Faster, Flexible and Fun: Revision Control with Mercurial

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Outline

Centralized vs Distributed

Workflows

Wrapping Up
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Centralized Revision Control

Single repository, multiple working copies:

Repository

hello.c
Makefile
Alice

goodbye.c
Makefile
Bob
**Centralized Revision Control**

Single repository, multiple working copies:

- **Repository**
  - **Drawbacks:**
    - network latency
    - single point of failure
    - constrained workflow

- **hello.c**
  - Makefile
  - Alice

- **goodbye.c**
  - Makefile
  - Bob

*aragost Trifork*
Distributed Revision Control

Mercurial duplicates the history on many servers:

Alice

Bob
Mercurial duplicates the history on many servers:

**Advantages:**
- no network latency
- distributed, off-line operations
- no imposed workflow

**Drawback(?):**
- must synchronize repositories
Moving Changesets Around

Pull and merge:

Alice

Bob

Merging:

1. Find common ancestor of A_2 and B_1:
2. Compute differences between A and B_1:
3. Apply them to A_2, taking renames into account.
Moving Changesets Around

Pull and merge:

Alice

Bob

I → A₁

Merging:

- find common ancestor of A₂ and B₁:
- compute differences between I and B₁:
- apply them to A₂, taking renames into account.
Moving Changesets Around

Pull and merge:

Alice

\[ I \rightarrow A_1 \rightarrow A_2 \]

Bob

\[ I \]
Moving Changesets Around

Pull and merge:

Alice

Bob

\[ \begin{align*}
I & \rightarrow A_1 \rightarrow A_2 \\
\rightarrow B_1
\end{align*} \]
Moving Changesets Around

Pull and merge:

Alice

\[ I \rightarrow A_1 \rightarrow A_2 \rightarrow B_1 \]

Bob

\[ I \rightarrow B_1 \]

pull
Moving Changesets Around

Pull and merge:

Alice

\[
I \rightarrow A_1 \rightarrow A_2 \rightarrow A_3
\]

Bob

\[
I \rightarrow B_1
\]

merge

Merging:

1. Find common ancestor of \(A_2\) and \(B_1\):
2. Compute differences between \(I\) and \(B_1\):
3. Apply them to \(A_2\), taking renames into account.
Moving Changesets Around

Pull and merge:

Alice

\[ I \rightarrow A_1 \rightarrow A_2 \rightarrow A_3 \]

Bob

\[ I \rightarrow B_1 \]

Merging:

- find common ancestor of \( A_2 \) and \( B_1 \): \( I \)
- compute differences between \( I \) and \( B_1 \)
- apply them to \( A_2 \), taking renames into account
Key Mercurial Commands

Local commands:
- `hg commit`: save a snapshot into the current repository
- `hg update`: checkout revision into working directory
- `hg merge`: join different lines of history
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Local commands:
- `hg commit`: save a snapshot into the current repository
- `hg update`: checkout revision into working directory
- `hg merge`: join different lines of history

Network commands:
- `hg pull`: retrieve changesets from another repository
- `hg push`: send your changesets to another repository
Outline

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Workflows

Wrapping Up
Workflow in a Team

Alice

Bob

Carla

Test

Prod
Workflow Between Company Divisions
Workflow Between Two Computers

bitbucket.org

Alice’s Desktop

Alice’s Laptop
Release Branches
Release Branches

1.0

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Release Branches

1.0
Release Branches

1.0

1.0.1
Release Branches
Release Branches
Release Branches
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**Mercurial in a Nutshell**

Mercurial changes the way you develop:

- simple yet strong model for **both** branching and merging
- power tool instead of necessary evil
- light-weight and snappy
More Information

- Mercurial homepage:
  http://mercurial.selenic.com/

- *Mercurial: The Definitive Guide:*
  http://hgbook.red-bean.com/

- Getting Started:
  http://mercurial.aragost.com/kick-start/
  http://mercurial.ch/
  http://hginit.com/

- Some free Mercurial hosting sites:
  http://bitbucket.org/
  http://code.google.com/
  http://sourceforge.net/
  http://www.codeplex.com/
Contact

Please get in touch if you have more questions or have considered using Mercurial in your organization:

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