

# Introducing: git

Level up your VCS

[PLUG / May 6th 2009]

# About Your Presenter

- Director of Architecture at HMS
- Open Source Groupie
  - cpan, advocacy (this talk)
- <http://asymmetrical-view.com/>

# Health Market Science

- HCP Demographic Info
- Compliance
- Data Integration Services
- OpenHMS
- We Hiring!
  - Devs [Perl, Java], UI / UX, BA, PM

# Not Covering

- Git vs Other VCSs
  - Hg/Mercurial, Darcs, etc.
- Installation
- Full Tutorial
  - <http://www.gitready.com/>

# The Journey

- **SCM**
- History
- Git
- Demonstration

# SCM in a Nutshell

Software Configuration Management

Source Code Management

Protect and Track File Based Assets



# Fundamentals of VCS

Initialize  
Add Files  
Commit  
View History  
Share  
Update  
Revert  
Branch



# VCS: Two Major Types

## Centralized

CVS, SVN,

Most Commercial Offerings

## Distributed

Git, Darcs, Hg, Bazar, BitKeeper





# The Journey

- SCM
- **History**
- Git
- Demonstration

# In the beginning...

*Linus used no VCS for the Linux Kernel (!)*

“Only wimps use tape backup: real men just upload their important stuff on ftp, and let the rest of the world mirror it ;) “ - Linus

BitKeeper first tried out by LinuxPPC project

Linus Adopts it “Best tool for the job”

Linus starts using a VCS in Feb 2002 (rejoice!)

# The Plot Thickens

BitKeeper by BitMover

Free use for Open Source

...so long as you don't work on another DVCS

...or reverse engineer the wire protocol

In steps Andrew Tridgell

```
telnet bkserver bkport  
help^M
```

# The Plot Thickens

## BitKeeper by BitMover

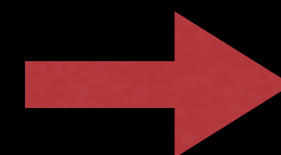
Free use for Open Source

...so long as you don't work on another DVCS

...or reverse engineer the wire protocol

In steps Andrew Tridgell

```
telnet bkserver bkport  
help^M
```



*Revoked*

# A git is born

## In Steps Linus Torvalds

- *Opinionated*
- *Needed DVCS*
- Safeguards against corruption
- High Performance (impatience is a virtue)



Started:	2005/04/03
Announced:	2005/04/06
Self Hosting:	2005/04/07 (4d!)
First Multi-branch Merge:	2005/04/18 (15d!)

# The Journey

- SCM
- History
- **Git**
- Demonstration

*“I'm an egotistical  
bastard, and I name  
all my projects after  
myself. First Linux,  
now git[1].”*

Linus Torvalds



“I have an ego the size of a small planet” - Linus  
[1] git (n): British slang for a stupid or unpleasant person

# Not like the other VCSs

Tracks Content via SHA-1 hash

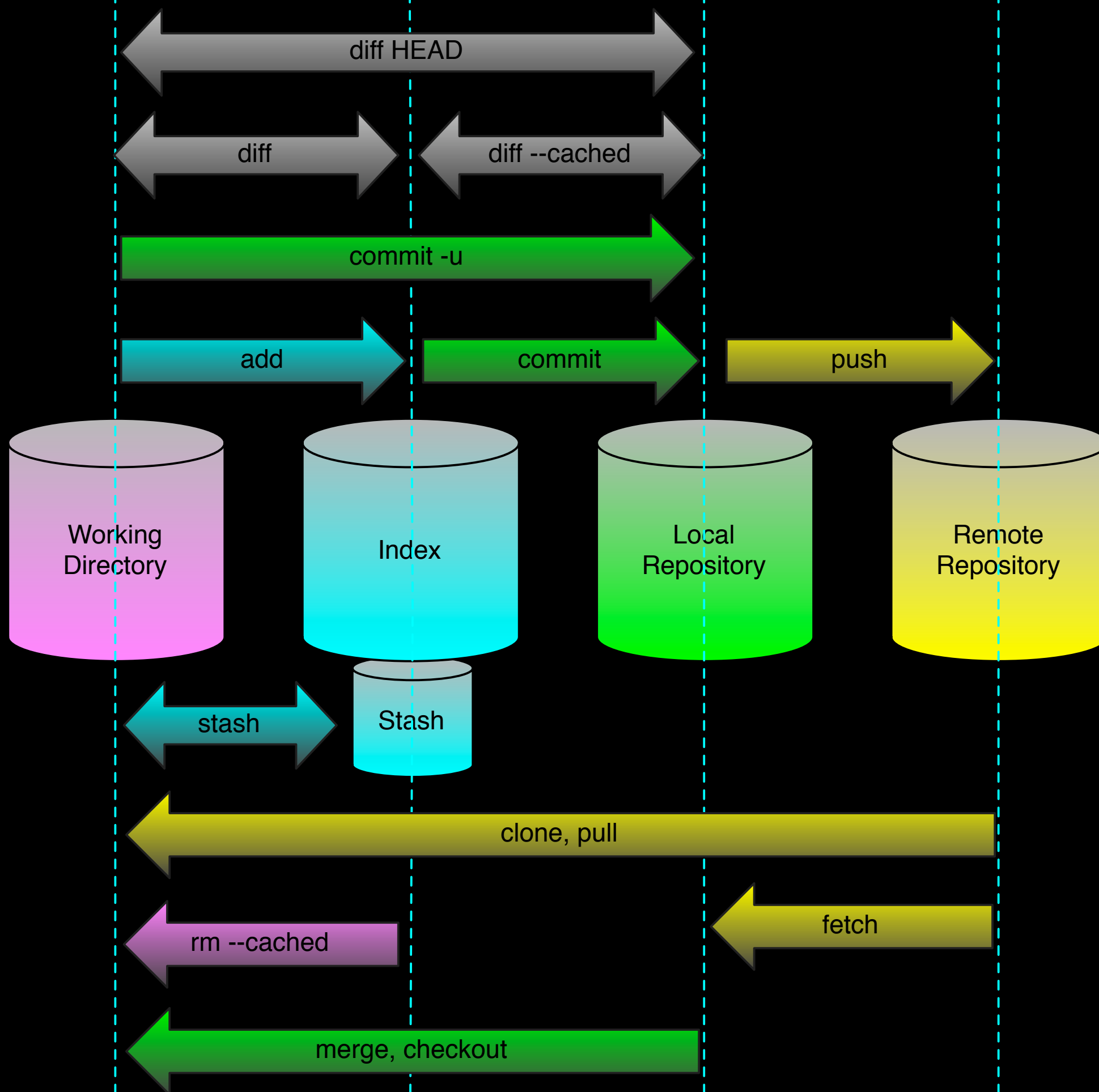
Working Area

Index (Staging Area)

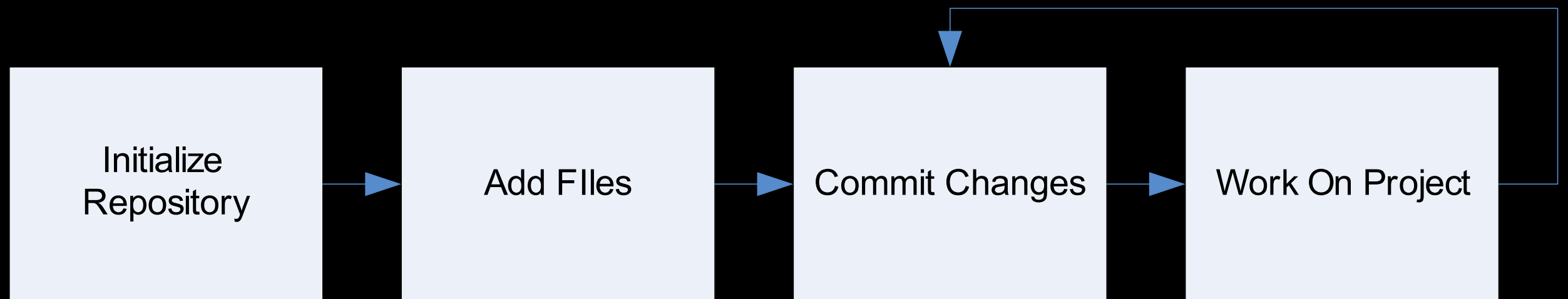
Repositories (http, ssh, local, nfs, git)

Stash

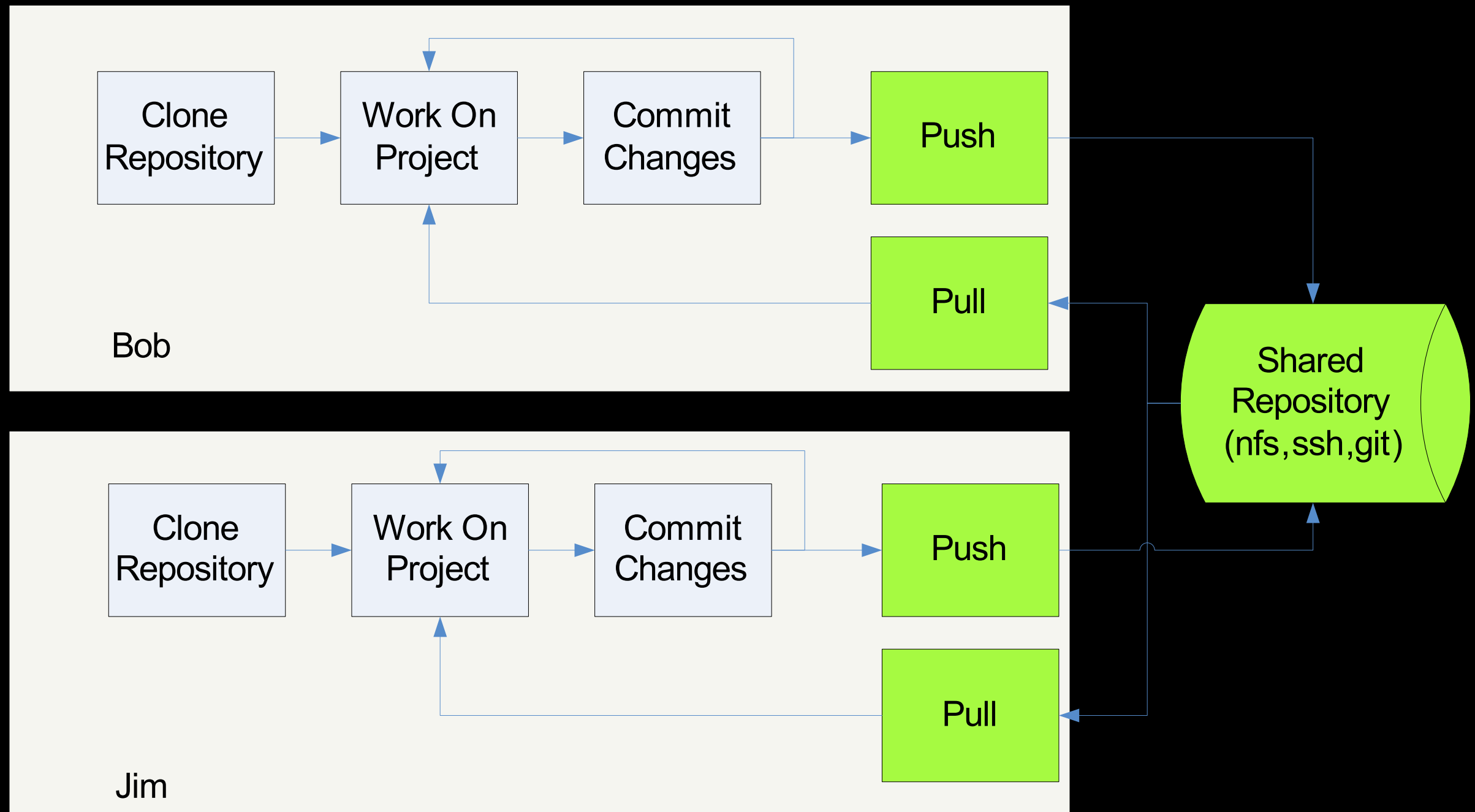




# Stand Alone...

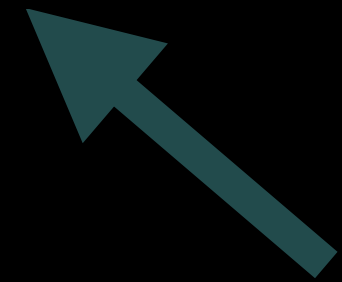


# Collaborate...



# git-svn

git svn clone  
git svn dcommit  
git svn rebase



(Gateway Drug)

(svn duplicates a lot of data, this makes the initial clone slow, but you only pay once)

# Branching: Actually Useful

CVS Branching: sucks

SVN Branching: sucks

GIT Branching: FTW!

# Tools and Features

gitk

git log --color --graph

.git/info/exclude and .gitignore

git grep 'java.util.Map' \$(git tag -l)

## Relative Versions

git diff HEAD^

git diff HEAD^^^^

git diff HEAD~5 HEAD~10

# Tools and Features

```
git blame <<file>>
```

```
git clean
```

```
git bisect
```

```
git add --interactive
```

```
git archive \
```

```
--prefix=java-memcached-client \
```

```
--format=tar 2.3 | \
```

```
gzip > java-memcached-client-2.3.tgz
```

```
git gui
```

```
git instaweb
```

# The Journey

- SCM
- History
- Git
- **Demonstration**



# Demonstration



(run off to a terminal, don't forget to start X, try not to make [too much of] a fool of yourself)

# Should You Adopt Git?

# NO!

You just moved to {svn,Hg,darcs,\*}

People Don't like Change

Some Tools Still Immature

(honestly I couldn't come up with any technical reasons)

# Should You Adopt Git?

# YES!

*Fantastic* for local use

\$HOME and /etc

git-svn

It's *fast*

Happy Developers == more productive

(if you buy into that sort of thing)

# Conclusion

Fast

Geek Chic

DVCS Different

Powerful

Easier Than it seems

(did I mention it's fast?)

```
kyle@ppt:~ $ git commit -a -m 'finished presentation'
```

```
[detached HEAD a835269] finished presentations  
2 files changed, 3 insertions(+), 3 deletions(-)
```

```
kyle@ppt:~ $ git push
```

```
Counting objects: 5, done.
```

```
Delta compression using 2 threads.
```

```
Compressing objects: 100% (3/3), done.
```

```
Writing objects: 100% (3/3), 297 bytes, done.
```

```
Total 3 (delta 2), reused 0 (delta 0)
```

```
Unpacking objects: 100% (3/3), done.
```

```
To /home/git-repo/git-presentation/  
3fd2b39..867372e master -> master
```

```
kyle@ppt:~ $ ^D
```

# References

<http://www.youtube.com/watch?v=4XpnKHJAok8>

<http://www.gitready.com/>

[http://en.wikipedia.org/wiki/Git\\_\(software\)](http://en.wikipedia.org/wiki/Git_(software))

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

<http://git.or.cz/index>

<http://git.kernel.org/>

<http://kerneltrap.org/node/4966>

<http://jbowes.wordpress.com/2007/02/18/git-bisect-a-practical-example-with-yum/>

<http://github.com/bobmcwhirter/jboss-messaging/tree/master>

[http://www.reddit.com/r/programming/comments/80xax/sourceforge now supports git/](http://www.reddit.com/r/programming/comments/80xax/sourceforge_now_supports_git/)

<http://www.advogato.org/person/apenwarr/diary/371.html>

<http://maven.apache.org/scm/git.html>

<http://code.google.com/p/tortoisegit/>

<http://osteele.com/archives/2008/05/my-git-workflow>

<http://confluence.atlassian.com/display/CRUCIBLE/Crucible+Git+Plugin>

<http://code.google.com/p/msysgit/>

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