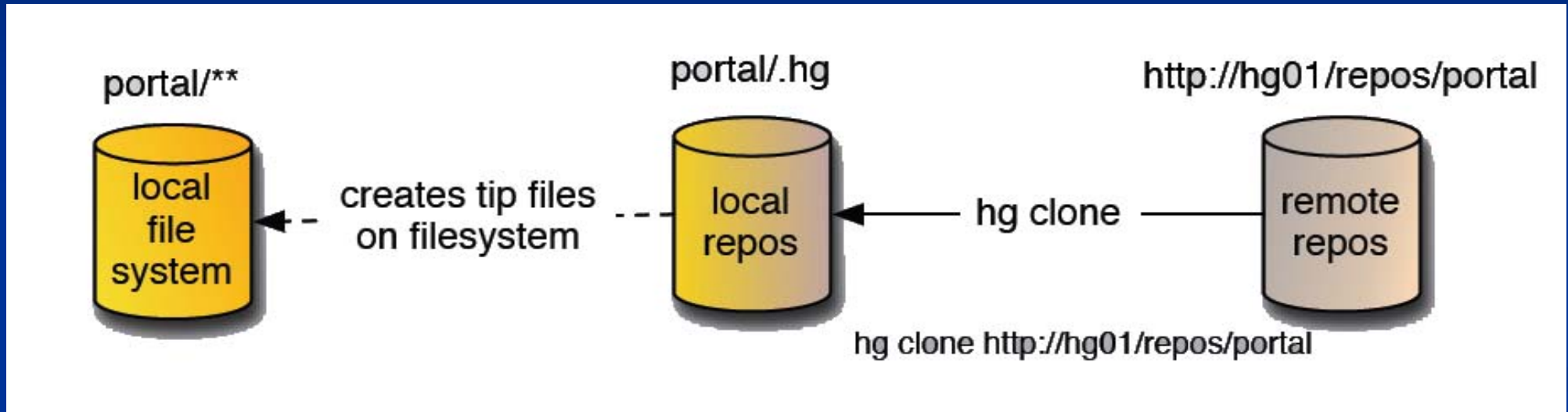
- hg add
- hg remove
- hg update
- hg log
- hg status
- It's like SVN but with the ability to “push” and “pull”

# 1. 레포지터리 생성



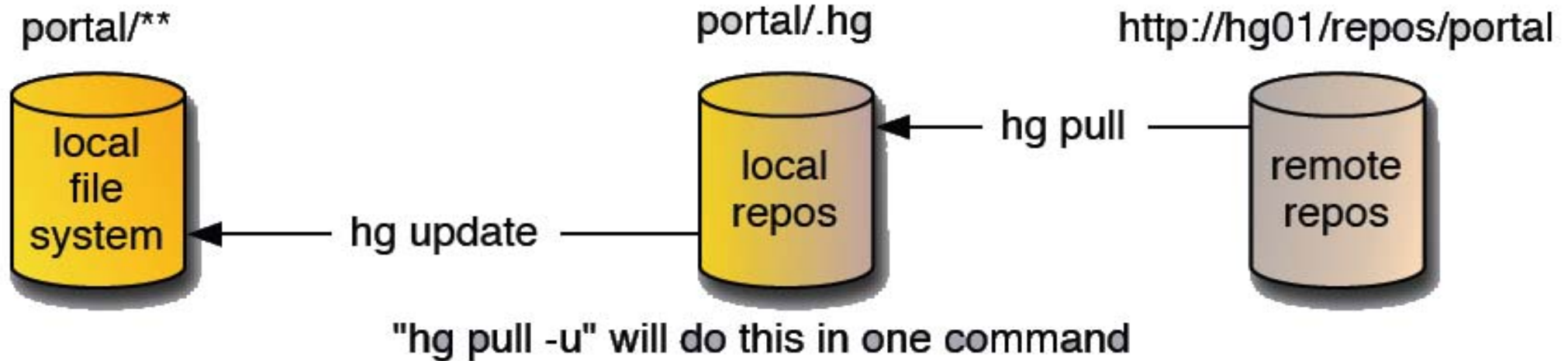
- hg init
- hg addremove
- hg commit

## 2. 로컬 레포지터리 만들기



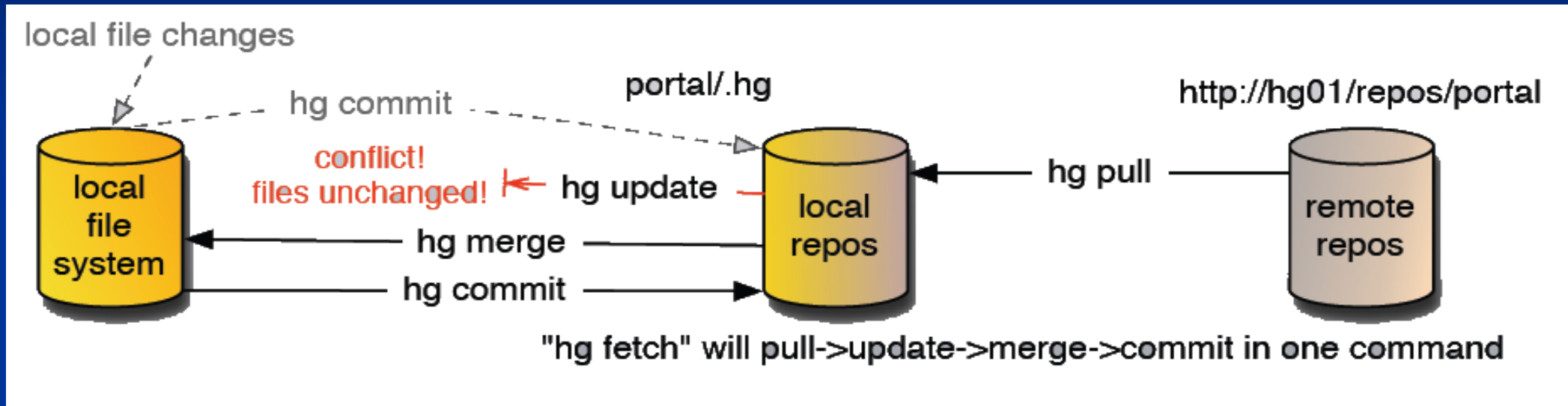
- hg clone
- hg checkout

# 3. 변경 사항 가져오기



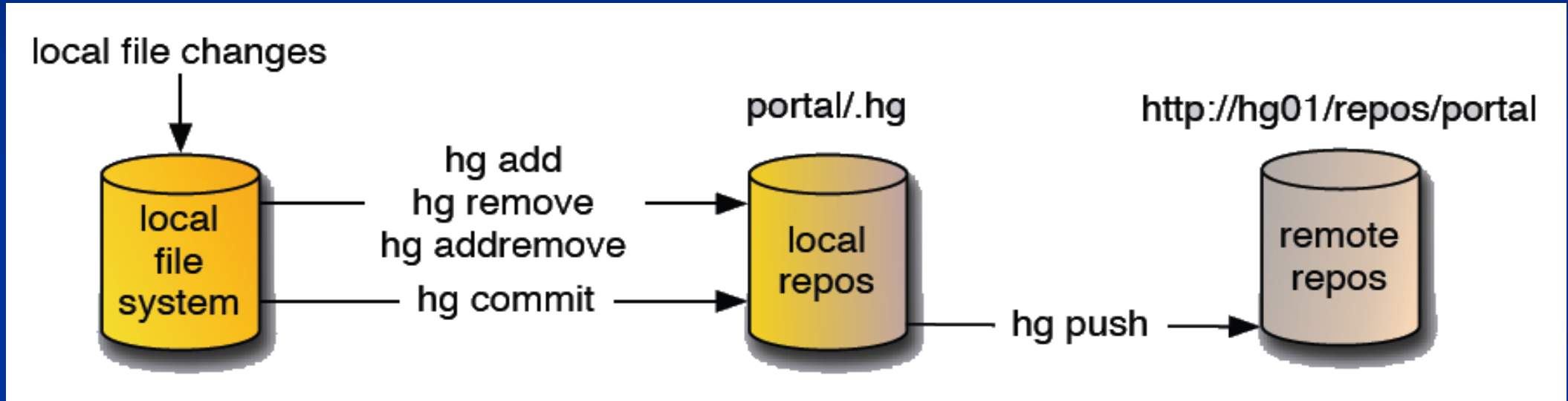
- hg update
- hg pull

# 4. 변경 사항 합치기



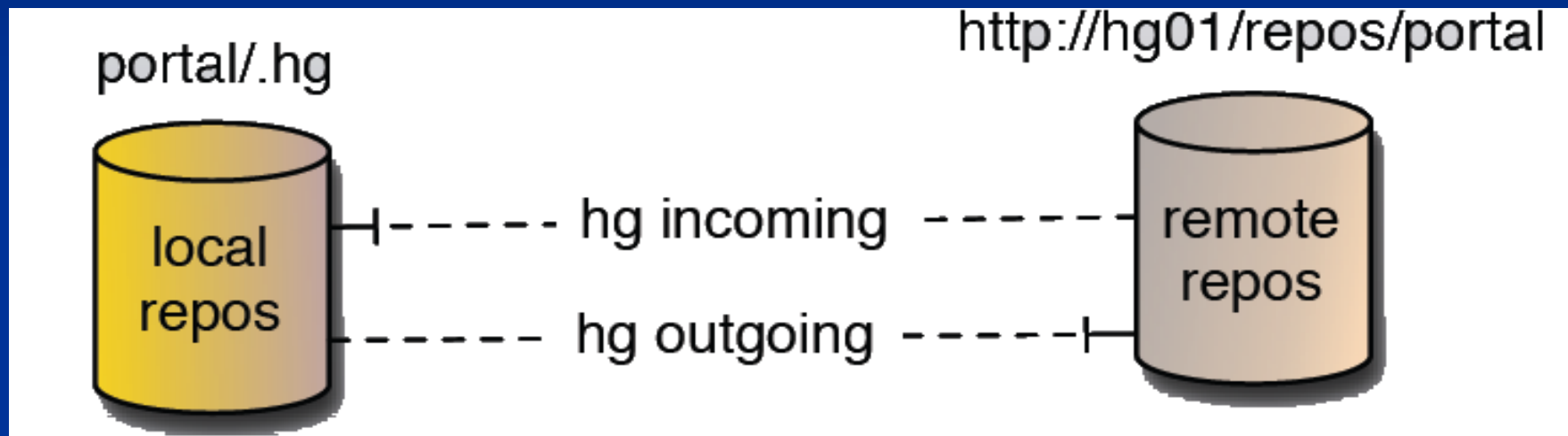
- hg merge
- hg fetch
- hg commit

# 5. 변경 사항 올리기



- Hg push

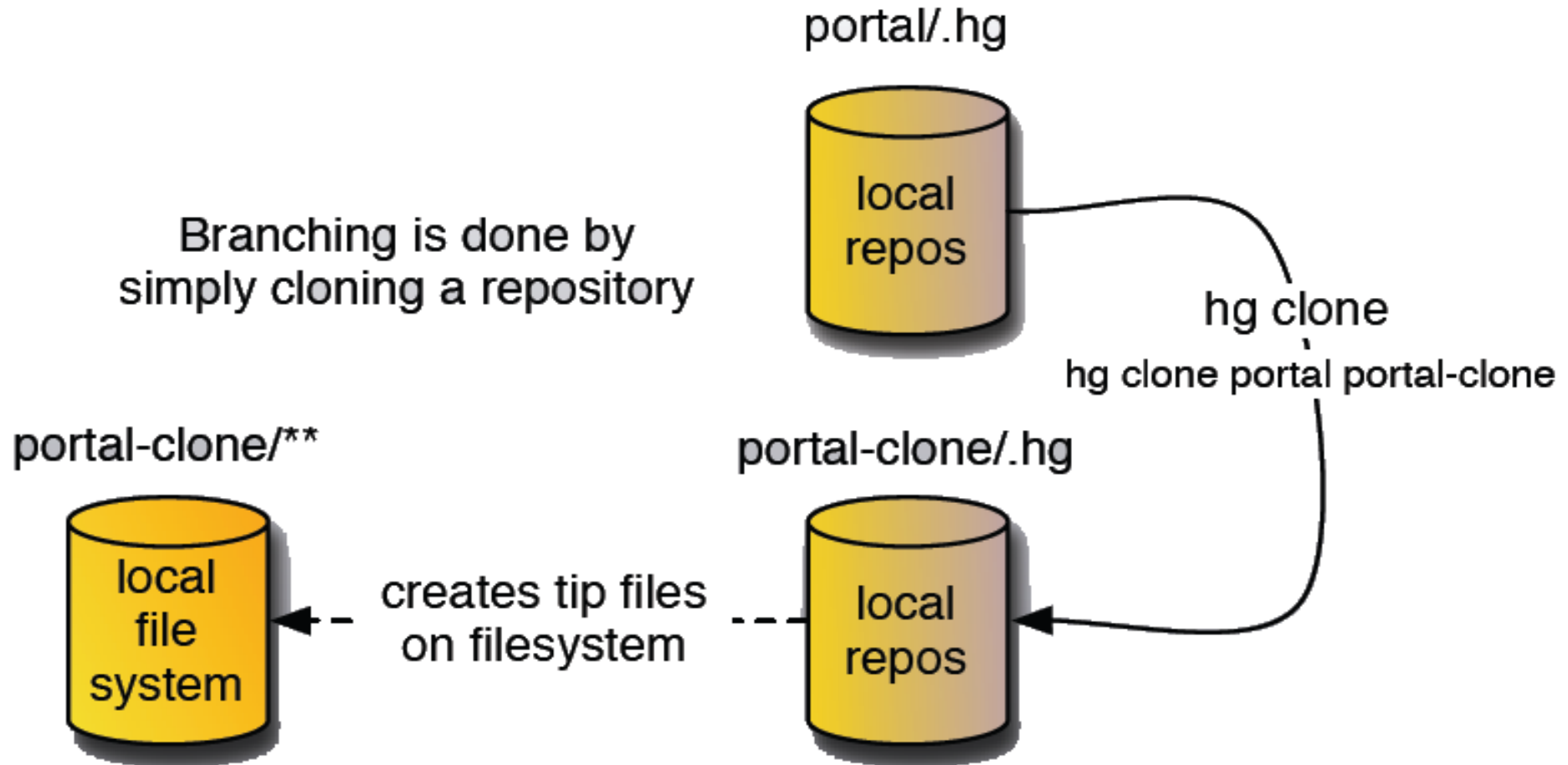
# Tip 1. 레포지터리간 변경 사항 확인하기



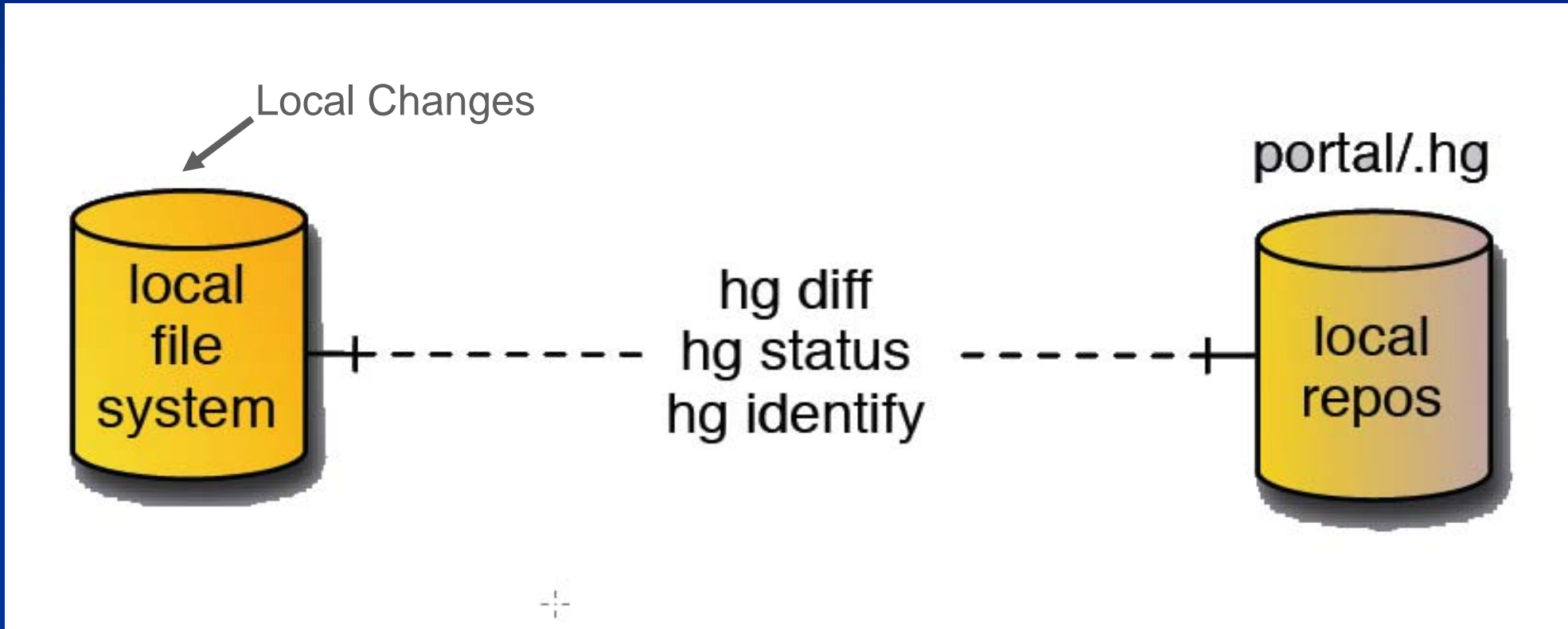
- hg incoming
- hg outgoing

# Tip 2. 로컬 브랜치 만들기

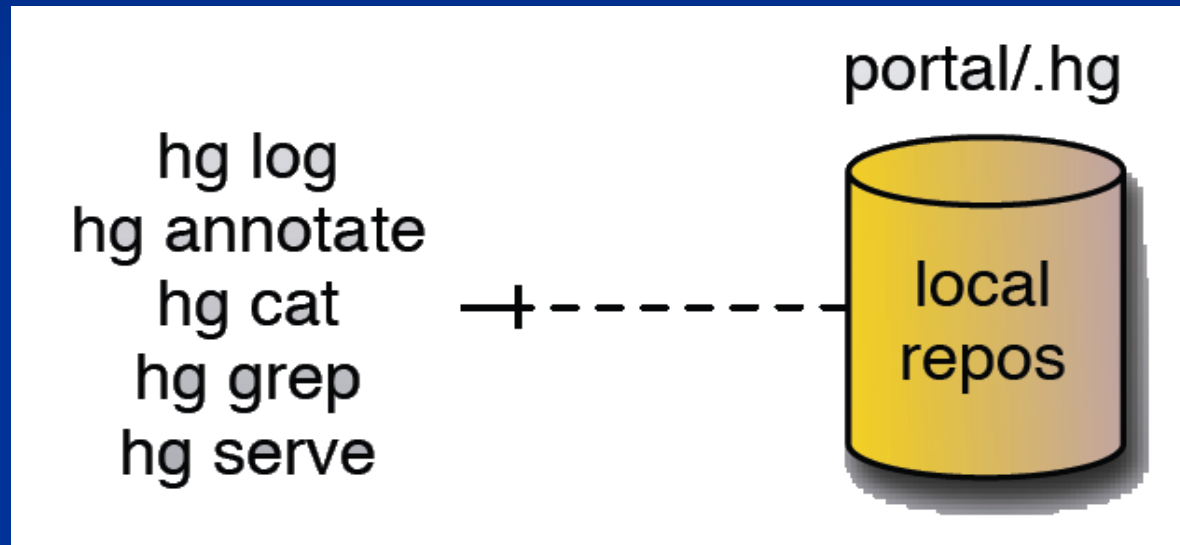
Branching is done by simply cloning a repository



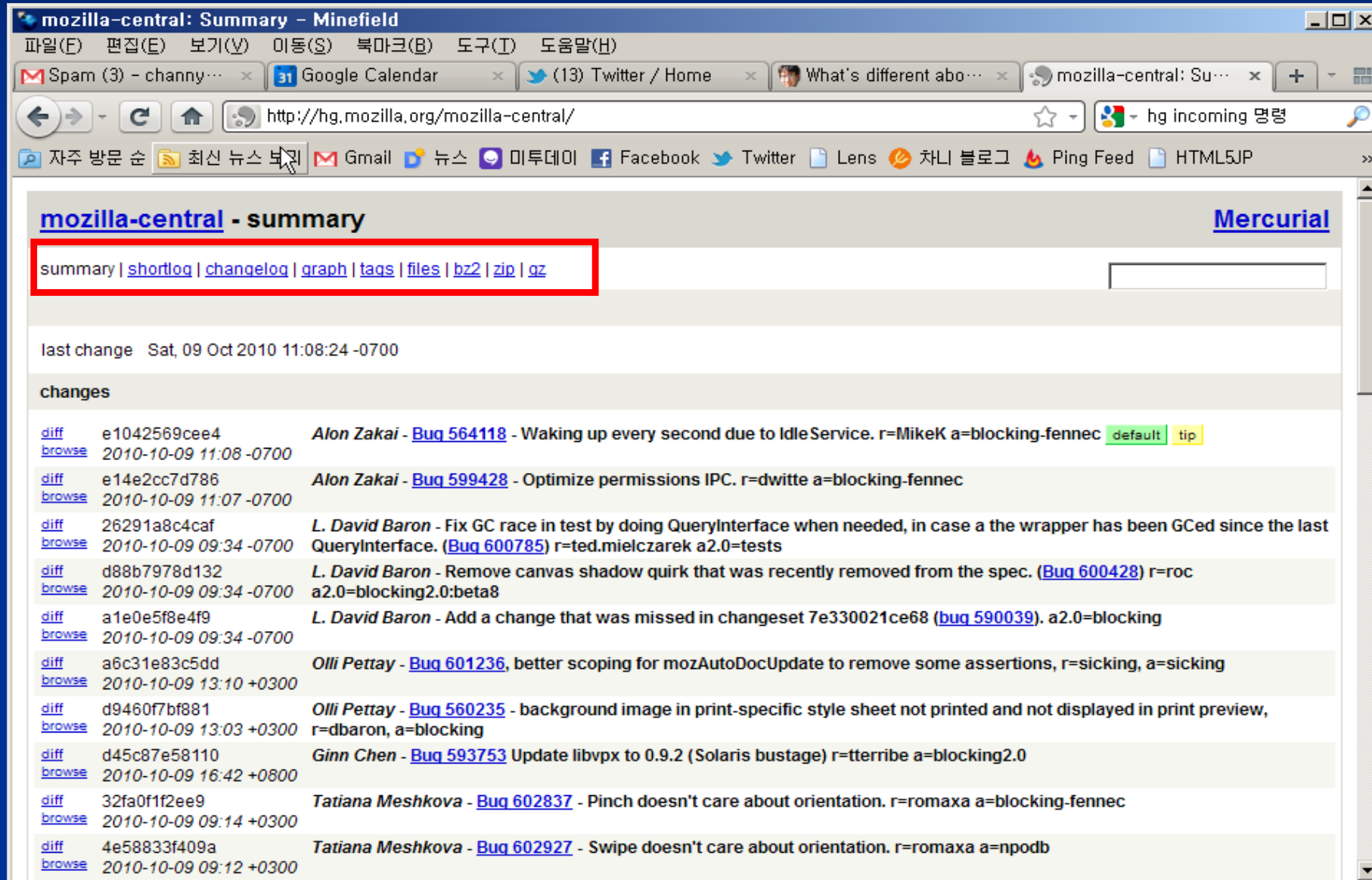
# Tip 3. 개발 도중 변경 사항 확인



# Tip4. 로컬 레포지터리 정보 보기



# 1. 웹기반 관리 기능



The screenshot shows a web browser window displaying the Mozilla Central Mercurial summary page. The browser's address bar shows the URL `http://hg.mozilla.org/mozilla-central/`. The page title is "mozilla-central - summary". A red box highlights the navigation links: `summary | shortlog | changelog | graph | tags | files | bz2 | zip | qz`. The page content includes the last change date and time, a list of recent changes with their commit IDs, authors, and descriptions, and a search bar.

mozilla-central - summary [Mercurial](#)

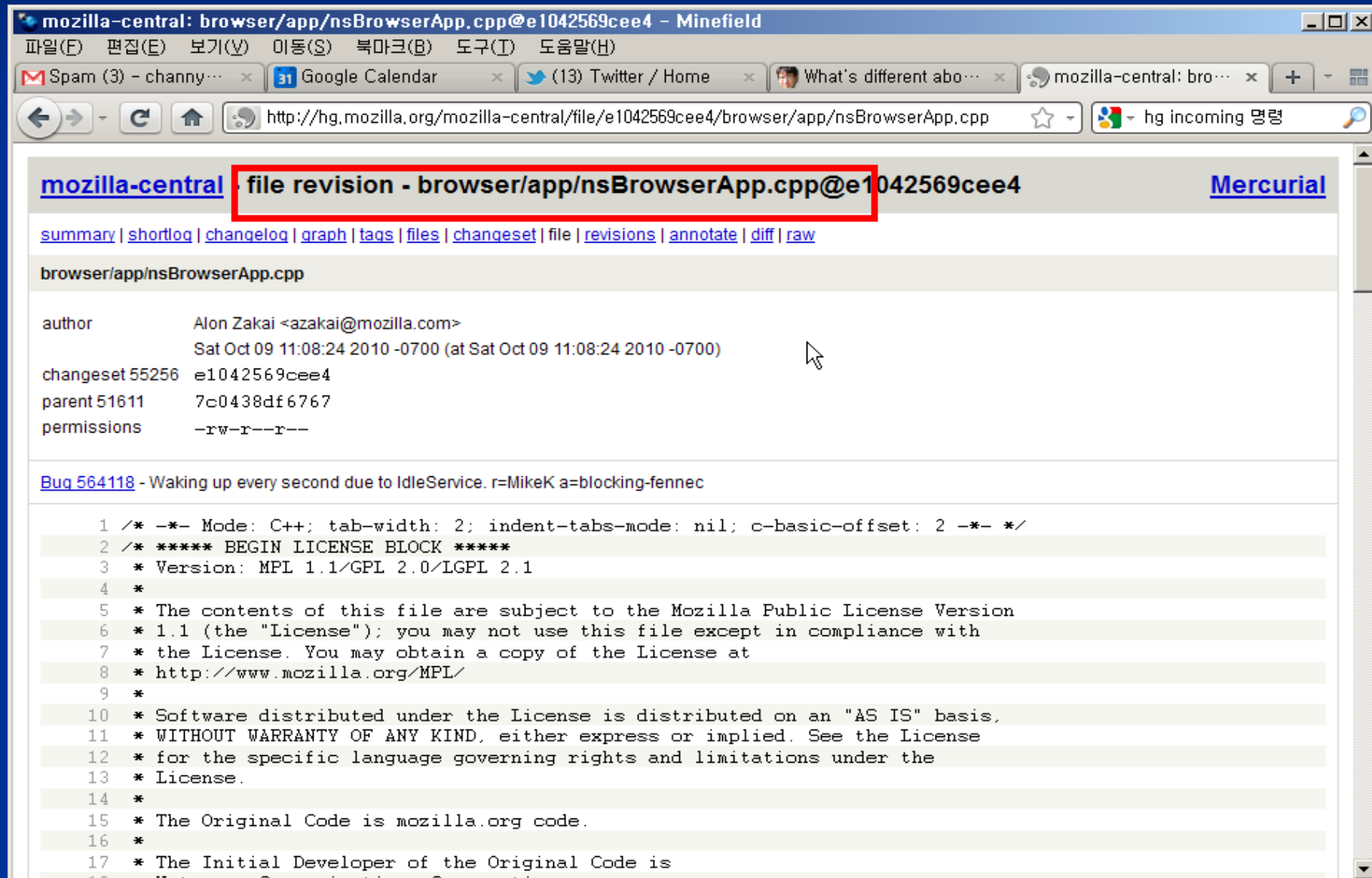
summary | [shortlog](#) | [changelog](#) | [graph](#) | [tags](#) | [files](#) | [bz2](#) | [zip](#) | [qz](#)

last change Sat, 09 Oct 2010 11:08:24 -0700

changes

<a href="#">diff</a>	e1042569cee4	Alon Zakai - <a href="#">Bug 564118</a> - Waking up every second due to IdleService. r=MikeK a=blocking-fennec <span style="background-color: #d9ead3; padding: 2px;">default</span> <span style="background-color: #d9ead3; padding: 2px;">tip</span>
<a href="#">browse</a>	2010-10-09 11:08 -0700	
<a href="#">diff</a>	e14e2cc7d786	Alon Zakai - <a href="#">Bug 599428</a> - Optimize permissions IPC. r=dwittle a=blocking-fennec
<a href="#">browse</a>	2010-10-09 11:07 -0700	
<a href="#">diff</a>	26291a8c4caf	L. David Baron - Fix GC race in test by doing QueryInterface when needed, in case a the wrapper has been GCed since the last QueryInterface. ( <a href="#">Bug 600785</a> ) r=ted.mielczarek a2.0=tests
<a href="#">browse</a>	2010-10-09 09:34 -0700	
<a href="#">diff</a>	d88b7978d132	L. David Baron - Remove canvas shadow quirk that was recently removed from the spec. ( <a href="#">Bug 600428</a> ) r=roc a2.0=blocking2.0:beta8
<a href="#">browse</a>	2010-10-09 09:34 -0700	
<a href="#">diff</a>	a1e0e5f8e4f9	L. David Baron - Add a change that was missed in changeset 7e330021ce68 ( <a href="#">bug 590039</a> ). a2.0=blocking
<a href="#">browse</a>	2010-10-09 09:34 -0700	
<a href="#">diff</a>	a6c31e83c5dd	Olli Pettay - <a href="#">Bug 601236</a> , better scoping for mozAutoDocUpdate to remove some assertions, r=sicking, a=sicking
<a href="#">browse</a>	2010-10-09 13:10 +0300	
<a href="#">diff</a>	d9460f7bf881	Olli Pettay - <a href="#">Bug 560235</a> - background image in print-specific style sheet not printed and not displayed in print preview, r=dbaron, a=blocking
<a href="#">browse</a>	2010-10-09 13:03 +0300	
<a href="#">diff</a>	d45c87e58110	Ginn Chen - <a href="#">Bug 593753</a> Update libvpx to 0.9.2 (Solaris bustage) r=terribe a=blocking2.0
<a href="#">browse</a>	2010-10-09 16:42 +0800	
<a href="#">diff</a>	32fa0f1f2ee9	Tatiana Meshkova - <a href="#">Bug 602837</a> - Pinch doesn't care about orientation. r=romaxa a=blocking-fennec
<a href="#">browse</a>	2010-10-09 09:14 +0300	
<a href="#">diff</a>	4e58833f409a	Tatiana Meshkova - <a href="#">Bug 602927</a> - Swipe doesn't care about orientation. r=romaxa a=npodb
<a href="#">browse</a>	2010-10-09 09:12 +0300	

# 2. 파일 정보 확인 가능



mozilla-central: browser/app/nsBrowserApp.cpp@e1042569cee4 - Minefield

[Spam \(3\) - channy...](#) [31 Google Calendar](#) [\(13\) Twitter / Home](#) [What's different abo...](#) [mozilla-central: bro...](#)

[http://hg.mozilla.org/mozilla-central/file/e1042569cee4/browser/app/nsBrowserApp.cpp](#) hg incoming 명령

**mozilla-central** **file revision - browser/app/nsBrowserApp.cpp@e1042569cee4** [Mercurial](#)

[summary](#) | [shortlog](#) | [changelog](#) | [graph](#) | [tags](#) | [files](#) | [changeset](#) | file | [revisions](#) | [annotate](#) | [diff](#) | [raw](#)

**browser/app/nsBrowserApp.cpp**

author Alon Zakai <azakai@mozilla.com>  
 Sat Oct 09 11:08:24 2010 -0700 (at Sat Oct 09 11:08:24 2010 -0700)

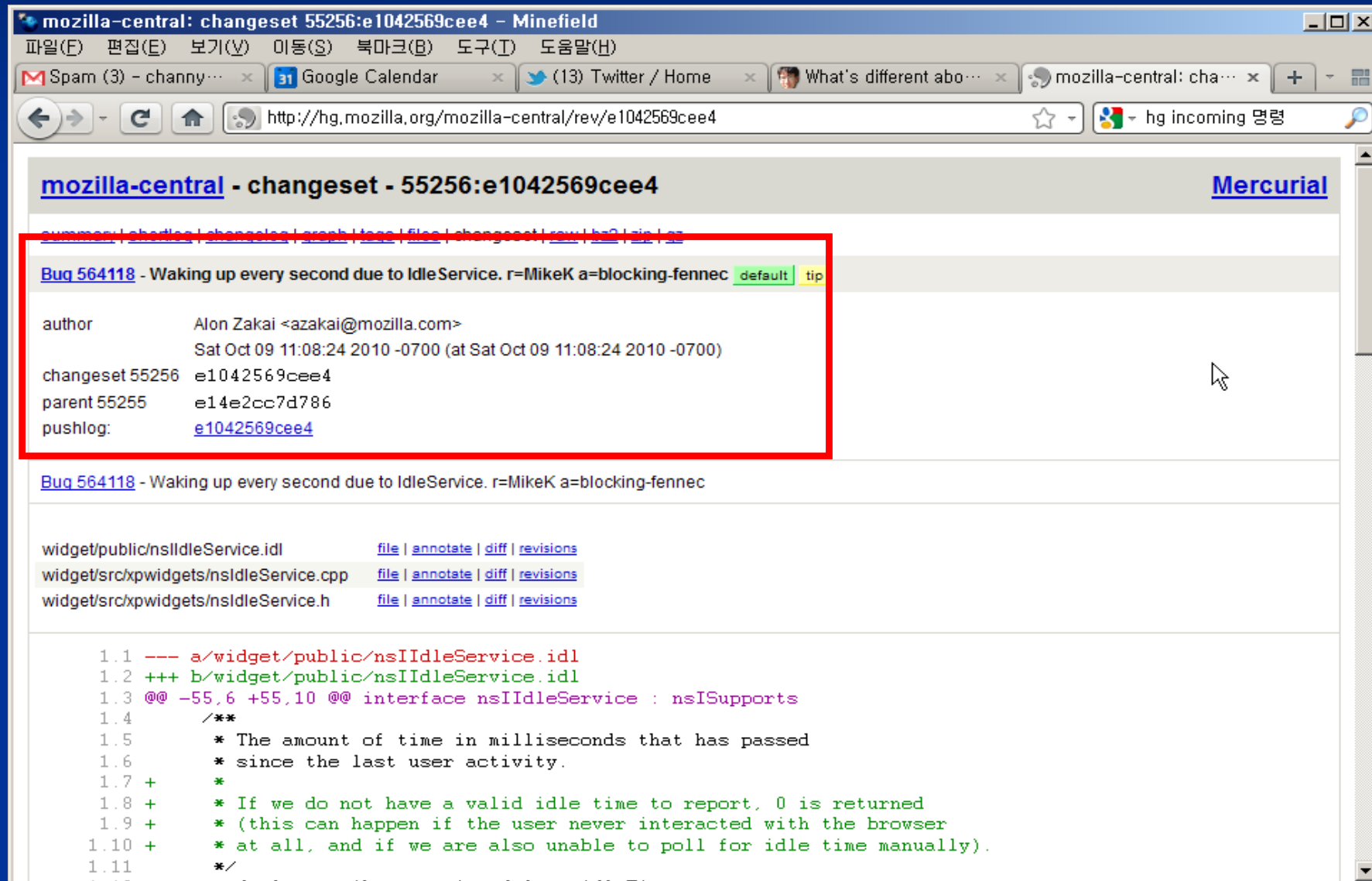
changeset 55256 e1042569cee4  
 parent 51611 7c0438df6767  
 permissions -rw-r--r--

[Bug 564118](#) - Waking up every second due to IdleService. r=MikeK a=blocking-fennec

```

1 /* -*- Mode: C++; tab-width: 2; indent-tabs-mode: nil; c-basic-offset: 2 -*- */
2 /* ***** BEGIN LICENSE BLOCK *****
3  * Version: MPL 1.1/GPL 2.0/LGPL 2.1
4  *
5  * The contents of this file are subject to the Mozilla Public License Version
6  * 1.1 (the "License"); you may not use this file except in compliance with
7  * the License. You may obtain a copy of the License at
8  * http://www.mozilla.org/MPL/
9  *
10 * Software distributed under the License is distributed on an "AS IS" basis,
11 * WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License
12 * for the specific language governing rights and limitations under the
13 * License.
14 *
15 * The Original Code is mozilla.org code.
16 *
17 * The Initial Developer of the Original Code is
  
```

# 3. change-set 검색



mozilla-central: changeset 55256:e1042569cee4 - Minefield

[mozilla-central](#) - changeset - 55256:e1042569cee4 [Mercurial](#)

[summary](#) | [changeset](#) | [graph](#) | [logs](#) | [files](#) | [changeset](#) | [raw](#) | [bz2](#) | [zip](#) | [tar](#)

[Bug 564118](#) - Waking up every second due to IdleService. r=MikeK a=blocking-fennec default tip

author Alon Zakai <azakai@mozilla.com>  
 Sat Oct 09 11:08:24 2010 -0700 (at Sat Oct 09 11:08:24 2010 -0700)

changeset 55256 e1042569cee4  
 parent 55255 e14e2cc7d786  
 pushlog: [e1042569cee4](#)

[Bug 564118](#) - Waking up every second due to IdleService. r=MikeK a=blocking-fennec

widget/public/nsIdleService.idl [file](#) | [annotate](#) | [diff](#) | [revisions](#)  
 widget/src/xpwidgets/nsIdleService.cpp [file](#) | [annotate](#) | [diff](#) | [revisions](#)  
 widget/src/xpwidgets/nsIdleService.h [file](#) | [annotate](#) | [diff](#) | [revisions](#)

```

1.1 --- a/widget/public/nsIdleService.idl
1.2 +++ b/widget/public/nsIdleService.idl
1.3 @@ -55,6 +55,10 @@ interface nsIdleService : nsISupports
1.4     /**
1.5      * The amount of time in milliseconds that has passed
1.6      * since the last user activity.
1.7 +
1.8 + * If we do not have a valid idle time to report, 0 is returned
1.9 + * (this can happen if the user never interacted with the browser
1.10 + * at all, and if we are also unable to poll for idle time manually).
1.11 */
  
```

# 참고 사이트

- Mercurial 한국어 튜토리얼
  - <http://mercurial.selenic.com/wiki/KoreanTutorial>
- Hg 한글 커맨드 설명서
  - <http://mercurial-korean-doc.googlecode.com/hg/hg.1.kor>
- 분산 소스 콘트롤 기본 설명
  - [http://www.ibm.com/developerworks/kr/library/au-dist\\_ver\\_control/](http://www.ibm.com/developerworks/kr/library/au-dist_ver_control/)

# 실습

- Google Code의 Mercurial 이용
  - 1. 로컬 레포지터리 만들기
  - 2. 로컬 커밋 및 Push & Pull
  - 3. 변경 사항 Merging (과제)
  
- GitHub를 이용한 Fork
  - 1. 가입 후 원하는 프로젝트 Forking
  - 2. 변경 사항 개발 후 Pull Request (과제)