



FOSSIL

Agenda

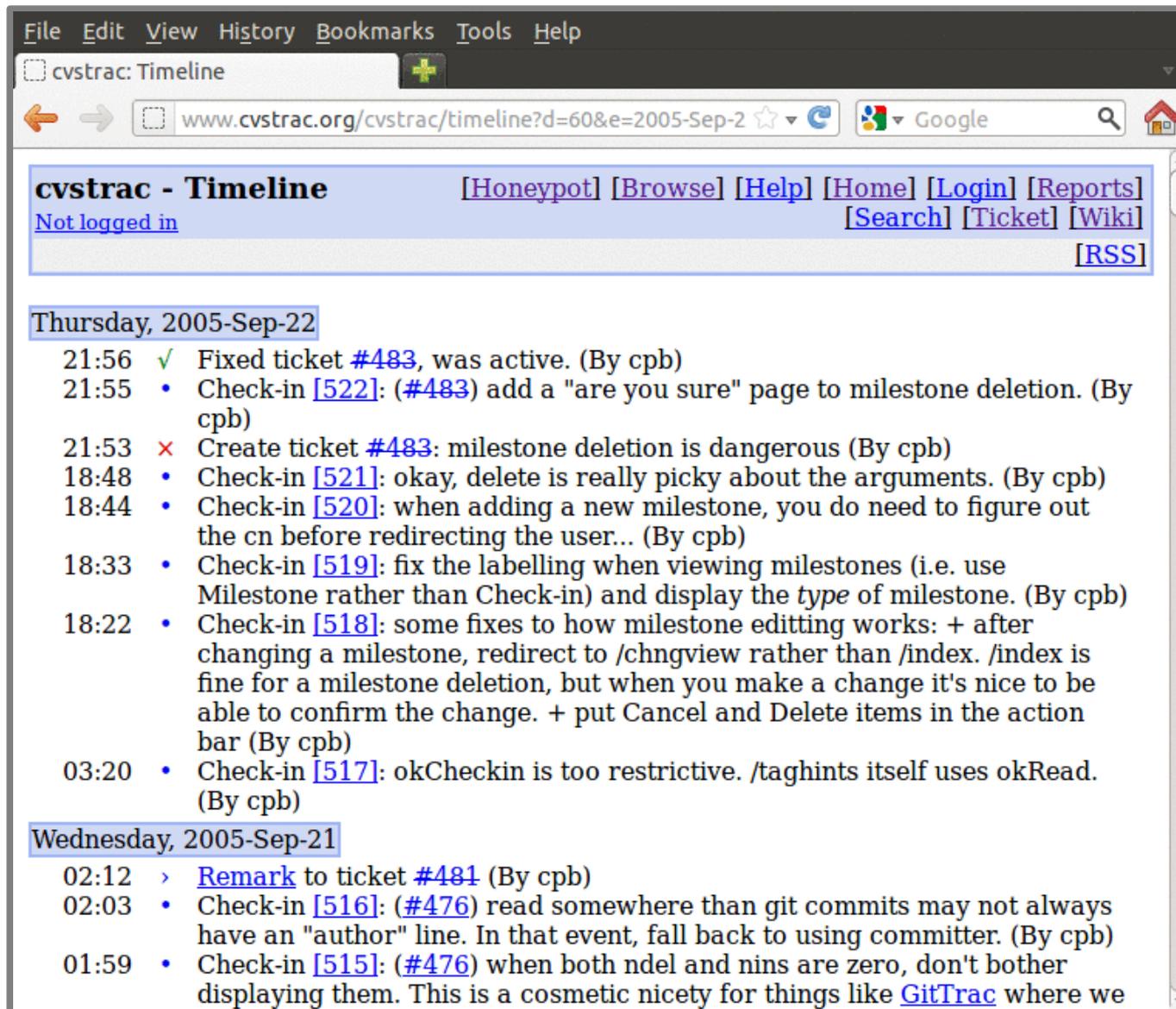
- I. Philosophy of Fossil
- II. Using Fossil
- III. How Fossil works
- IV. Workflows & Stupid Fossil Tricks
- V. Q & A

Fossil Mission Statement

1. Provide configuration management for SQLite
2. All other uses are gravy



March 2002: CVSTrac



The screenshot shows a web browser window with the address bar containing `www.cvstrac.org/cvstrac/timeline?d=60&e=2005-Sep-2`. The page title is "cvstrac - Timeline". The navigation menu includes links for [Honeypot], [Browse], [Help], [Home], [Login], [Reports], [Search], [Ticket], [Wiki], and [RSS]. The page is dated "Thursday, 2005-Sep-22" and "Wednesday, 2005-Sep-21".

cvstrac - Timeline [Honeypot] [Browse] [Help] [Home] [Login] [Reports] [Search] [Ticket] [Wiki] [RSS]

Not logged in

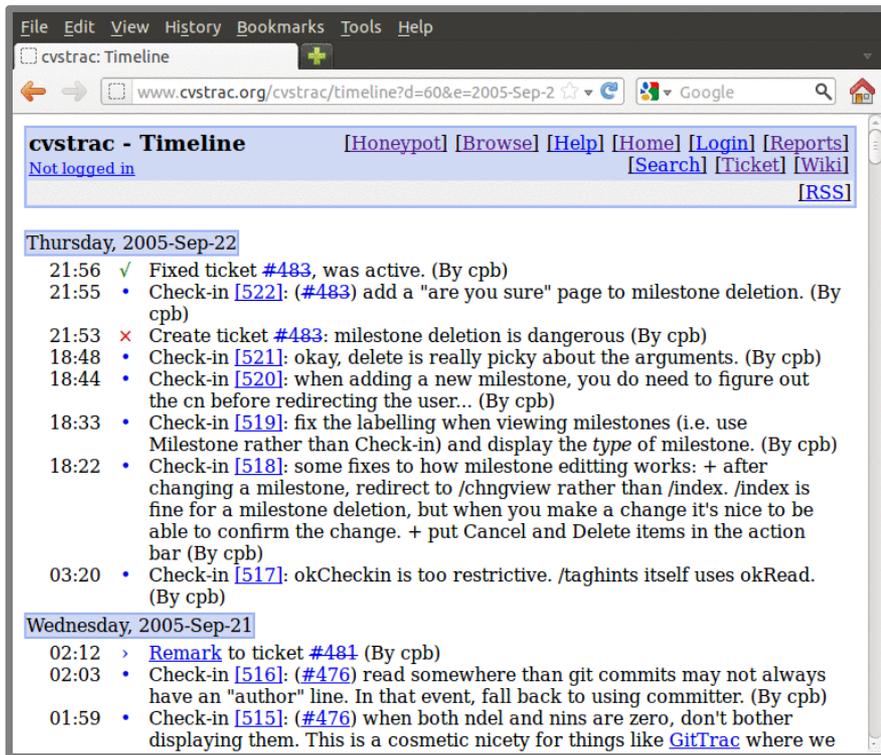
Thursday, 2005-Sep-22

- 21:56 ✓ Fixed ticket #483, was active. (By cpb)
- 21:55 • Check-in [522]: (#483) add a "are you sure" page to milestone deletion. (By cpb)
- 21:53 ✗ Create ticket #483: milestone deletion is dangerous (By cpb)
- 18:48 • Check-in [521]: okay, delete is really picky about the arguments. (By cpb)
- 18:44 • Check-in [520]: when adding a new milestone, you do need to figure out the cn before redirecting the user... (By cpb)
- 18:33 • Check-in [519]: fix the labelling when viewing milestones (i.e. use Milestone rather than Check-in) and display the *type* of milestone. (By cpb)
- 18:22 • Check-in [518]: some fixes to how milestone editing works: + after changing a milestone, redirect to /chngview rather than /index. /index is fine for a milestone deletion, but when you make a change it's nice to be able to confirm the change. + put Cancel and Delete items in the action bar (By cpb)
- 03:20 • Check-in [517]: okCheckin is too restrictive. /taghints itself uses okRead. (By cpb)

Wednesday, 2005-Sep-21

- 02:12 > Remark to ticket #481 (By cpb)
- 02:03 • Check-in [516]: (#476) read somewhere than git commits may not always have an "author" line. In that event, fall back to using committer. (By cpb)
- 01:59 • Check-in [515]: (#476) when both ndel and nins are zero, don't bother displaying them. This is a cosmetic nicety for things like GitTrac where we

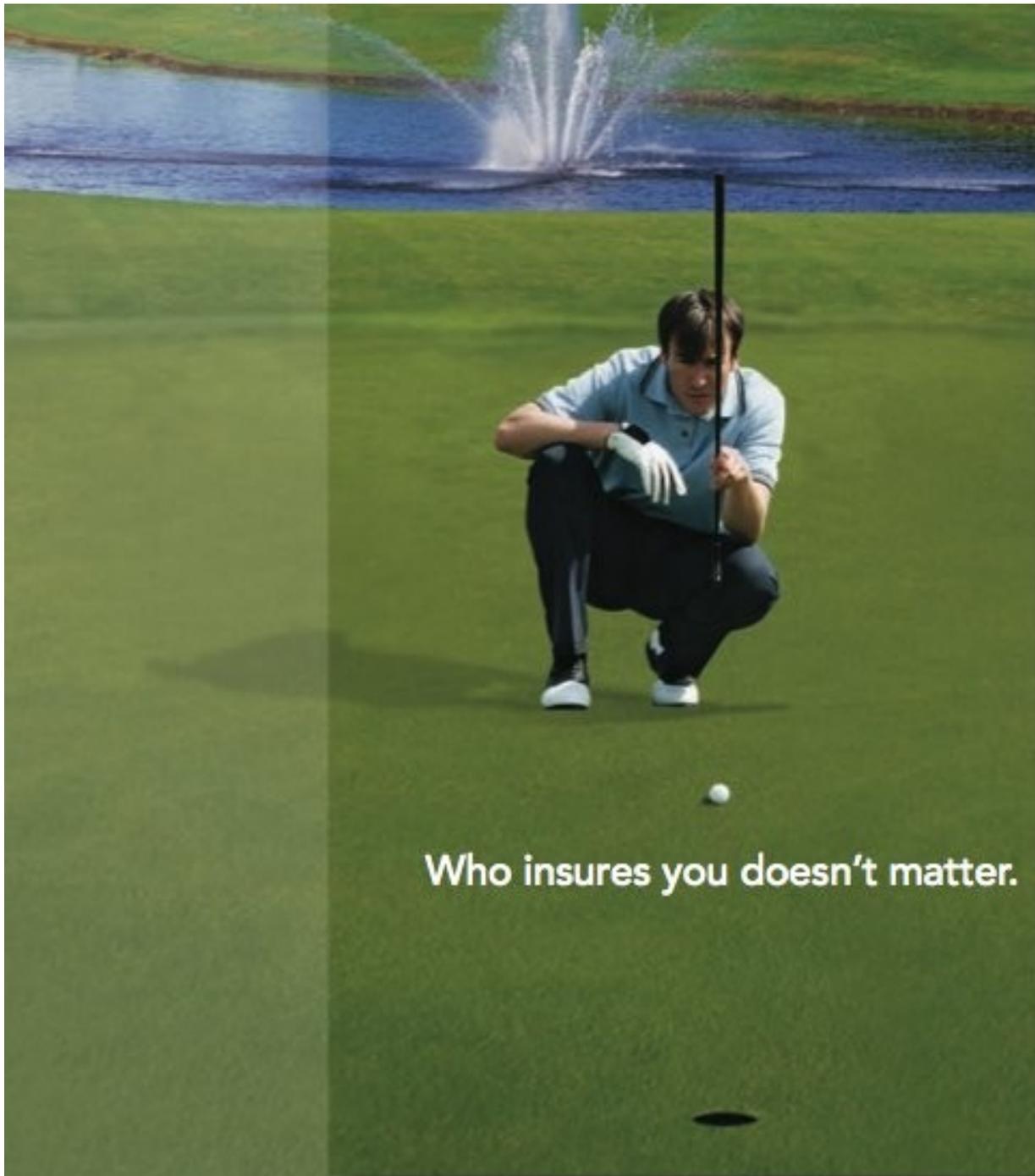
CVSTrac



- Tied to CVS
- Adds:
 - Timeline
 - Tickets
 - Wiki
 - File browsing
- Copied by “Trac”
- Situational Awareness



SITUATIONAL AWARENESS



Who insures you doesn't matter.



Until it does.





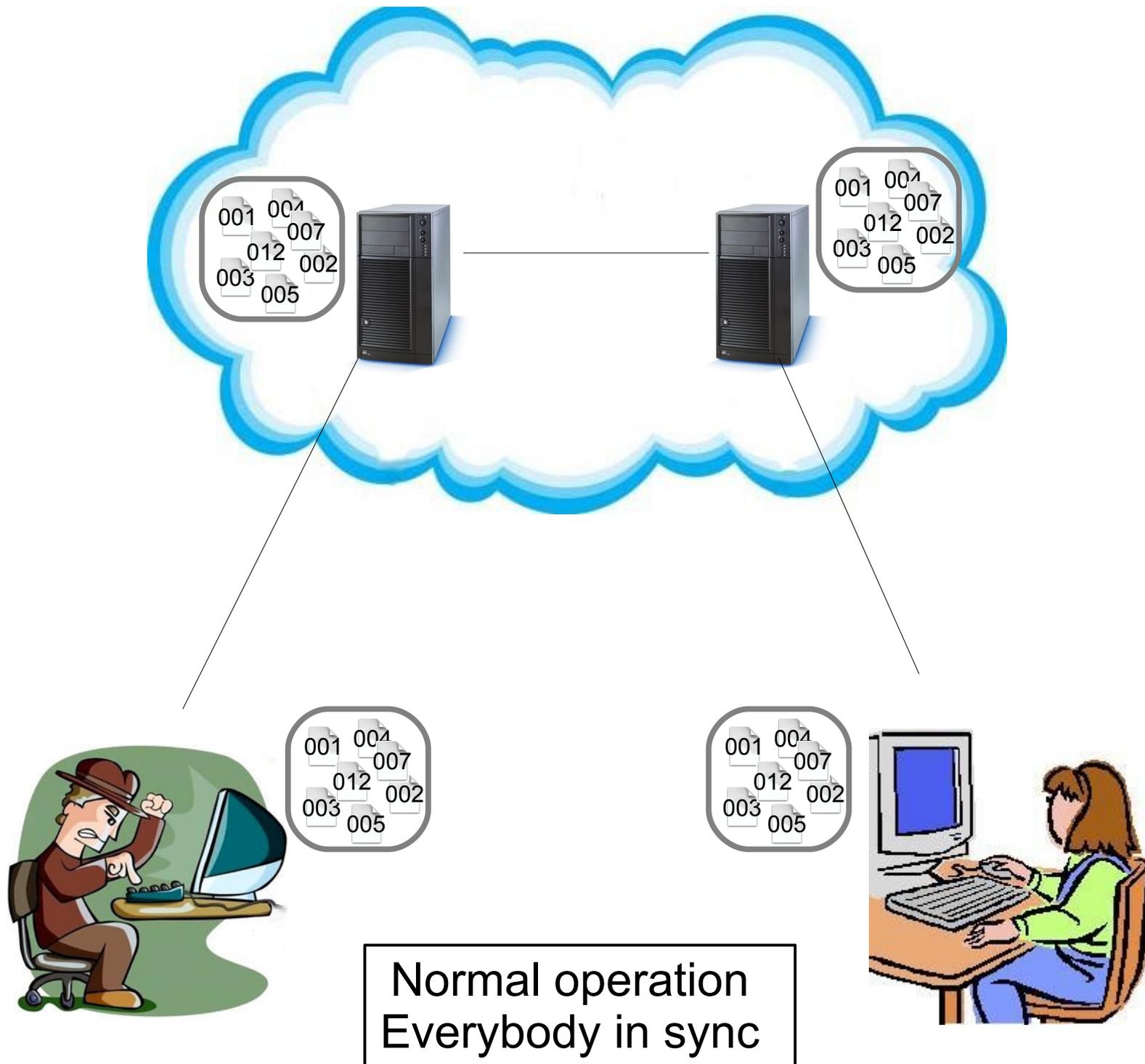


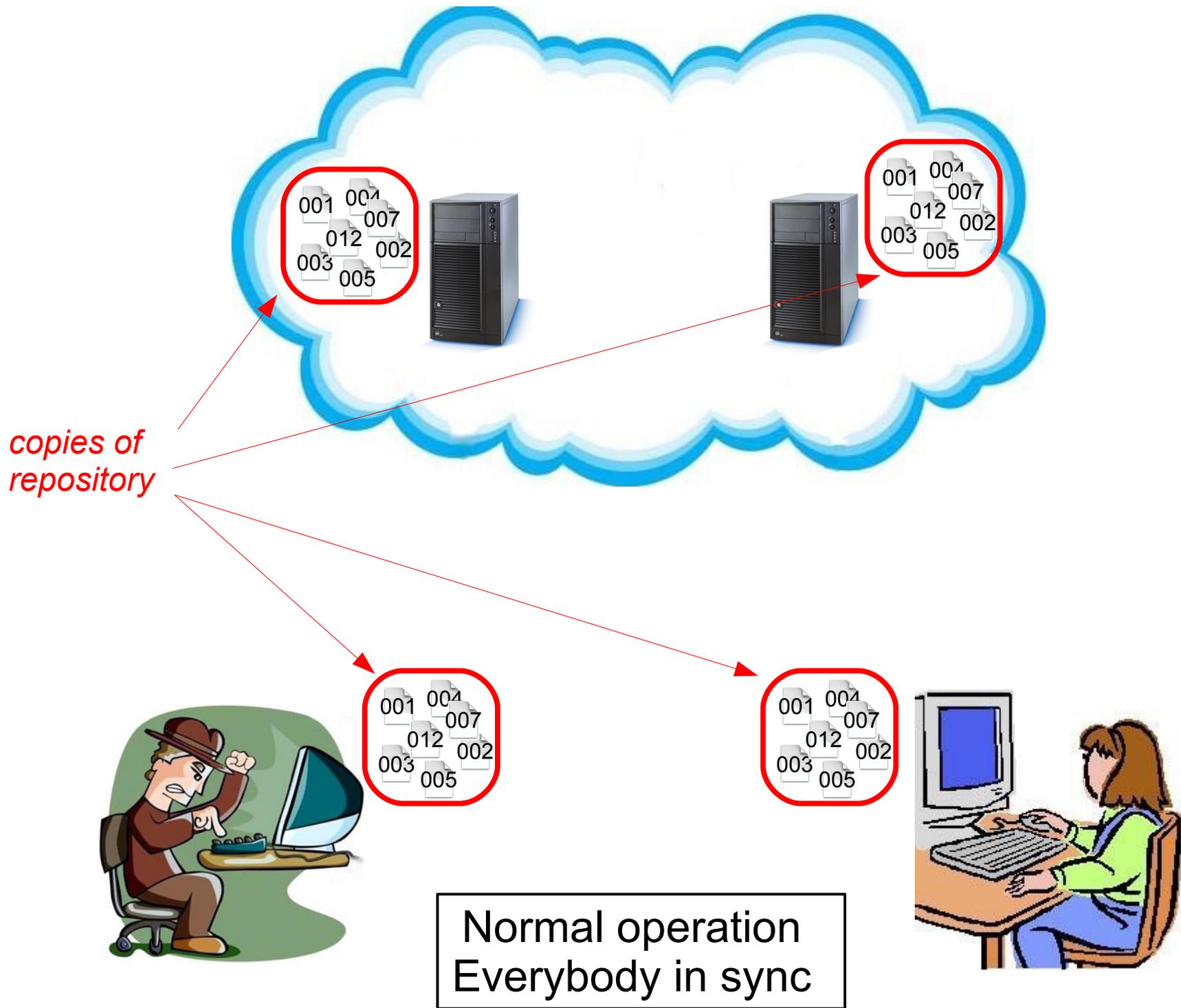
Concurrent vs. Distributed

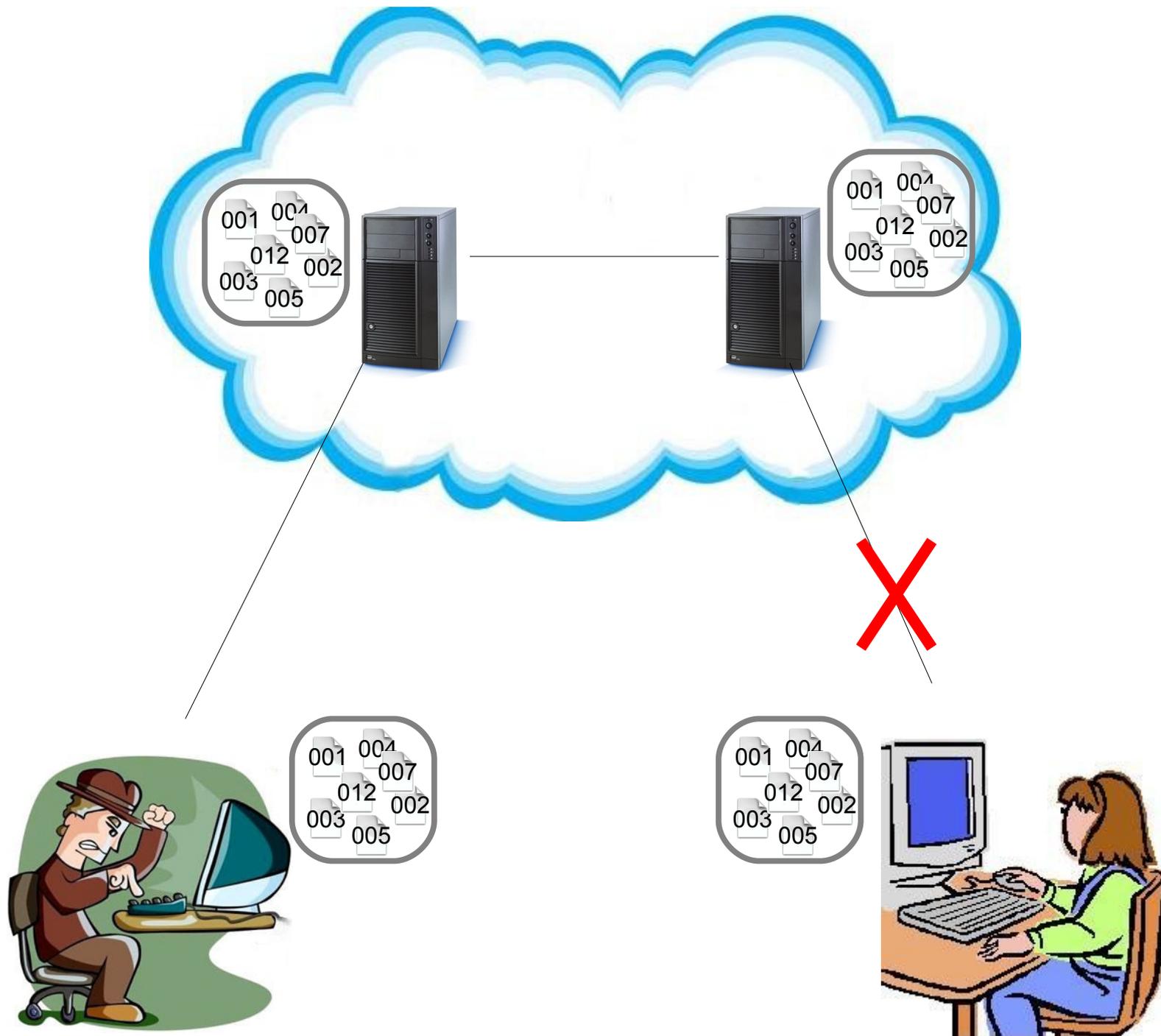


- One central repo
- Need backups
- Slow check-out, check-in & diff
- Works only on-network
- cvs, svn

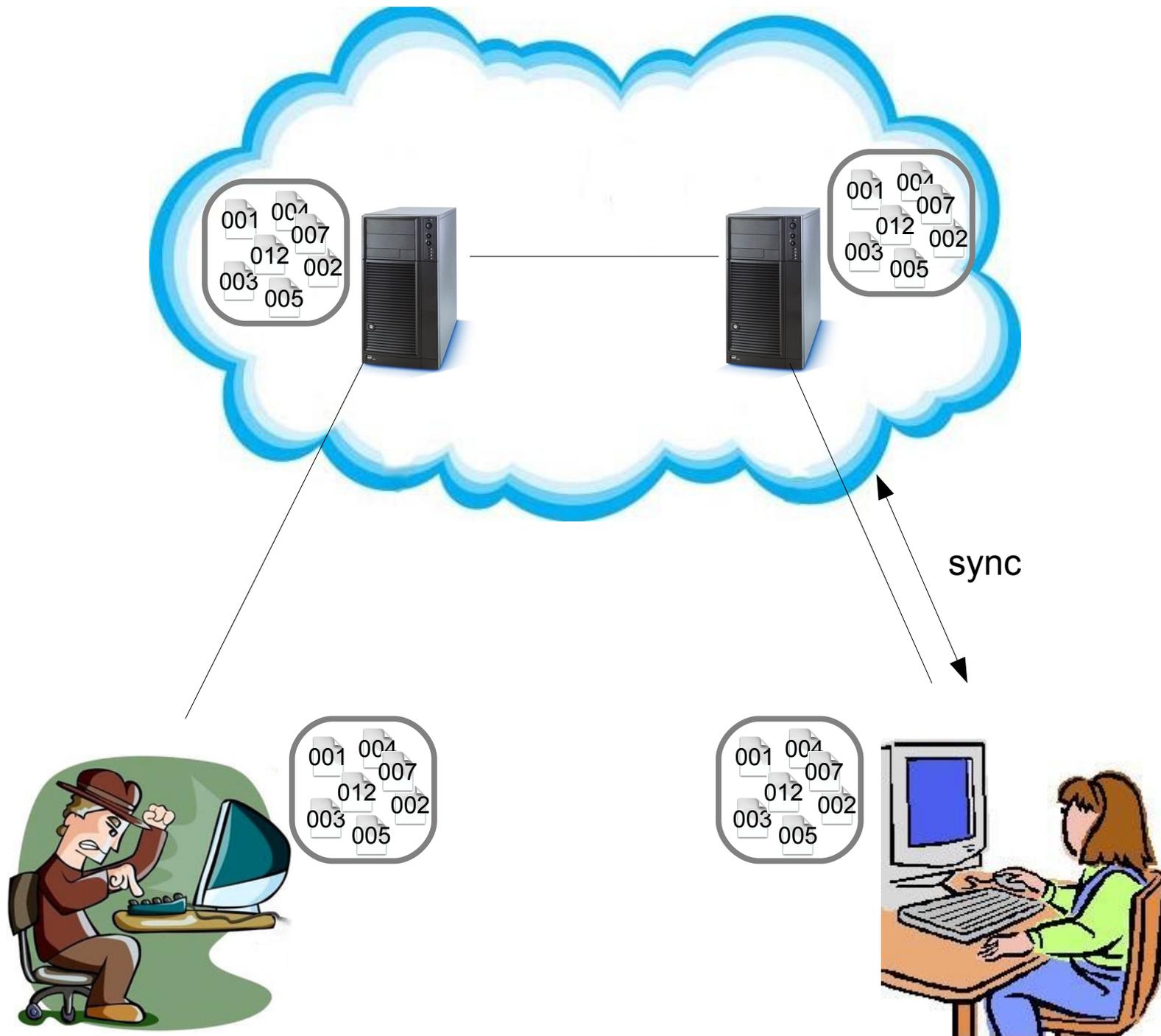
- Each user has a copy
- Automatic backup
- Fast check-out, check-in & diff
- Disconnected operation
- git, hg, bzd, mtn



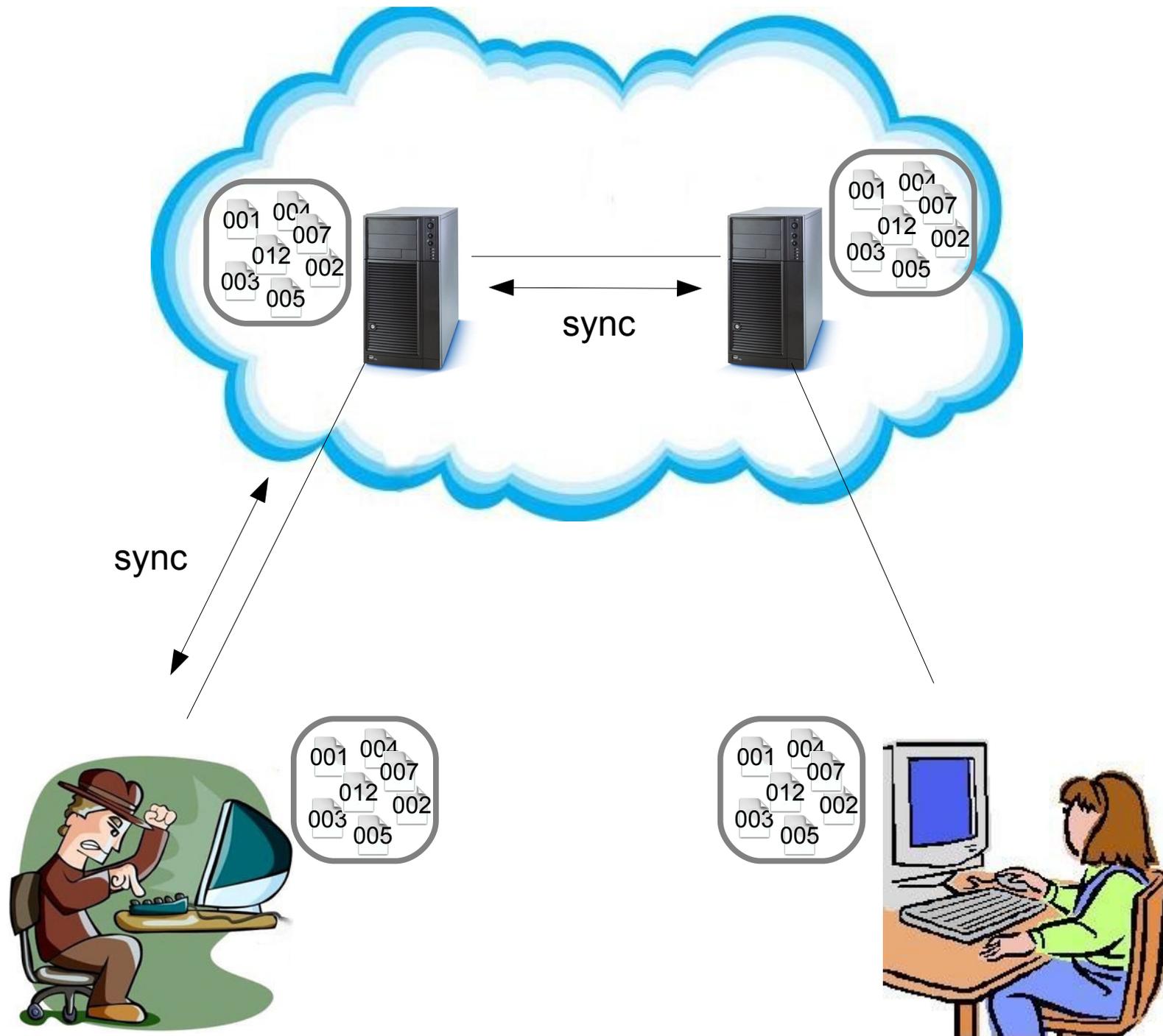




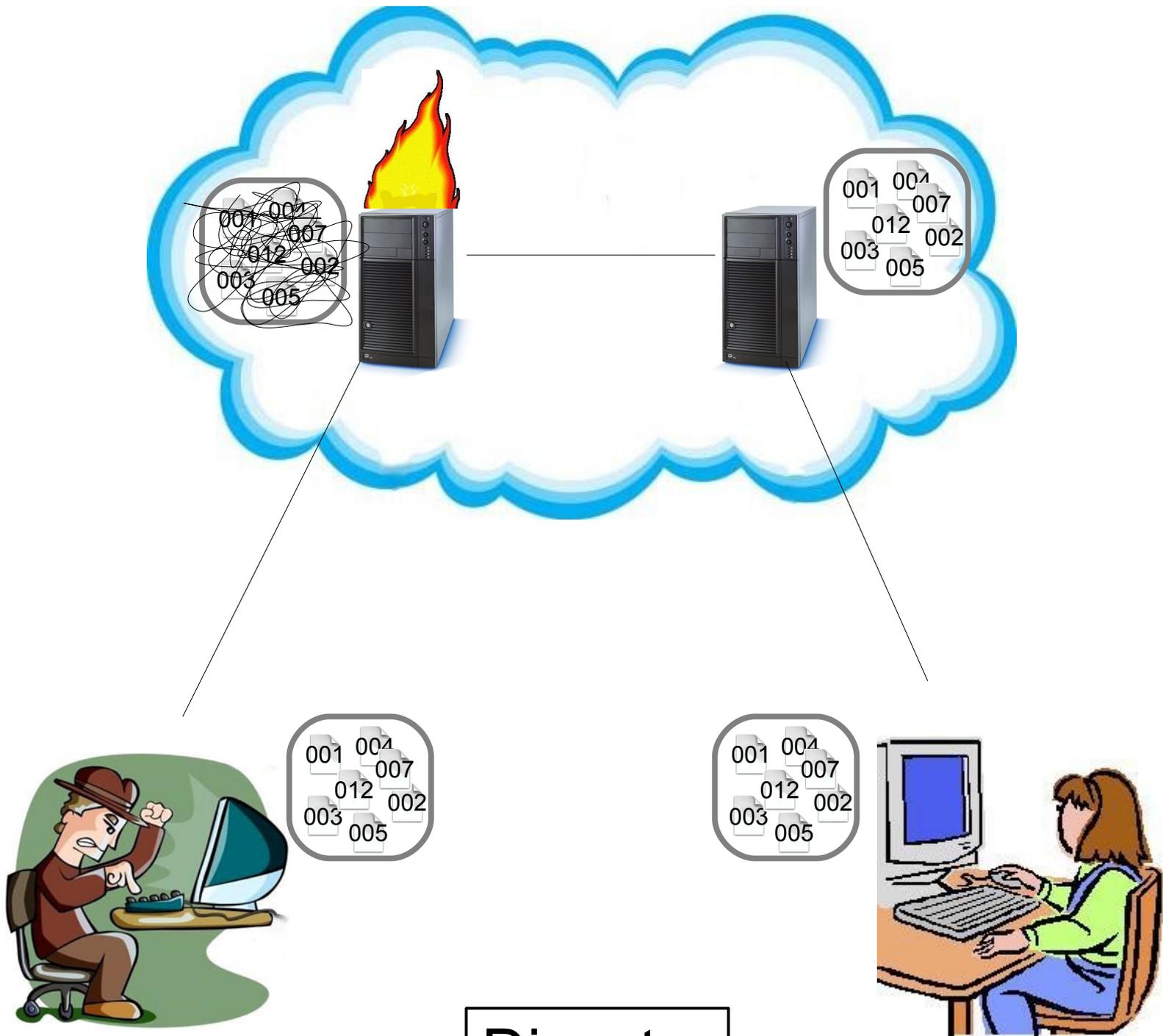
Disconnected operation



Resynchronization



Resynchronization



Disaster

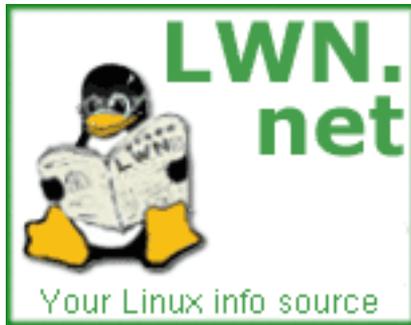
<http://www.firebirdsql.org/>

18-Dec-2009 Catastrophic Events at Our Internet Host

Thanks to the progressive death of the NAS server from which all our Internet facilities are served, we lost everything - Tracker, website, Wiki and news mirrors - piece-by-piece over the past days.

By gargantuan effort, Sean Leyne and his colleagues at Broadview have been reconstructing our infrastructure from scratch. The main website is up (obviously!). Others are more challenging, requiring radical reconstruction using new versions of underlying software, and will take time.

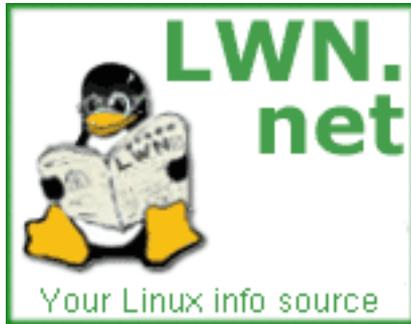
For now, if you find broken links (other than those to our other servers) then please feel free to inform us via a message to the firebird-general list (joining instructions [HERE](#)).



Jun 1, 2009 23:37 UTC (Mon) by jake

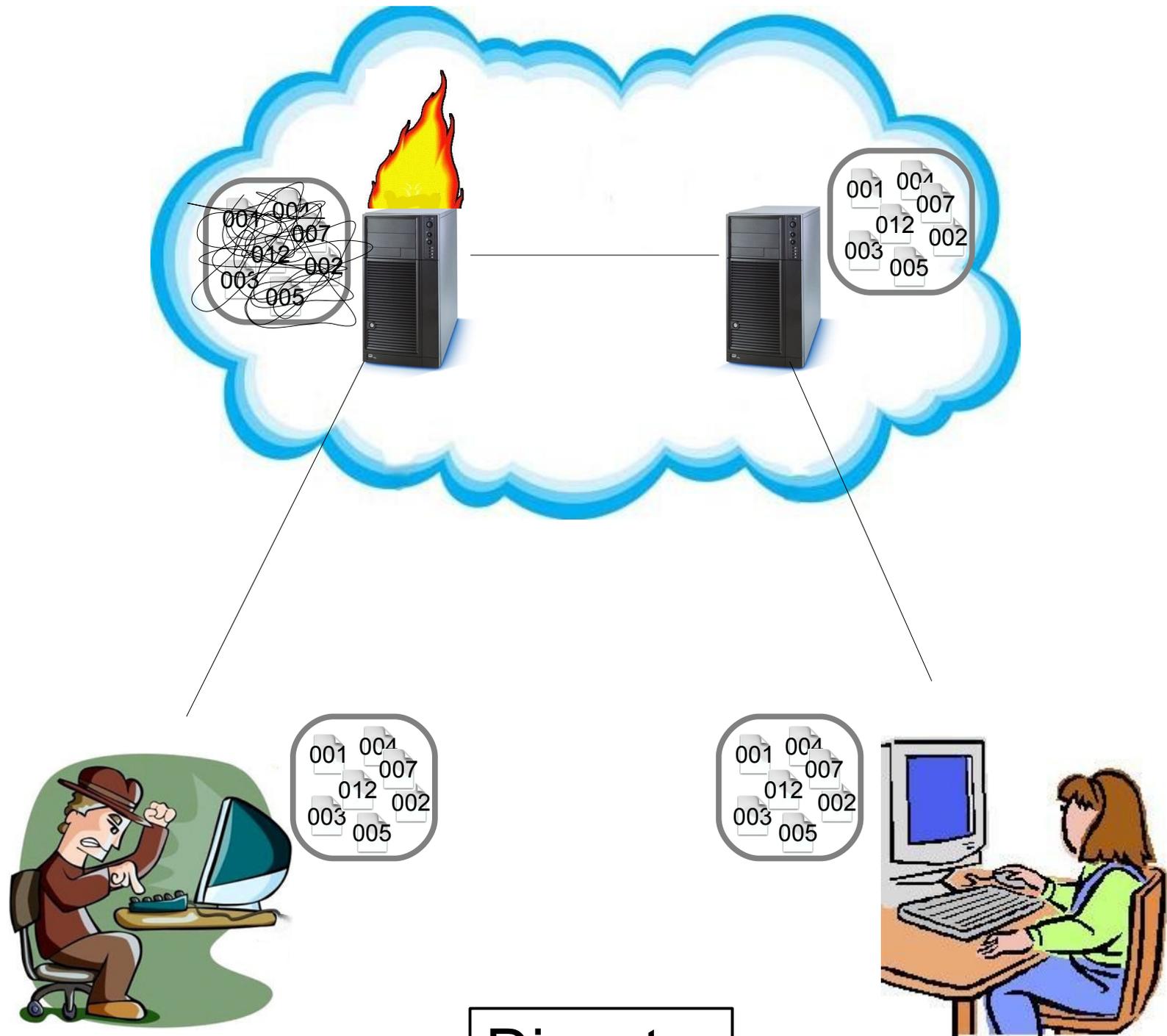
The server that hosts GNU and other projects, savannah.gnu.org had a catastrophic failure over the weekend. A message in the savannah-users mailing list describes the problems with a RAID array which eventually led to filesystem corruption. This took out the source code repositories for the projects hosted there. "The last backup was performed while RAID was buggy, and lots of files were reported missing, in particular for CVS/SVN/Git/Hg.

Hence the last backup is incomplete. [...] And, our last full backup from tape is from end of April. Normally tape backups are more recent, but there were independent backup issues. We've not discussed since in detail as we're focusing on recovering the data asap. "

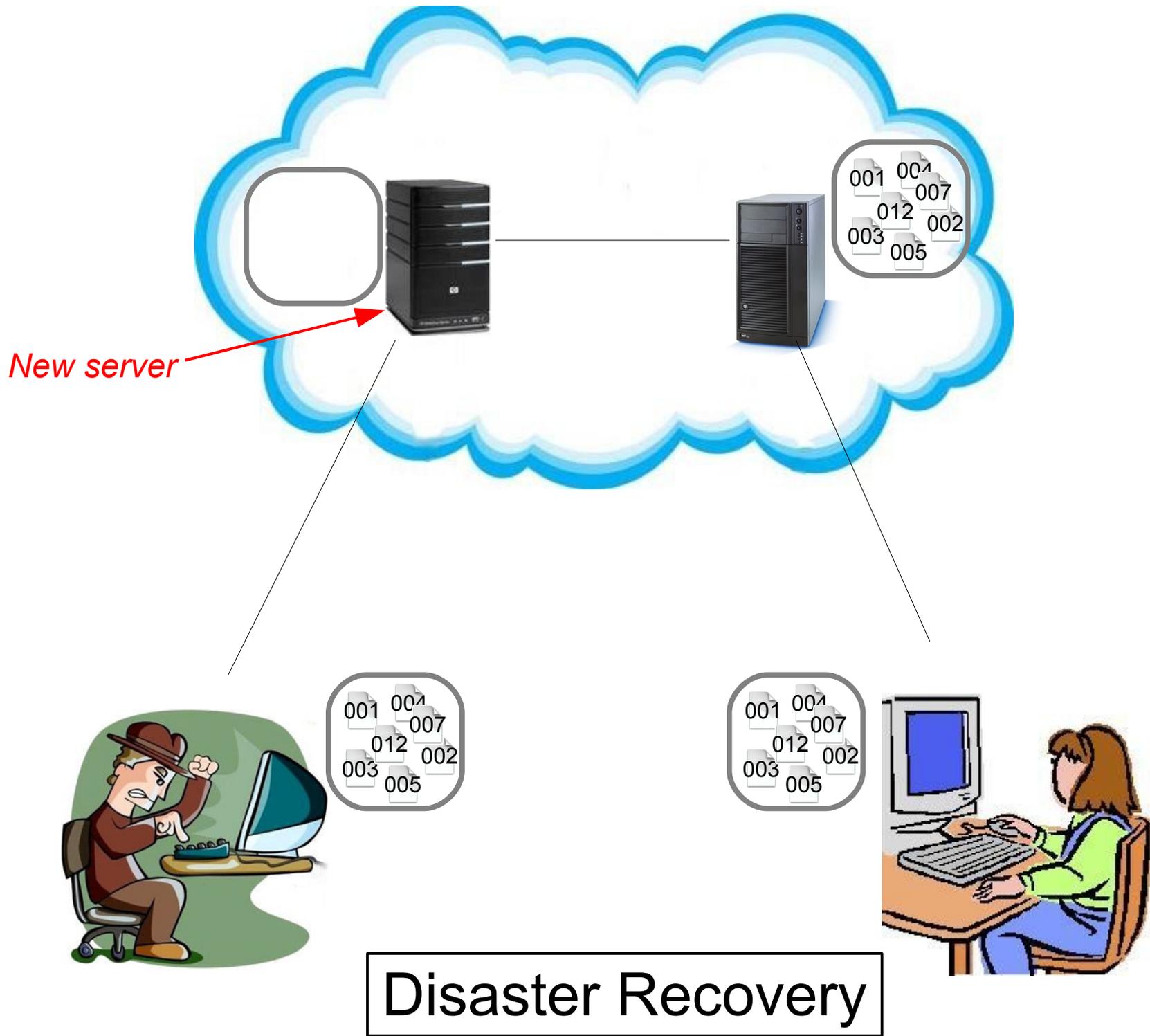


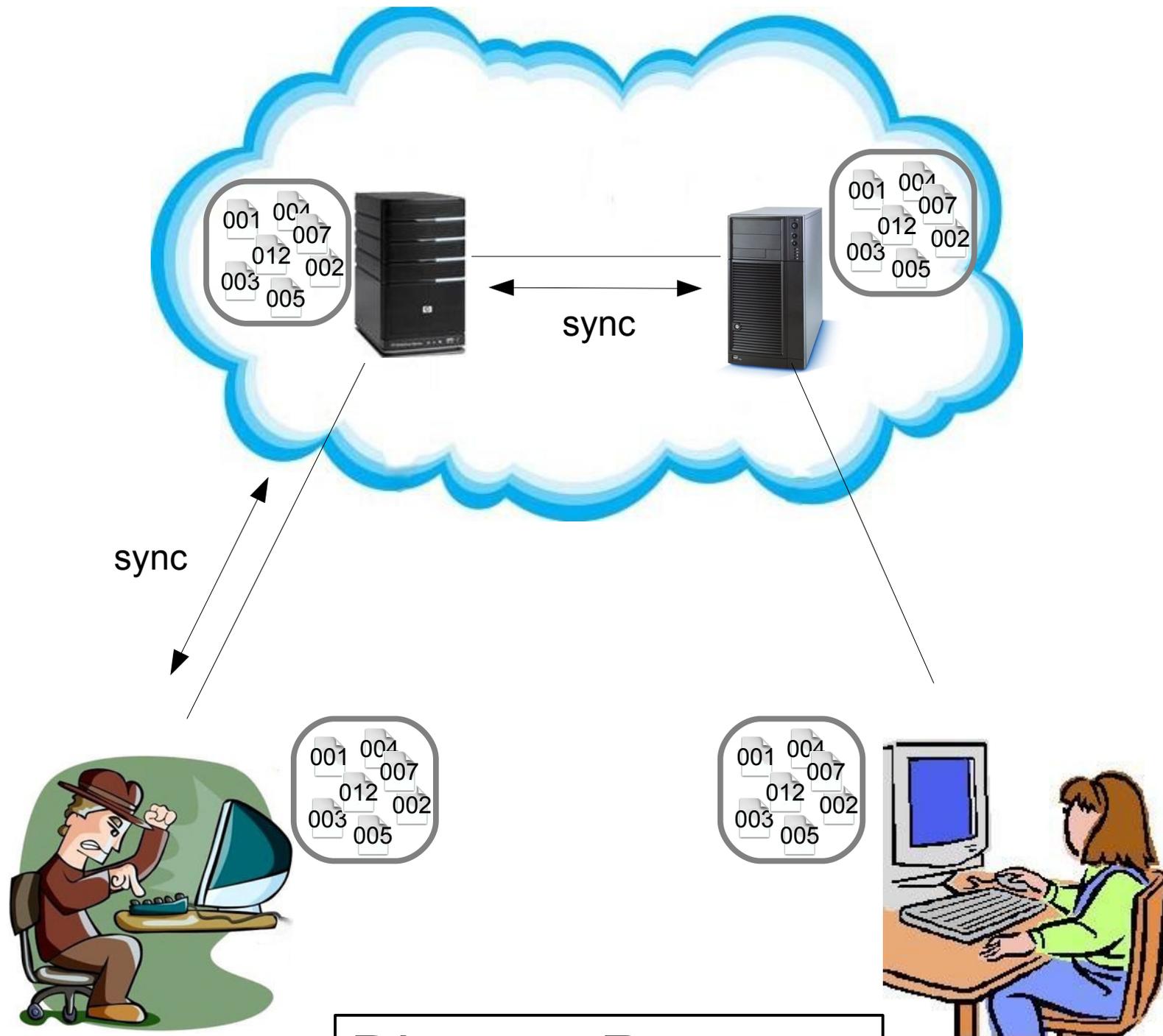
Jan 30, 2011 by jake

Sourceforge.net briefly reported an attack on its infrastructure on Thursday January 27 that resulted in some services (CVS, interactive ssh shells, and others) being suspended....



Disaster





Disaster Recovery

Concurrent vs. Distributed



- One central repo
- Need backups
- Slow check-out, check-in & diff
- Works only on-network
- cvs, svn

- Each user has a copy
- Automatic backup ✓
- Fast check-out, check-in & diff
- Disconnected operation ✓
- git, hg, bzd, mtn

Concurrent vs. Distributed



- Cathedral
- Carefully planned

- Bazaar
- Chaos

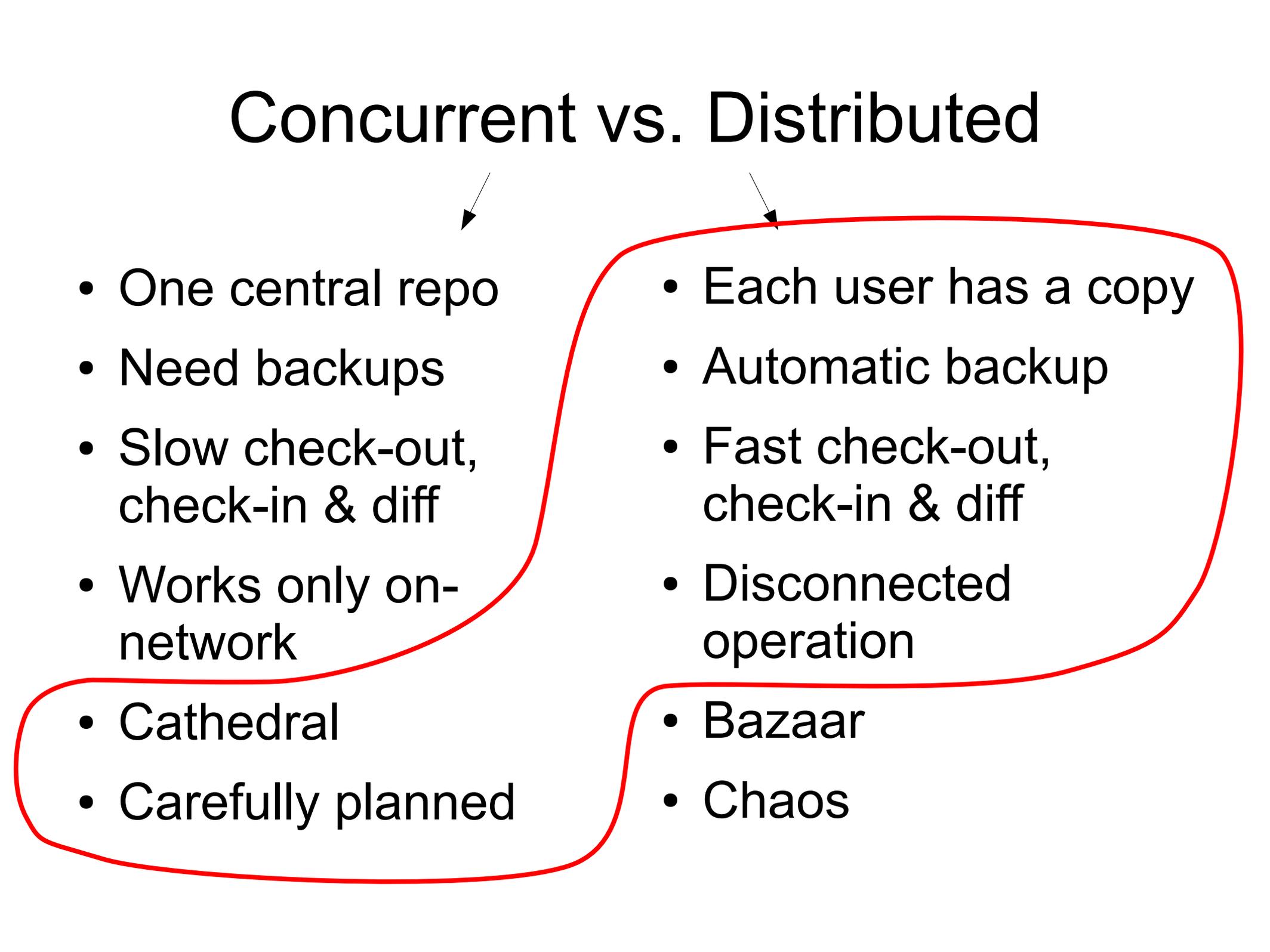
Concurrent vs. Distributed



- One central repo
- Need backups
- Slow check-out, check-in & diff
- Works only on-network
- Cathedral
- Carefully planned

- Each user has a copy
- Automatic backup
- Fast check-out, check-in & diff
- Disconnected operation
- Bazaar
- Chaos

Concurrent vs. Distributed



- One central repo
- Need backups
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- Cathedral
- Carefully planned

- Each user has a copy
- Automatic backup
- Fast check-out, check-in & diff
- Disconnected operation

- Bazaar
- Chaos

Fossil Key Features

- Disconnected operation
- Automatic sync and backup
- Supports “cathedral-style” development
- Easy to use
 - low ceremony
 - self-contained
 - simple setup
- CVSTrac-like → situational awareness

A brief history of



~2005 First Code

2007-07-21 Self-hosting

2007-11-12 SQLite docs cut-over

2009-07-29 SQLite code cut-over

2011-02-28 Tcl/Tk cut-over

BSD vs GPL

- Free to everyone
- Requires a CLA to contribute upstream
- 1,528 bytes
- Free to those who share
- CLA is implied
- 17,987 bytes

The Fossil CLA

<http://www.fossil-scm.org/fossil/doc/trunk/www/copyright-release.html>

- Assign *joint* ownership
- Agree not to assert moral rights
- Royalty-free patent license
- Warrant that you have the rights named above

The Fossil CLA

<http://www.fossil-scm.org/fossil/doc/trunk/w>

- Assign ***joint*** ownership
- Agree not to assert moral rights
- Royalty-free patent license
- Warrant that you have the rights named above

“You agree that both you and Hwaci can do all things in relation to your contribution as if each of us were the sole owners....”

Git vs. Fossil



- Distributed
- Lots of little tools
- Lots of little files
- Developer branches
- GPL
- Separate web tools
- Complicated
- Undocumented file format
- Versioning only



- Disconnected
- One executable
- Single file repository
- Feature branches
- BSD
- Built-in web interface
- Simple
- Enduring file format
- Vers, tickets, wiki, & blog

Rebasing

“In the fossil community - and hence in fossil itself - development history is pretty much sacrosanct. The very name "fossil" was chosen to reflect the unchanging nature of things in that history.

In git (or rather, the git community), the development history is part of the published aspect of the project, so it provides tools for rearranging that history so you can present what you "should" have done rather than what you actually did.”

Mike Meyer - mwb@mired.org
Fossil mailing list
2011-10-04

Quotes About Git

Git is not a Prius. Git is a Model T. Its plumbing and wiring sticks out all over the place. You have to be a mechanic to operate it successfully or you'll be stuck on the side of the road when it breaks down. And it **will** break down.

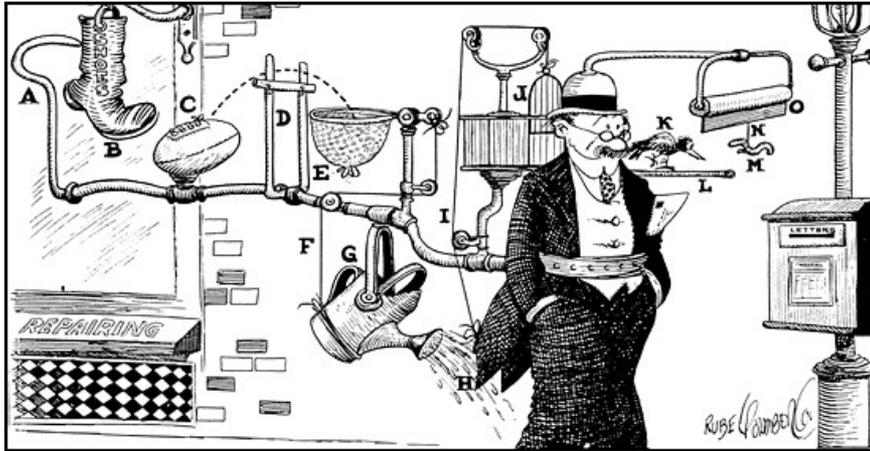
Nick Frina

Git Is Simpler Than You Think

<http://nfarina.com/post/9868516270/git-is-simpler>

2011-09-07

Git vs. Fossil



Quotes About Git

Git approaches the useability of iptables, which is to say, utterly unusable unless you have the manpage tattooed on you arm.

by mml

<http://news.ycombinator.com/item?id=1433387>

Quotes About Git

It's simplest to think of the state of your [git] repository as a point in a high-dimensional "code-space", in which branches are represented as n-dimensional membranes, mapping the spatial loci of successive commits onto the projected manifold of each cloned repository.

<http://tartley.com/?p=1267>

Quotes About Fossil

Fossil mesmerizes me with simplicity especially after I struggled to get a bug-tracking system to work with mercurial.

rawjeev at

<http://stackoverflow.com/questions/156322/what-do-people-think-of-the-fossil-dvcs>

Quotes About Fossil

Fossil is awesome!!! I have never seen an app like that before, such simplicity and flexibility!!!

zengr at

<http://stackoverflow.com/questions/138621/best-version-control-for-lone-developer>

Quotes About Fossil

Just want to say thanks for fossil making my life easier.... Also [for] not having a misanthropic command line interface.

Joshua Paine at

<http://www.mail-archive.com/fossil-users@lists.fossil-scm.org/msg02736.html>

Quotes About Fossil

We use it at a large university to manage code that small teams write. The runs everywhere, ease of installation and portability is something that seems to be a good fit with the environment we have (highly distributed, sometimes very restrictive firewalls, OSX/Win/Linux). We are happy with it and teaching a Msc/Phd student (read complete novice) fossil has just been a smoother ride than Git was.

viablepanic at

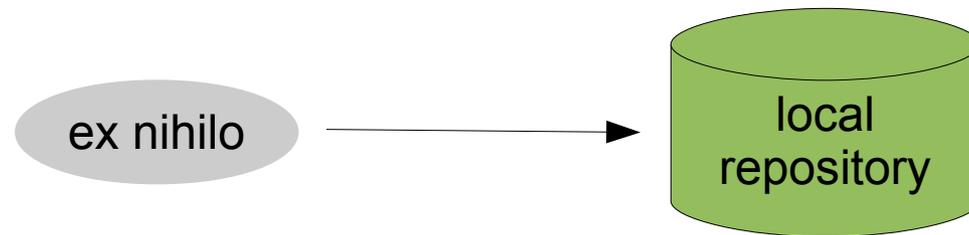
http://www.reddit.com/r/programming/comments/bxcto/why_not_fossil_scm/



Using Fossil

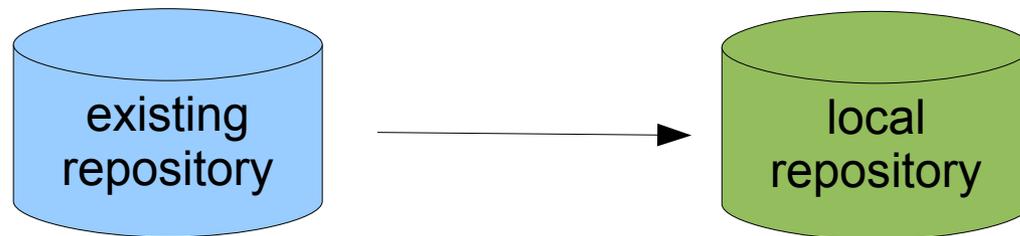
Creating A Fossil Repo

```
fossil init filename
```



Creating A Fossil Repo

```
fossil clone url filename
```



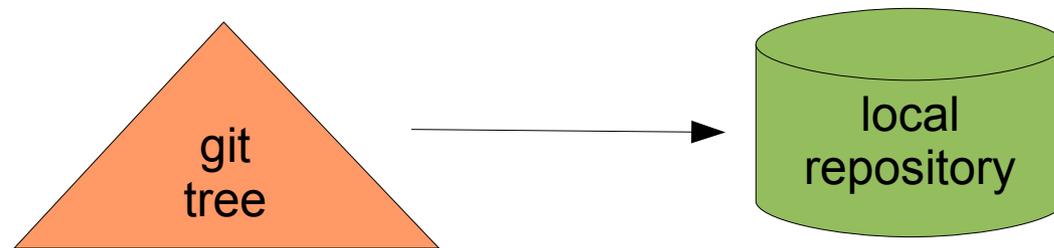
```
fossil clone http://www.fossil-scm.org/fossil x.fossil
```

```
fossil clone file:../y.fossil x.fossil
```

```
fossil clone ssh://drh@iMac/Users/drh/y.fossil x.fossil
```

Creating A Fossil Repo

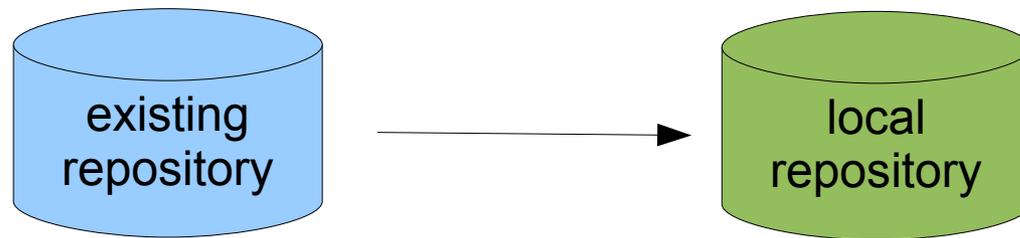
```
fossil import --git filename
```



```
git fast-export --all | fossil import --git x.fossil
```

Creating A Fossil Repo

`scp` *remote* *filename*



Maybe do "fossil scrub" first....

Creating A Fossil Repo

```
fossil clone http://core.tcl.tk/tcl/tcl.fossil
```

mirror1.tcl.tk

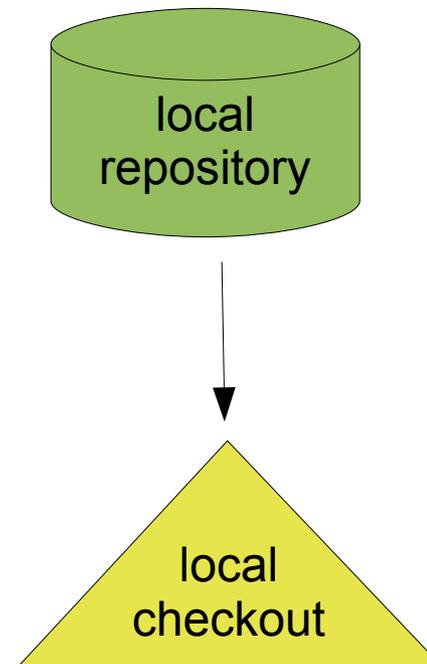


tk
tdbc
itk
tclws
itcl
tcloo
thread
tclconfig



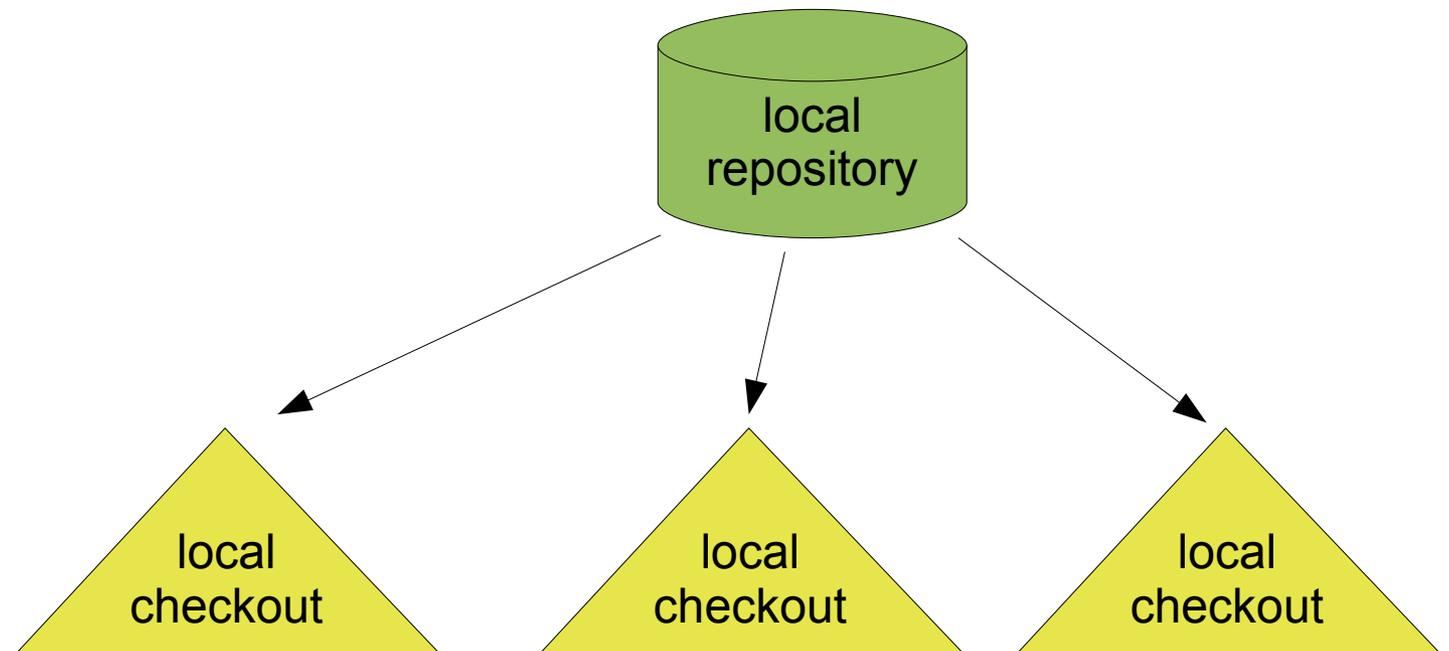
Creating A Local Checkout

```
cd working-directory  
fossil open filename
```



Creating A Local Checkout

```
cd working-directory  
fossil open filename
```



Changing Versions

```
fossil update [version]
```

Concurrent vs. Distributed



- 1.1
- 1.2
- 1.3



- 72b84d066a4eac90a7714
2c3ea66ef3d21a1104e
- 934cda2987c331b57a195
ed45e9a91794896672
- 8166f33885b86029bb8a0f
baf70606a0d2d5ec2e

Changing Versions

`fossil update [version]`

- 
- unique prefix of SHA1 hash
 - branch name
 - tag
 - date/time
 - branch-name : date/time
 - next
 - previous

Changing Versions

```
fossil update [version]
```



trunk
core-8-5-branch
ferrieux-nacl
mig-no280
tip-389-impl
...

Viewing History

```
fossil ui [repo-filename]
```

- Automatically finds unused TCP port
- Automatically starts web browser
- Listens on 127.0.0.1 only
- Automatic administrator login



200 Entries

Checkins Only

Events Only

Older

Show Files

Tags Only

Tickets Only

Wiki Only

20 most recent timeline items

2011-10-17

17:38

[\[bde0ffa6e5\]](#) Leaf: merge trunk (user: [dgp](#), tags: [remove-pathappend-intrep](#))

2011-10-15

16:48

[\[ae57dfb77e\]](#) Leaf: And the failing test file too... (user: [dkf](#), tags: [bug-3418547](#))

15:57

[\[5ba2c5ac72\]](#) Commit of patch relating to interp resolvers (user: [dkf](#), tags: [bug-3418547](#))

10:28

[\[95db49a59b\]](#) Leaf: Update to Olson's tzdata2011i (user: [venkat](#), tags: [trunk](#))

10:21

[\[d11be2712d\]](#) Leaf: Update to Olson's tzdata2011i (user: [venkat](#), tags: [core-8-5-branch](#))

2011-10-13

21:10

[\[e7017fcc72\]](#) Leaf: merge trunk (user: [dkf](#), tags: [dkf-utf16-branch](#))

21:09

[\[96352b53af\]](#) Leaf: merge trunk (user: [dkf](#), tags: [dkf-notifier-poll](#))

21:04

[\[a6843c662e\]](#) Leaf: Ugh; Tcl_DStringInit in wrong place... (user: [dkf](#), tags: [bug-1224888](#))

19:18

[\[610f5b391c\]](#) merge trunk (user: [dgp](#), tags: [remove-pathappend-intrep](#))

18:19

[\[f0486f9bbd\]](#) Correct botch. (user: [dgp](#), tags: [trunk](#))

18:10

[\[d287fac6bb\]](#) 3423059 silence compiler warning (user: [dgp](#), tags: [trunk](#))

18:02

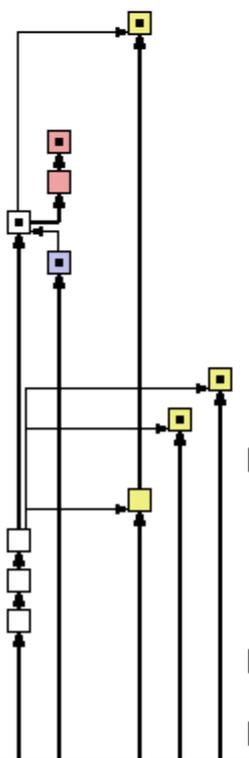
[\[d6b80e8cf1\]](#) 3423069 silence compiler warnings. (user: [dgp](#), tags: [trunk](#))

12:34

[\[fbc6fd24c0\]](#) Getting better; now possibly with autoconf magic! Comments too. (user: [dkf](#), tags: [bug-1224888](#))

12:16

[\[9856078e30\]](#) A little more resilience. (user: [dkf](#), tags: [bug-1224888](#))



Making Changes

```
fossil add files...
```

```
fossil rm files...
```

```
fossil mv files...
```

```
fossil addremove files...
```

If a directory name is used, the operation applies to all content of that directory.

Status Of Working Check-out

```
fossil status  
fossil changes  
fossil diff  
fossil gdiff
```

Checking In Changes

```
fossil commit
```

```
--branch branch-name  
--bgcolor color  
--private  
--force  
--tag tag-name  
--comment message  
-m message
```

Sharing With Others

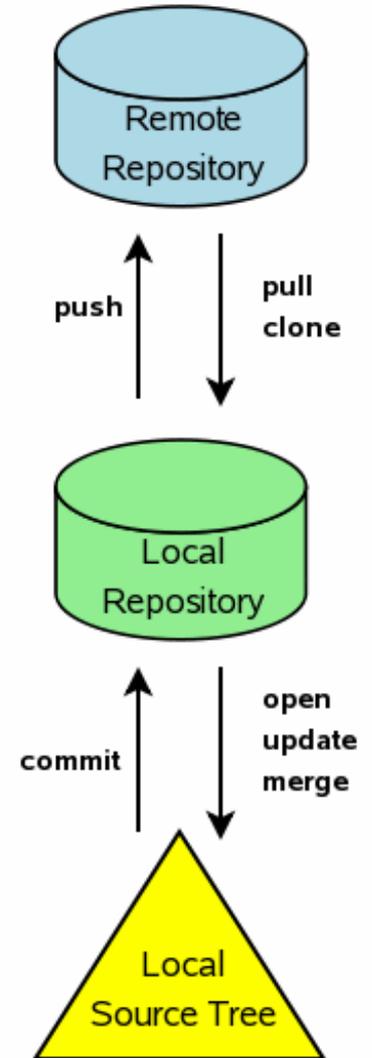
```
fossil push [url]  
fossil pull [url]  
fossil sync [url]
```

Set/Query Default Peer

```
fossil remote [url]
```

Autosync mode

- Pull before update
- Pull before commit
- Push after commit
- Enabled by default
- `fossil setting autosync [on/off]`



Branching

```
fossil commit --branch brname
```

Branching Example

```
fossil init demo.fossil
fossil open demo.fossil
# Write some code
fossil addremove
fossil commit
# Add code for a new feature
fossil addremove
fossil commit --branch new-feature
```

File Edit View History Bookmarks Tools Help

localhost:8080/timeline?n=20&y=ci

Demo Project: Timeline



Demo Project Timeline

Logged In as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

3 most recent checkins

2011-10-18

12:56  [\[a5c0c000a1\]](#) **Leaf:** Add more code (user: [drh](#), tags: [new-feature](#))

12:55   [\[d2c808cd9a\]](#) **Leaf:** First code check-in (user: [drh](#), tags: [trunk](#))

12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Fossil version 1.19 [a47fde8eed] 2011-10-17 11:37:26

Branching Example

```
fossil init demo.fossil
fossil open demo.fossil
# Write some code
fossil addremove
fossil commit
# Add code for a new feature
fossil addremove
fossil commit --branch new-feature
```

Oop! Forgot the --branch option!

File Edit View History Bookmarks Tools Help

localhost:8080/timeline

Demo Project: Timeline



Demo Project Timeline

Logged In as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

200 Entries Checkins Only Events Only Show Files Tags Only Tickets Only Wiki Only

3 most recent timeline items

2011-10-18

- 12:56 [\[a5c0c000a1\]](#) **Leaf:** Add more code (user: [drh](#), tags: [trunk](#))
- 12:55 [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54 [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Fossil version 1.19 [a47fde8eed] 2011-10-17 11:37:26

File Edit View History Bookmarks Tools Help

localhost:8080/timeline

Demo Project: Timeline



Demo Project Timeline

Logged In as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

200 Entries Checkins Only Events Only Show Files Tags Only Tickets Only Wiki Only

3 most recent timeline items

2011-10-18

- 12:56 [\[a5c0c000a1\]](#) **Leaf:** Add more code (user: [drh](#), tags: [trunk](#))
- 12:55 [\[d2c708cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54 [\[3b7e4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Fossil version 1.19 [a47fde8eed] 2011-10-17 11:37:26

Click Here

File Edit View History Bookmarks Tools Help

localhost:8080/info/a5c0c000a1

Demo Project: Check-in [a5c0c...



Demo Project Check-in [a5c0c000a1]

Logged In as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

Overview

SHA1 Hash: a5c0c000a136f8028dcb73d6550d80c9327a9031 (Record ID: 5)
Date: [2011-10-18 12:56:07](#)
User: [drh](#)
Comment: Add more code
Received From: drh @ on 2011-10-18 12:56:07
Timelines: [family](#) | [ancestors](#) | [trunk](#)
Other Links: [files](#) | [Tarball](#) | [ZIP archive](#) | [manifest](#) | [edit](#)

Click Here

Tags And Properties

- **branch=trunk** inherited from [\[3b2ee4513b\]](#)
- **sym-trunk** inherited from [\[3b2ee4513b\]](#)

Changes

User: drh

Comment: Add more code

Check-in Time: 2011-10-18 12:56:07

Background Color:

- Propagate color to descendants
- (none)
- #f2dcdc
- #bde5d6
- #a0a0a0
- #b0b0b0
- #c0c0c0
- #d0d0d0
- #e0e0e0
- #c0fff0
- #c0f0ff
- #d0c0ff
- #ffc0ff
- #ffc0d0
- #fff0c0
- #f0ffc0
- #c0ffc0
- #a8d3c0
- #a8c7d3
- #aaa8d3
- #cba8d3
- #d3a8bc
- #d3b5a8
- #d1d3a8
- #b1d3a8
- #8eb2a1
- #8ea7b2
- #8f8eb2
- #ab8eb2
- #b28e9e
- #b2988e
- #b0b28e
- #95b28e
- #80d6b0
- #80bbd6
- #8680d6
- #c680d6
- #d680a6
- #d69b80
- #d1d680
- #91d680



custom

- Add the following new tag name to this check-in:
- Cancel special tag **branch**
- Cancel tag **trunk**



Branching: Make this check-in the start of a new branch named: new-feature

Leaf Closure: Mark this leaf as "closed" so that it no longer appears on the "leaves" page and is no longer labeled as a "Leaf".

Preview Apply Changes Cancel



File Edit View History Bookmarks Tools Help

localhost:8080/timeline?n=20&y=ci

Demo Project: Timeline



Demo Project Timeline

Logged In as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

3 most recent checkins

2011-10-18

12:56  [\[a5c0c000a1\]](#) **Leaf:** Add more code (user: [drh](#), tags: [new-feature](#))

12:55   [\[d2c808cd9a\]](#) **Leaf:** First code check-in (user: [drh](#), tags: [trunk](#))

12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Fossil version 1.19 [a47fde8eed] 2011-10-17 11:37:26

Continue Working On Trunk

```
fossil update trunk  
# Add new code  
fossil commit
```



Demo Project Timeline

Logged in as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

4 most recent checkins

2011-10-18

- 13:00  [\[e92643db3a\]](#) **Leaf:** Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) **Leaf:** Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Continue Working On New Feature

```
fossil update new-feature  
# Add new code  
fossil commit
```



Demo Project Timeline

Logged in as drh

- Home
 - Timeline
 - Files
 - Branches
 - Tags
 - Tickets
 - Wiki
 - Admin
 - Logout
- 200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

5 most recent checkins

2011-10-18

- 13:00  [\[371592bb5e\]](#) **Leaf:** Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) **Leaf:** Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Merging

```
fossil update trunk  
fossil merge new-feature  
# test  
fossil commit
```



Demo Project Timeline

Logged In as drh

- Home
 - Timeline
 - Files
 - Branches
 - Tags
 - Tickets
 - Wiki
 - Admin
 - Logout
- 200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

6 most recent checkins

2011-10-18

- 13:01  [\[76f8acec15\]](#) **Leaf:** Merge new feature into trunk (user: [drh](#), tags: [trunk](#))
- 13:00  [\[371592bb5e\]](#) **Leaf:** Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))



Demo Project Check-in [371592bb5e]

Logged In as drh

[Home](#) [Timeline](#) [Files](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Admin](#) [Logout](#)

Overview

SHA1 Hash: 371592bb5e77cb9329f48e9af0467fac0e8a5cd6 (Record ID: 10)

Date: [2011-10-18 13:00:42](#)

User: [drh](#)

Comment: Continue work on new feature

Received From: drh @ on 2011-10-18 13:00:42

Timelines: [family](#) | [ancestors](#) | [new-feature](#)

Other Links: [files](#) | [Tarball](#) | [ZIP archive](#) | [manifest](#) | [edit](#)

Click Here

Tags And Properties

- **branch=new-feature** inherited from [\[a5c0c000a1\]](#)
- **sym-new-feature** inherited from [\[a5c0c000a1\]](#)

Changes

User: drh

Comment: Continue work on new feature

Check-in Time: 2011-10-18 13:00:42

Background Color:

Propagate color to descendants

- (none)
- #f2dcdc
- #bde5d6
- #a0a0a0
- #b0b0b0
- #c0c0c0
- #d0d0d0
- #e0e0e0
- #c0fff0
- #c0f0ff
- #d0c0ff
- #ffc0ff
- #ffc0d0
- #fff0c0
- #f0ffc0
- #c0ffc0
- #a8d3c0
- #a8c7d3
- #aaa8d3
- #cba8d3
- #d3a8bc
- #d3b5a8
- #d1d3a8
- #b1d3a8
- #8eb2a1
- #8ea7b2
- #8f8eb2
- #ab8eb2
- #b28e9e
- #b2988e
- #b0b28e
- #95b28e
- #80d6b0
- #80bbd6
- #8680d6
- #c680d6
- #d680a6
- #d69b80
- #d1d680
- #91d680

custom

Tags: Add the following new tag name to this check-in:

- Cancel special tag **branch**
- Cancel tag **new-feature**

Branch: Make this check-in the start of a new branch named:

Leaf Closure: Mark this leaf as "closed" so that it no longer appears on the "leaves" page and is no longer labeled as a "Leaf".

Preview Apply Changes Cancel





Demo Project Timeline

Logged in as drh

- Home
 - Timeline
 - Files
 - Branches
 - Tags
 - Tickets
 - Wiki
 - Admin
 - Logout
- 200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

6 most recent checkins

2011-10-18

- 13:01  [\[76f8acec15\]](#) **Leaf:** Merge new feature into trunk (user: [drh](#), tags: [trunk](#))
- 13:00  [\[371592bb5e\]](#) **Closed-Leaf:** Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))



Demo Project Timeline

Logged In as drh

- Home
 - Timeline
 - Files
 - Branches
 - Tags
 - Tickets
 - Wiki
 - Admin
 - Logout
- 200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

6 most recent checkins

2011-10-18

- 13:01  [\[76f8acec15\]](#) **Leaf:** Merge new feature into trunk (user: [drh](#), tags: [trunk](#))
- 13:00  [\[371592bb5e\]](#) **Leaf:** Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Continue Working On New Feature

```
fossil update new-feature  
# Add new code  
fossil commit
```



Demo Project Timeline

Logged In as drh

- Home
 - Timeline
 - Files
 - Branches
 - Tags
 - Tickets
 - Wiki
 - Admin
 - Logout
- 200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

7 most recent checkins

2011-10-18

- 13:05  [\[1018c64c8f\]](#) **Leaf:** Further work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:01  [\[76f8acec15\]](#) **Leaf:** Merge new feature into trunk (user: [drh](#), tags: [trunk](#))
- 13:00  [\[371592bb5e\]](#) Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Merge Trunk into New Feature

```
fossil merge trunk  
# test...  
fossil commit
```



Demo Project Timeline

Logged in as drh

Home	Timeline	Files	Branches	Tags	Tickets	Wiki	Admin	Logout
200 Entries	All Types	Events Only	Show Files	Tags Only	Tickets Only	Wiki Only		

8 most recent checkins

2011-10-18

- 13:06  [\[b6d552c57e\]](#) **Leaf:** Merge in trunk changes (user: [drh](#), tags: [new-feature](#))
- 13:05  [\[1018c64c8f\]](#) Further work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:01  [\[76f8acec15\]](#) **Leaf:** Merge new feature into trunk (user: [drh](#), tags: [trunk](#))
- 13:00  [\[371592bb5e\]](#) Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

Merge New Feature into Trunk

```
fossil update trunk  
fossil merge new-feature  
# test...  
fossil commit
```



Demo Project Timeline

Logged in as drh

- Home
 - Timeline
 - Files
 - Branches
 - Tags
 - Tickets
 - Wiki
 - Admin
 - Logout
- 200 Entries All Types Events Only Show Files Tags Only Tickets Only Wiki Only

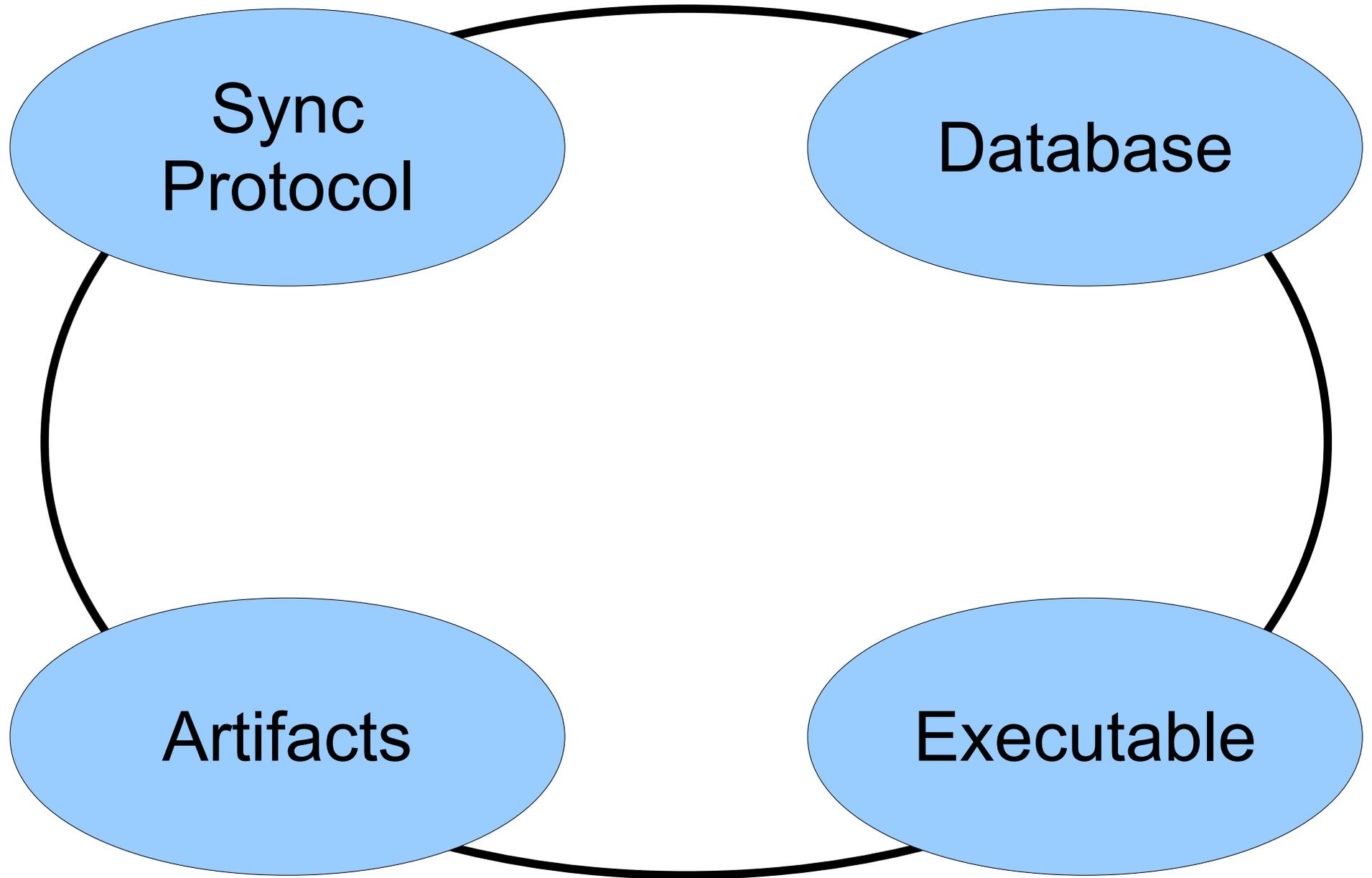
9 most recent checkins

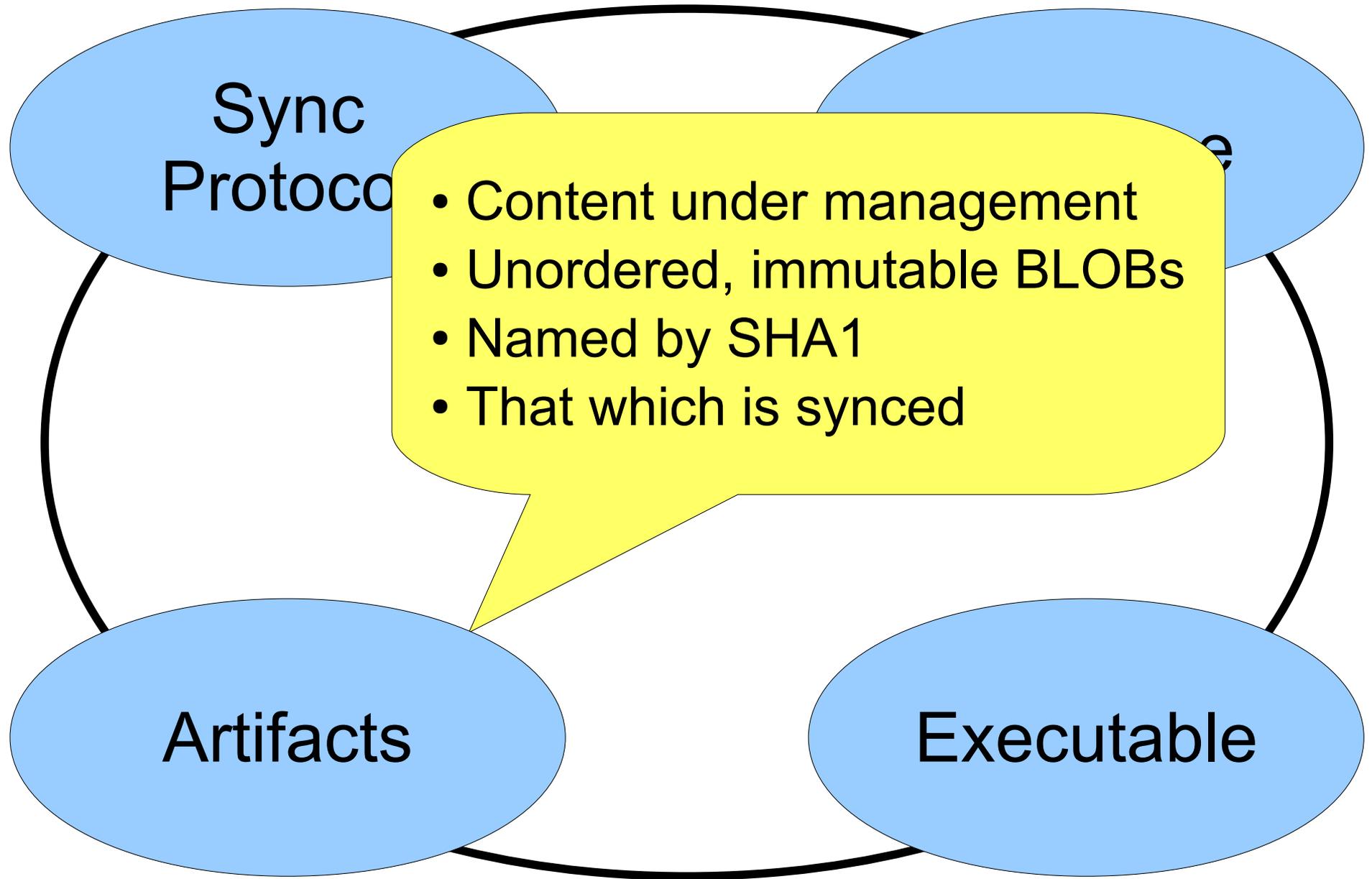
2011-10-18

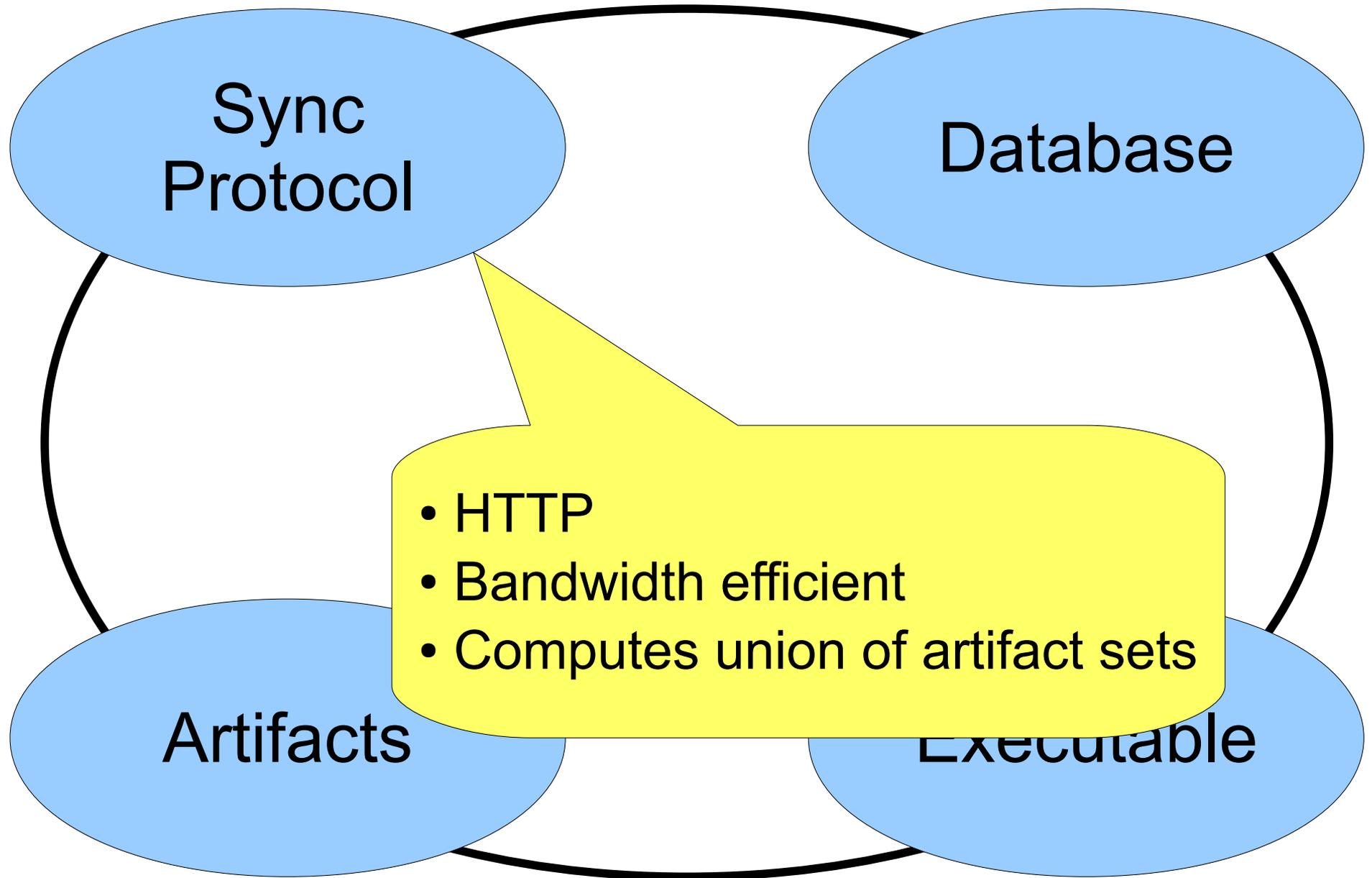
- 13:07  [\[dad25704b3\]](#) **Leaf:** Merge new feature enhancements (user: [drh](#), tags: [trunk](#))
- 13:06  [\[b6d552c57e\]](#) **Leaf:** Merge in trunk changes (user: [drh](#), tags: [new-feature](#))
- 13:05  [\[1018c64c8f\]](#) Further work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:01  [\[76f8acec15\]](#) Merge new feature into trunk (user: [drh](#), tags: [trunk](#))
- 13:00  [\[371592bb5e\]](#) Continue work on new feature (user: [drh](#), tags: [new-feature](#))
- 13:00  [\[e92643db3a\]](#) Continue work on trunk (user: [drh](#), tags: [trunk](#))
- 12:56  [\[a5c0c000a1\]](#) Add more code (user: [drh](#), tags: [new-feature](#))
- 12:55  [\[d2c808cd9a\]](#) First code check-in (user: [drh](#), tags: [trunk](#))
- 12:54  [\[3b2ee4513b\]](#) initial empty check-in (user: [drh](#), tags: [trunk](#))

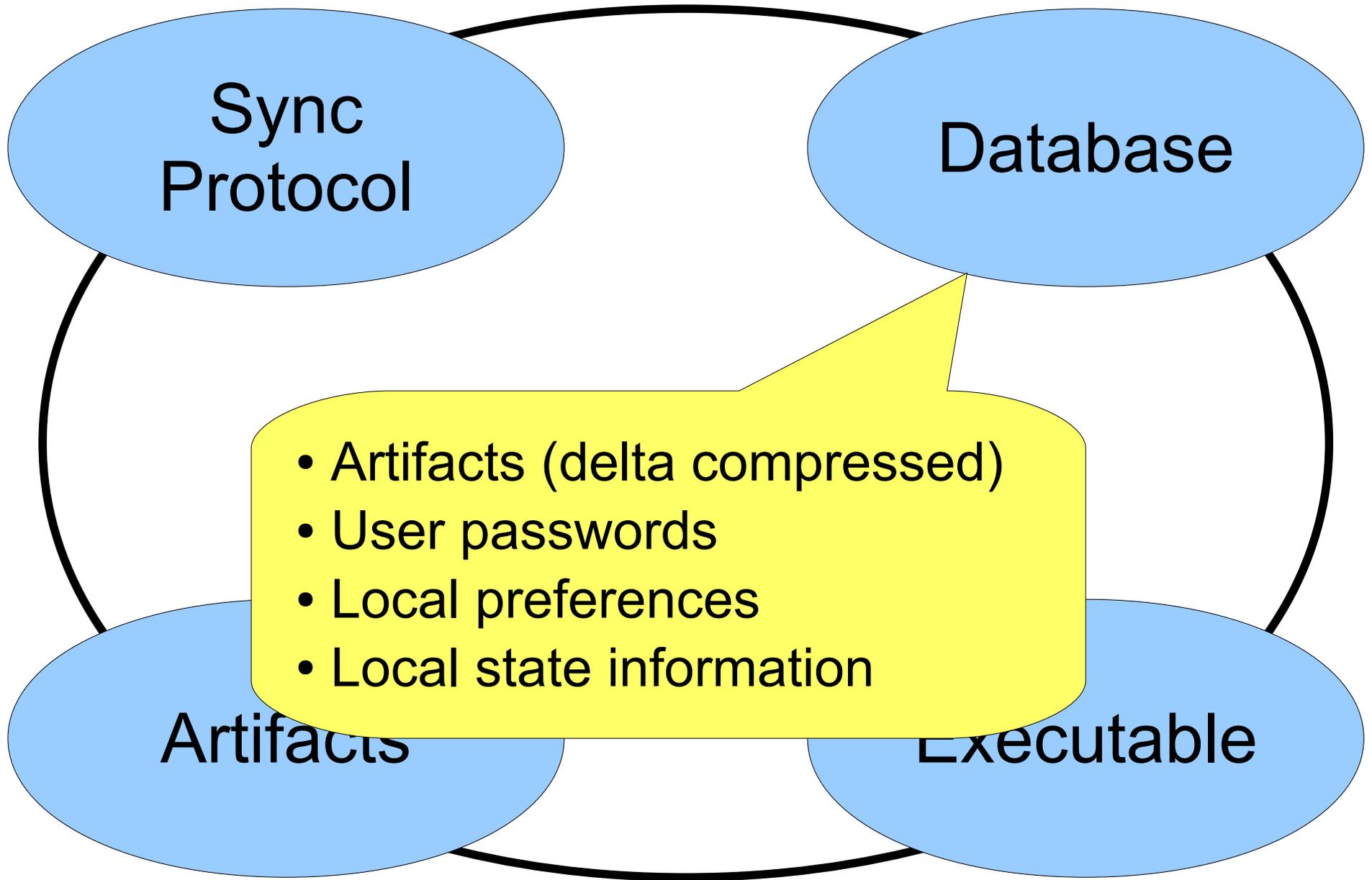


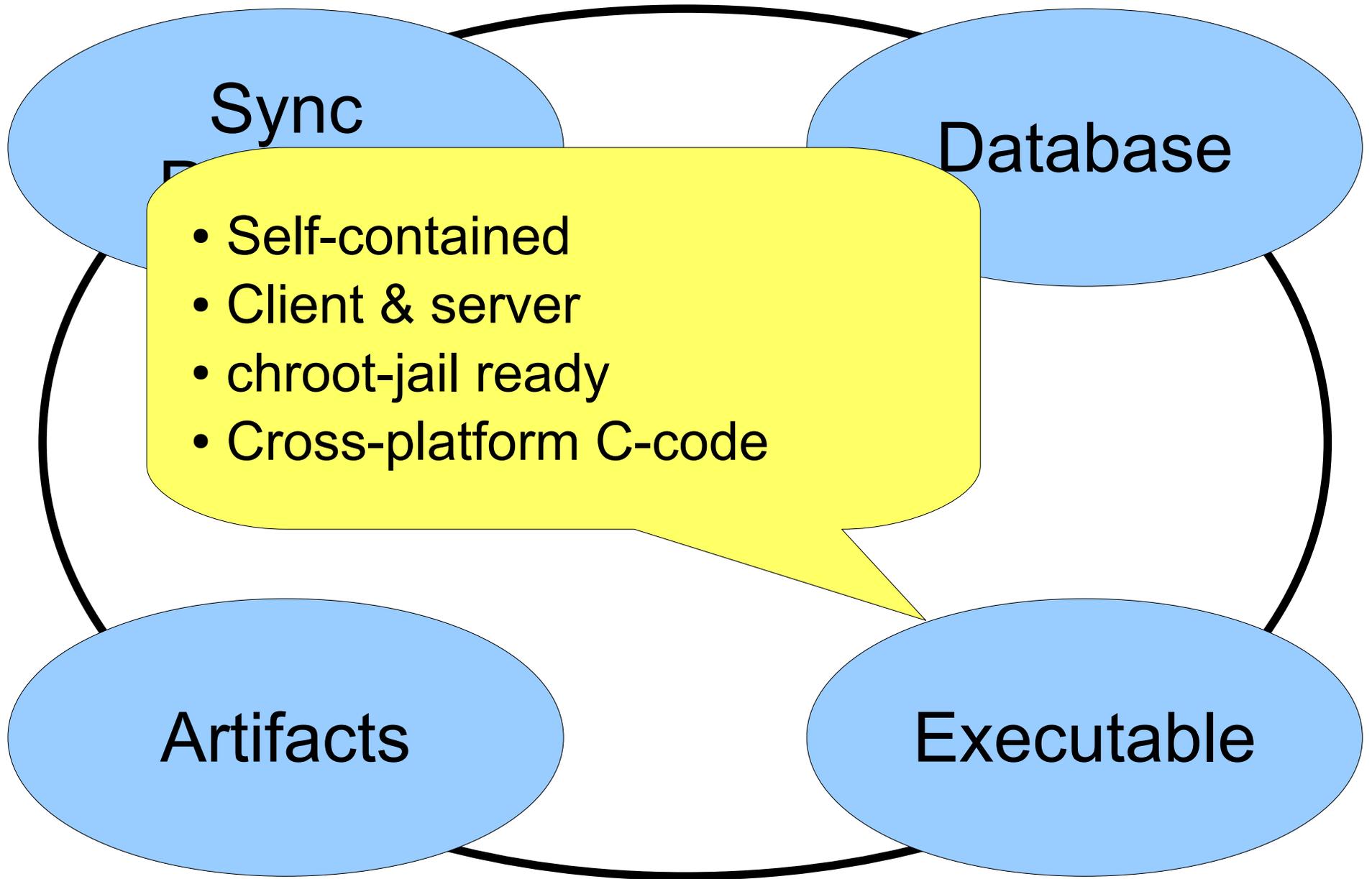
How Fossil Works

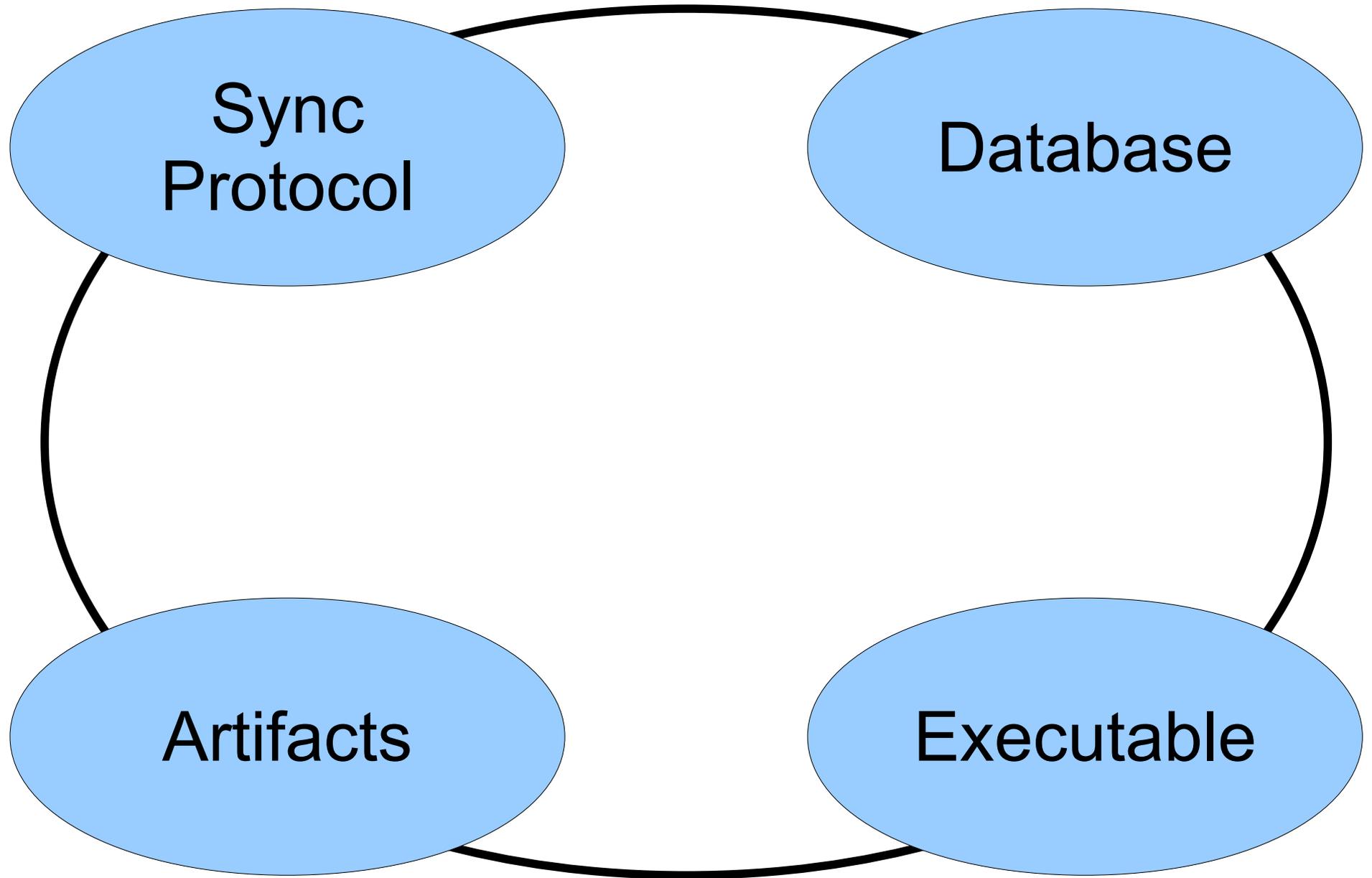












```
int main(int argc, char **argv){

    if( getenv("GATEWAY_INTERFACE") ){
        zCmdName = "cgi";
    }else{
        zCmdName = argv[1];
    }

    /* Setup global variables */

    xCmd = lookup_command(zCmdName);
    xCmd();

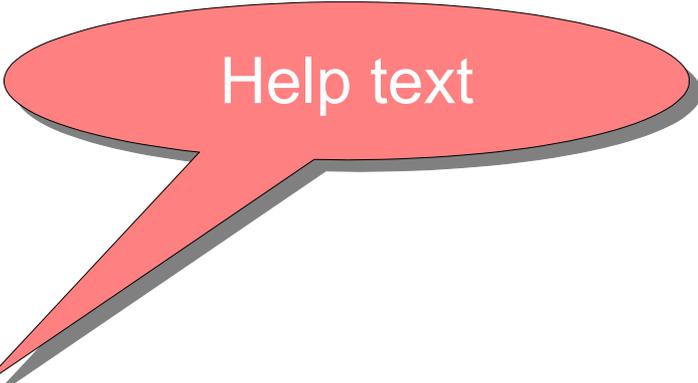
    return 0;
```

```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments so that the  
** wildcard expansion behavior of the host shell  
** can be investigated.  
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```



Name of command

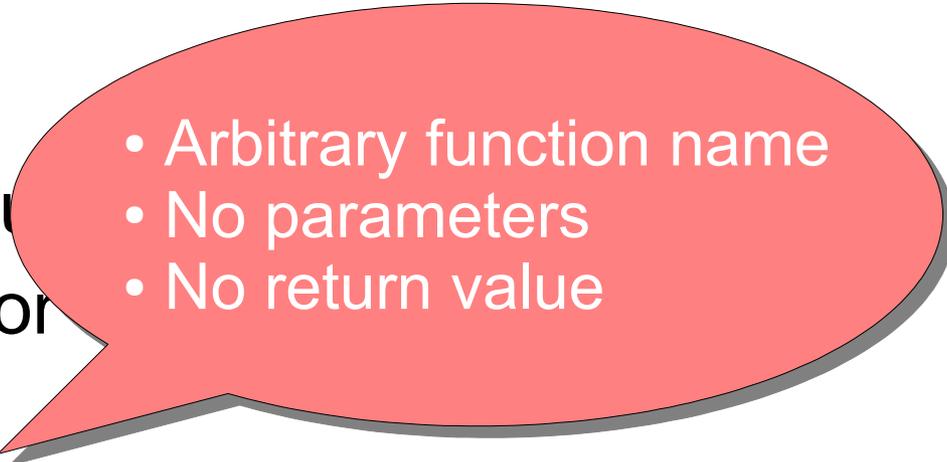
```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments so that the  
** wildcard expansion behavior of the host shell  
** can be investigated.  
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```



Help text

```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments so that the  
** wildcard expansion behavior of the host shell  
** can be investigated.  
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```

```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments  
** wildcard expansion behavior  
** can be investigated.
```

- 
- Arbitrary function name
 - No parameters
 - No return value

```
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```

```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments and their  
** wildcard expansion behavior on the command line  
** can be investigated.  
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```



```
struct Global {  
    int argc;  
    char **argv;  
    ...  
} g;
```



```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments so that the  
** wildcard expansion behavior of the host shell  
** can be investigated.  
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```

For windows i18n issues

```
drh@tallis:~$ fossil help
```

```
Usage: fossil help COMMAND.
```

```
Available COMMANDs:
```

add	co	info	rename	ticket
addremove	commit	init	revert	timeline
all	configuration	leaves	rm	ui
annotate	deconstruct	ls	scrub	undo
artifact	delete	merge	search	unset
bisect	descendants	mv	server	update
branch	diff	new	settings	user
cgi	export	open	shasum	version
changes	extras	pull	sqlite3	wiki
checkout	finfo	push	stash	winsrv
ci	gdiff	rebuild	status	zip
clean	help	reconstruct	sync	
clone	http	redo	tag	
close	import	remote-url	tarball	

```
This is fossil version 1.19 [b54b8e751a] 2011-09-17 17:35:11 UTC
```

```
drh@tallis:~$
```

```
drh@tallis:~$ fossil test-commands
test-3-way-merge      test-delta-apply      test-obscure
test-agg-cksum        test-delta-create     test-parse-manifest
test-ancestor-path   test-detach           test-rawdiff
test-annotate-step   test-echo             test-relative-name
test-canonical-name  test-encode64         test-shortest-path
test-captcha          test-filezip          test-simplify-name
test-clusters         test-find-pivot       test-tag
test-commands        test-glob             test-tarball
test-comment-format  test-gzip             test-th-render
test-compress         test-hash-color       test-timespan
test-compress-2      test-hash-passwords  test-timewarp-list
test-content-deltify  test-http             test-tree-name
test-content-put      test-integrity        test-udiff
test-content-rawget   test-isspace          test-uncompress
test-content-undelta  test-md5sum           test-urlparser
test-create-clusters  test-mimetype         test-verify-all
test-cycle-compress   test-move-repository  test-wiki-render
test-decode64        test-name-changes     test-xfer
test-delta           test-name-to-id
drh@tallis:~$
```

```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments so that the  
** wildcard expansion behavior of the host shell  
** can be investigated.
```

```
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```

No separate
declaration



Source File Template

abcde.c:

```
/*  
** 2-clause BSD copyright notice  
*/  
#include "abcde.h"  
  
#if INTERFACE  
/* public structure defs here */  
#endif  
  
/* Code here */
```

makeheaders.c

- Source and docs included in the source tree
- Built and run by the makefile
- Creates “abcde.h” for “abcde.c”
- Function prototypes
- Global variable declarations
- Within “#if INTERFACE....#endif”:
 - Structures and typedefs
 - #defines

```
/*  
** COMMAND: test-echo  
**  
** Echo all command-line arguments so that the  
** wildcard expansion behavior of the host shell  
** can be investigated.
```

```
*/  
void test_echo_cmd(void){  
    int i;  
    for(i=0; i<g.argc; i++){  
        fossil_print("argv[%d] = [%s]\n", i, g.argv[i]);  
    }  
}
```

Prototype appears in header of every file that calls this function.

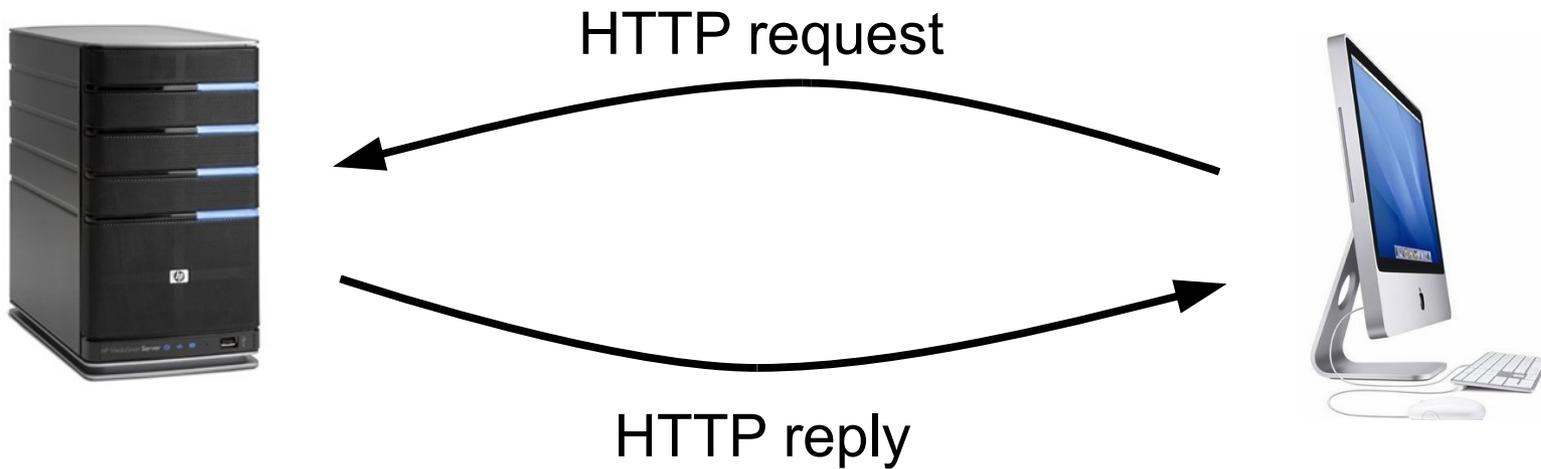


```
drh@tallis:~$ fossil help
Usage: fossil help COMMAND.
Available COMMANDs:
```

add	co	info	rename	ticket
addremove	commit	init	revert	timeline
all	configuration	leaves	rm	ui
annotate	deconstruct	ls	scrub	undo
artifact	delete	merge	search	unset
bisect	descendants	mv	server	update
branch	diff	new	settings	user
cgi	export	open	shasum	version
changes	extras	pull	sqlite3	wiki
checkout	finfo	push	stash	winsrv
ci	gdiff	rebuild	status	zip
clean	help	reconstruct	sync	
clone	http	redo	tag	
close	import	remote-url	tarball	

```
This is fossil version 1.19 [b54b8e751a] 2011-09-17 17:35:11 UTC
```

```
drh@tallis:~$
```

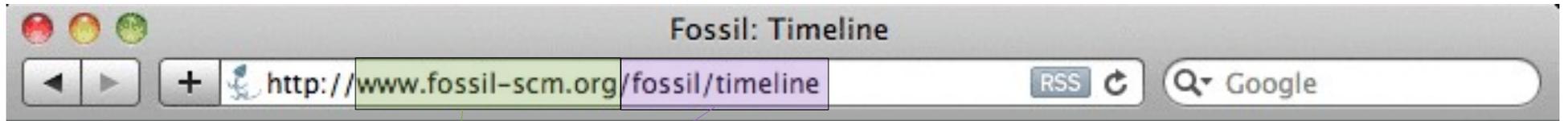


- ✓ TCP/IP
- ✓ Stateless server
- ✓ Generic, standardized protocol

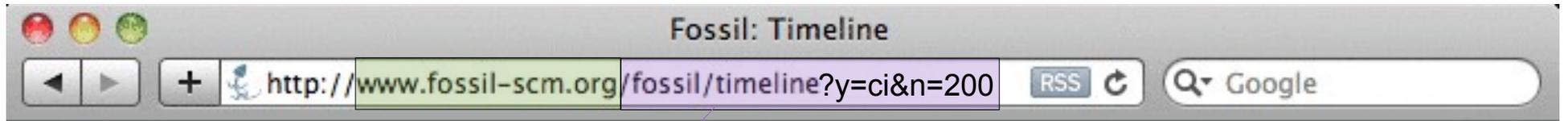
VERB PATHNAME?PARAMETERS PROTOCOL\r\n
KEY: VALUE\r\n
KEY: VALUE\r\n
...\r\n
\r\n
PAYLOAD

VERB PATHNAME?PARAMETERS PROTOCOL\r\n
KEY: VALUE\r\n
KEY: VALUE\r\n
...\r\n
\r\n
PAYLOAD

GET /fossil/timeline HTTP/1.1
Host: www.fossil-scm.org
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

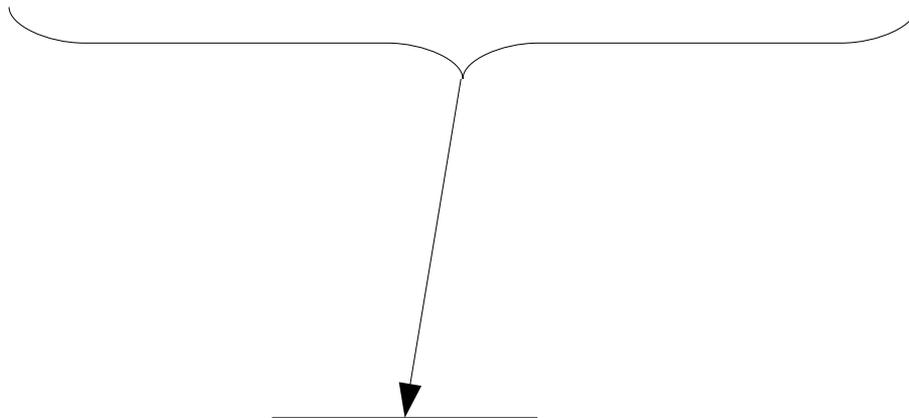


GET /fossil/timeline HTTP/1.1
Host: www.fossil-scm.org
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39



GET /fossil/timeline?y=ci&n=200 HTTP/1.1
Host: www.fossil-scm.org
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-us,en;q=0.5
Accept-Encoding: gzip, deflate
Connection: keep-alive
Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

KEY=VALUE&KEY=VALUE&...



GET /fossil/timeline?**y=ci&n=200** HTTP/1.1

Host: www.fossil-scm.org

User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

y = ci
n = 200
ng = *nil*

GET /fossil/timeline?y=ci&n=200&ng HTTP/1.1

Host: www.fossil-scm.org

User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

y = ci

n = 200

ng = *nil*

fossil-1ec9da4c469c29f4 = 23BC5F...

GET /fossil/timeline?y=ci&n=200&ng HTTP/1.1

Host: www.fossil-scm.org

User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

csrf = localhost
r=12272b7ff0
u=dmitry
clrcust = *nil*
tagname = *nil*
brname = *nil*
cancel = Cancel
fossil-1ec9da4c469c29f4 = 23BC5F...

POST /fossil/ci_edit HTTP/1.1

Host: www.fossil-scm.org

User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

Content-Type: application/x-www-form-urlencoded

Content-Length: 76

csrf=localhost&r=12272b7ff0&u=dmitry&clrcust=&tagname=&brname=&cancel=Cancel

(1) Path info

(2) Parameters

POST /fossil/ci_edit?n=15 HTTP/1.1

Host: www.fossil-scm.org

User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:9.0a1) Gecko/20110923 Firefox/9.0a1

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8

Accept-Language: en-us,en;q=0.5

Accept-Encoding: gzip, deflate

Connection: keep-alive

Cookie: fossil-1ec9da4c469c29f4=23BC5FC0BAECF8955E94C39

Content-Type: application/x-www-form-urlencoded

Content-Length: 76

csrf=localhost&r=12272b7ff0&u=dmitry&clrcust=&tagname=&brname=&cancel=Cancel

```
void process_one_web_page(void){  
  
    extract_path_info();  
    extract_key_value_pairs();  
  
    xPage = find_page_from_path_info();  
    xPage();  
  
    send_reply();  
}
```

```
/*  
** WEBPAGE: test_env  
*/  
void page_test_env(void){  
    /* Code to render the page */  
}
```

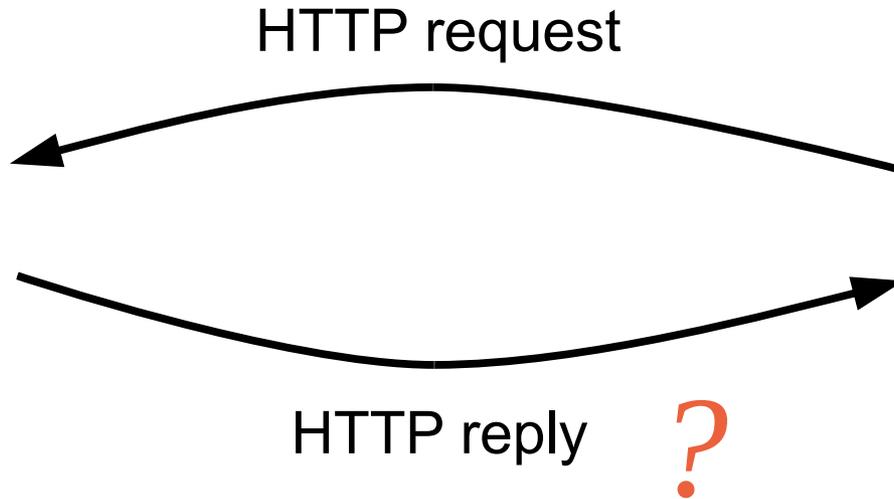
```
drh@tallis:~$ fossil test-list-webpage
access_log          raw                tinfo
ambiguous           rcvfrom           tktdedit
annotate           rcvfromlist      tkthistory
artifact           register          tktnew
attachadd          reportlist       tktsetup
attachdelete       rptedit          tktsetup_com
attachdownload     rptnew           tktsetup_editpage
attachimage        rptsql           tktsetup_keytplt
attachlist         rptview          tktsetup_newpage
attachview         setup             tktsetup_reportlist
brlist             setup_access     tktsetup_rpttplt
brtimeline         setup_config     tktsetup_tab
ci                 setup_editcss    tktsetup_timeline
ci_edit            setup_footer     tktsetup_viewpage
debug_tktdedit     setup_header     tkttimeline
debug_tktnew       setup_login_group tktview
dir                setup_logo       vdiff
doc                setup_settings  vinfo
event              setup_skin       vpatch
eventedit         setup_timeline  wcontent
fdiff             setup_uedit     wdifff
finfo             setup_ulist     wfind
help              shun            whistory
hexdump           stat            wiki
home              style.css       wiki_rules
index             taglist         wikiappend
info             tagtimeline     wikiedit
leaves           tarball         wikinew
login            test-all-help  winfo
logo             test_env        xfer
logout           test_timewarps zip
my               timeline
not_found        timeline.rss
drh@tallis:~$
```

Representation State Transfer “REST”

- Client/Server
- Stateless
- Cacheable
- Layered system
- Uniform Interface
- Hypermedia



```
drh@tallis:~$ fossil test-list-webpage
access_log          raw                tinfo
ambiguous          rcvfrom           tktdedit
annotate           rcvfromlist       tkthistory
artifact           register          tktnew
attachadd          reportlist        tktsetup
attachdelete       rptedit           tktsetup_com
attachdownload     rptnew            tktsetup_editpage
attachimage        rptsql            tktsetup_keytplt
attachlist         rptview           tktsetup_newpage
attachview         setup             tktsetup_reportlist
brlist             setup_access      tktsetup_rpttplt
brtimeline         setup_config       tktsetup_tab
ci                 setup_editcss     tktsetup_timeline
ci_edit            setup_footer       tktsetup_viewpage
debug_tktdedit     setup_header       tkttimeline
debug_tktnew       setup_login_group tktview
dir                setup_logo        vdiff
doc                setup_settings    vinfo
event              setup_skin         vpatch
eventedit          setup_timeline    wcontent
fdiff              setup_uedit        wdifff
finfo              setup_ulist        wfind
help               shun              whistory
hexdump            stat              wiki
home               style.css          wiki_rules
index              taglist           wikiappend
info               tagtimeline       wikiedit
leaves             tarball           wikinew
login              test-all-help     winfo
logo               test_env          xfer
logout             test_timewarps    zip
my                 timeline
not_found          timeline.rss
drh@tallis:~$
```



OK



HTTP/1.0 200 OK\r\n

Connection: close\r\n

Set-Cookie: fossil-912dda7e30fb93e2=86A6490B3D91A8BA86...

Content-Type: text/html; charset=utf-8\r\n

Content-Length: 100\r\n

\r\n

<html>

...

HTTP/1.0 200 OK\r\n

Connection: close\r\n

Set-Cookie: fossil-912dda7e30fb93e2=86A6490B3D91A8BA86...

Content-Type: text/html; charset=utf-8\r\n

Content-Length: 100\r\n

\r\n

<html>

...

Various status codes

http://en.wikipedia.org/wiki/List_of_HTTP_status_codes/

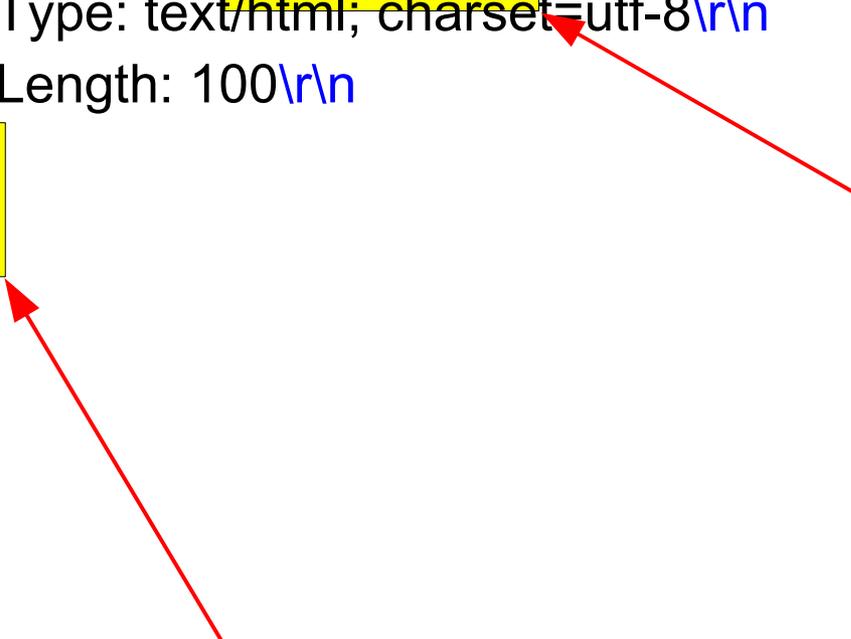
HTTP/1.0 200 OK\r\n
Connection: close\r\n
Set-Cookie: fossil-912dda7e30fb93e2=86A6490B3D91A8BA86...
Content-Type: text/html; charset=utf-8\r\n
Content-Length: 100\r\n

\r\n
<html>

...

text/css
image/gif
application/x-tar-gz
etc....

Arbitrary binary
data



(1) Procedure name + arguments



HTTP request



HTTP reply

(3) Result

(2) Run specified function



Tcl Source Code Repository Statistics

[Home](#) [Timeline](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Login](#)

Repository Size:	90071040 bytes
Number Of Artifacts:	73985 (stored as 5670 full text and 68315 delta blobs)
Uncompressed Artifact Size:	69295 bytes average, 3583312 bytes max, 5126668820 bytes total
Compression Ratio:	56:1
Number Of Check-Ins:	13306
Number Of Files:	2416
Number Of Wiki Pages:	2
Number Of Tickets:	0
Duration Of Project:	4950 days or approximately 13.55 years
Project ID:	1ec9da4c469c29f4717e2a967fe6b916d9c8c06e
Server ID:	36f280ca72138c3a2df1397f5f8c591370b855ce
Fossil Version:	1.19 2011-09-19 19:13:06 [8d4c564277] (gcc-4.4.5)
SQLite Version:	2011-09-19 14:49:19 [3e0da808d2] (3.7.8)
Database Stats:	10995 pages, 8192 bytes/page, 9 free pages, UTF-8, wal mode

```
/*
** WEBPAGE: stat
*/
void stat_page(void){
    // local variable declarations elided...

    login_check_credentials();
    if( !g.perm.Read ){ login_needed(); return; }
    brief = P("brief")!=0;
    style_header("Repository Statistics");
    @ <table class="label-value">
    @ <tr><th>Repository&nbsp;Size:</th><td>
    fsize = file_size(g.zRepositoryName);
    sqlite3_snprintf(sizeof(zBuf), zBuf, "%lld", fsize);
    @ %s(zBuf) bytes
    @ </td></tr>
```

```

@ <tr><th>SQLite&nbsp;Version:</th><td>
sqlite3_snprintf(sizeof(zBuf), zBuf, "%.19s [%.10s] (%s)",
                SQLITE_SOURCE_ID, &SQLITE_SOURCE_ID[20], SQLITE_VERSION);
zDb = db_name("repository");
@ %s(zBuf)
@ </td></tr>
@ <tr><th>Database&nbsp;Stats:</th><td>
@ %d(db_int(0, "PRAGMA %s.page_count", zDb)) pages,
@ %d(db_int(0, "PRAGMA %s.page_size", zDb)) bytes/page,
@ %d(db_int(0, "PRAGMA %s.freelist_count", zDb)) free pages,
@ %s(db_text(0, "PRAGMA %s.encoding", zDb)),
@ %s(db_text(0, "PRAGMA %s.journal_mode", zDb)) mode
@ </td></tr>

@ </table>
style_footer();
}

```

```
/*  
** WEBPAGE: test-all-help  
**  
** Show all help text on a single page. Useful for proof-reading.  
*/  
void test_all_help_page(void){  
    int i;  
    style_header("Testpage: All Help Text");  
    for(i=0; i<count(aCommand); i++){  
        if( memcmp(aCommand[i].zName, "test", 4)==0 ) continue;  
        @ <h2>%s(aCommand[i].zName):</h2>  
        @ <blockquote><pre>  
        @ %h(aCmdHelp[i])  
        @ </pre></blockquote>  
    }  
    style_footer();  
}
```

translate.c

- Source code in the Fossil tree
- Built and run by the makefile
- “abcde.c” → “abcde_.c”
- %d(...) %s(...) %h(...) %z(...) %t(...) %S(...)
- Automatically escape \ and “ and add \n
- Also works for large string literals

fossil http

- Repository specified as an argument:
 - fossil http /home/www/fossil/tcl.fossil
- Fossil reads and interprets HTTP header directly.

/etc/xinetd.d/http-alt

```
service http-alt
{
  port = 591
  socket_type = stream
  wait = no
  user = root
  server = /home/drh/bin/fossil
  server_args = http /home/drh/www/repos/sqlite.fossil
}
```

*Automatic chroot when run
as root.*



Repository filename



Processing steps for “fossil http”

- xinetd sees inbound TCP/IP and execs Fossil
- `argv[1]==“http”` → Jump to http handler
- Read HTTP request
 - Find the request pathname
 - Find all parameter key/value pairs
- Open the SQLite database of `argv[2]`
- Jump to the page generator specified by the first element of the pathname
- Format and send the HTTP reply

fossil cgi

- Web-server reads the HTTP header
- One or more terms removed from the front of the pathname by the web-server
- Pathname & parameters passed to Fossil via environment variables
- Web-server invokes Fossil with one argument: the filename of the CGI script
- Fossil reads the CGI script to find the repository name

http://www3.sqlite.org/cgi/src/timeline

website content directory

/home/hwaci/public_html/www3.sqlite.org/cgi/.htaccess:

```
Options +ExecCGI  
SetHandler cgi-script
```

/home/hwaci/public_html/www3.sqlite.org/cgi/src:

```
#!/usr/bin/fossil  
repository: /home/hwaci/fossil/sqlite.fossil
```

/cgi/src/timeline

web-server

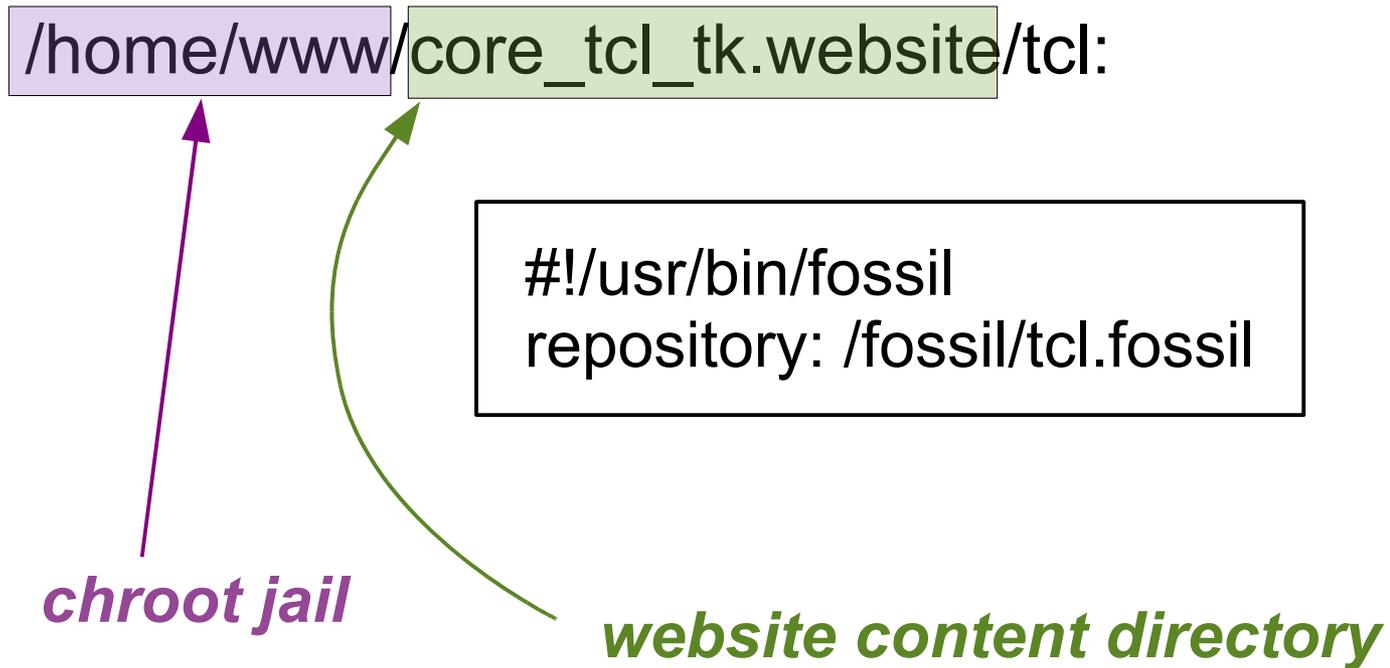
/timeline

<http://core.tcl.tk/tcl/timeline>

/home/www/core_tcl_tk.website/tcl:

```
#!/usr/bin/fossil  
repository: /fossil/tcl.fossil
```

http://core.tcl.tk/tcl/timeline



/tcl/timeline

web-server

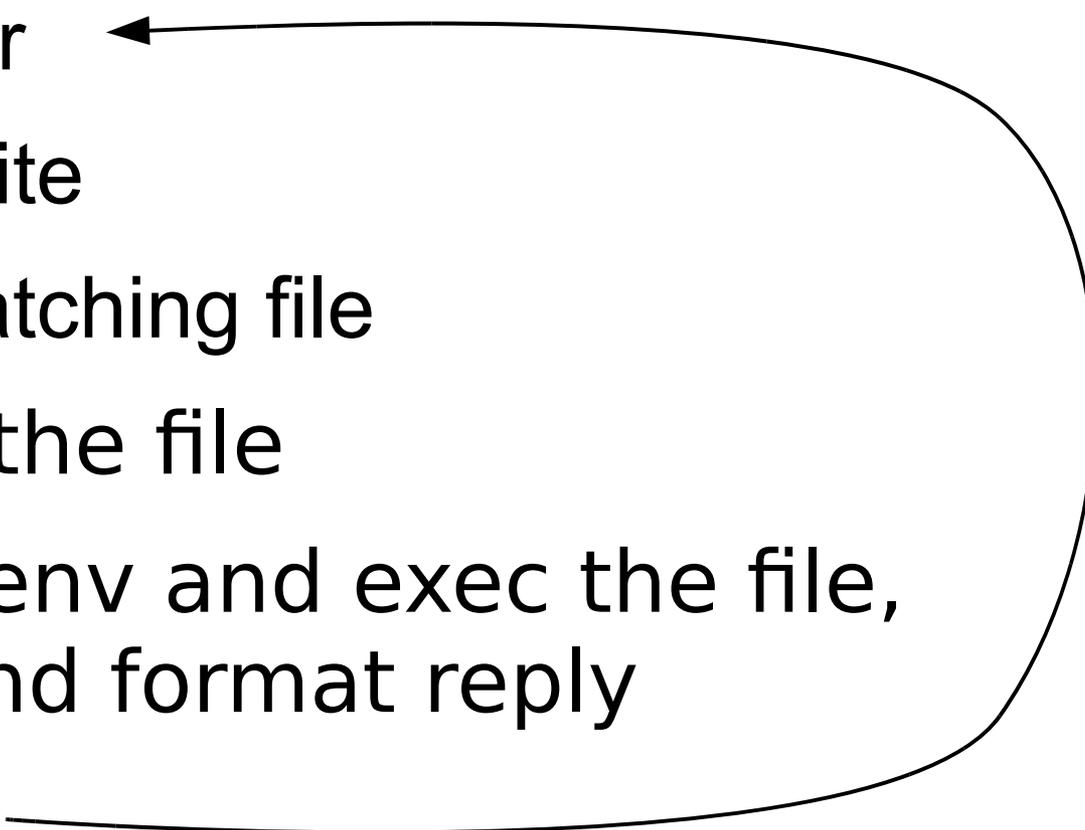
/timeline

Web-server on core.tcl.tk

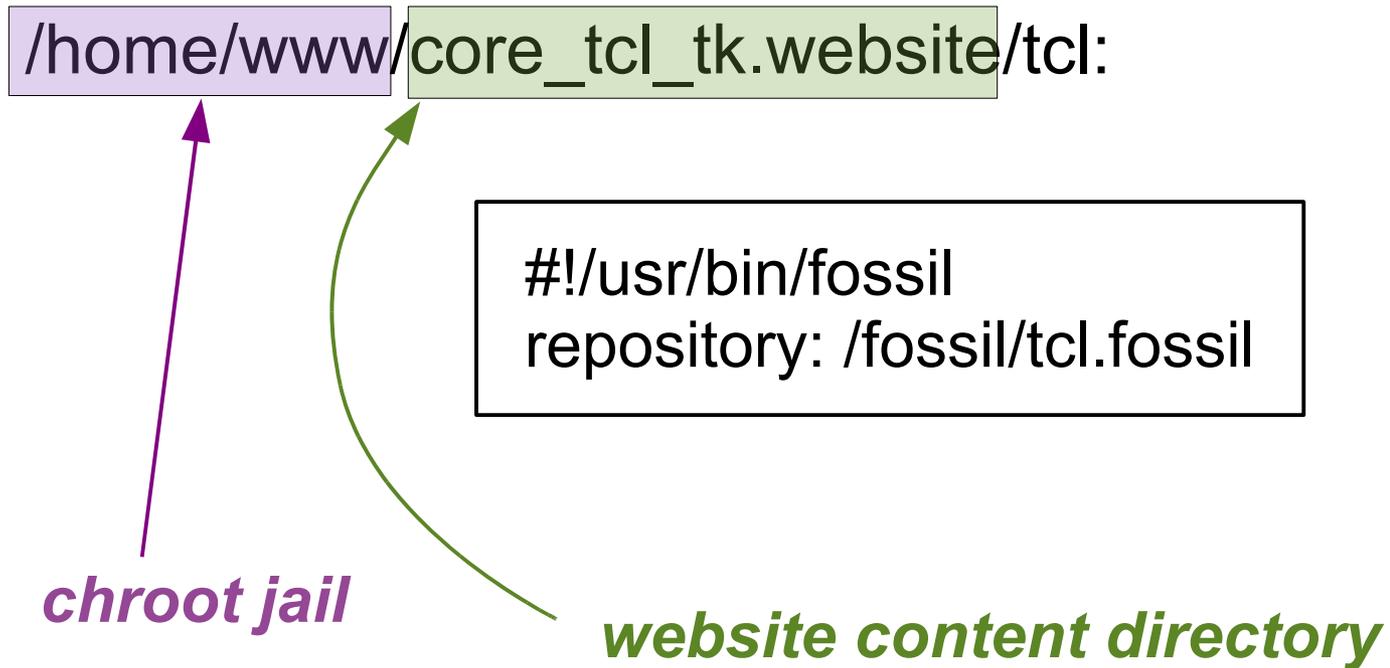
/etc/xinetd.d/http:

```
service http
{
  port = 80
  socket_type = stream
  wait = no
  user = root
  server = /usr/local/bin/alhttpd
  server_args = -logfile /logs/http.log -root /home/www -user www
}
```

Web-server at core.tcl.tk

- Incoming TCP/IP port 80 → exec althttpd
 - chroot /home/www; setuser www
 - Read HTTP header
 - chdir \$HOST.website
 - Search path for matching file
 - rw-r--r-- → return the file
 - rwx-r-xr-x → set env and exec the file, read response and format reply
 - Loop if HTTP/1.1
- 

http://core.tcl.tk/tcl/timeline



/tcl/timeline

web-server

/timeline

althttpd & fossil assumptions:

- Small programs with low start-up cost
 - 350K hits/sec on a 1/24th server at sqlite.org
 - not appropriate for Ruby on Rails

? What is the startup cost for Tcl and Tcl/Tk?

fossil ui

fossil server

- Starts a built-in inetd-like server
 - Chooses TCP port automatically
 - Binds to 127.0.0.1 (ui) or to all (server)
- Starts the user's web-browser (ui only)
- Spawns “fossil http” to handle each request
 - fork() on unix
 - system() on windows

Locating The Repository File

fossil ui repository-filename

fossil server repository-filename

fossil http repository-filename

fossil cgi-script-name



```
#!/usr/bin/fossil  
repository: repository-filename
```

Locating The Repository File

fossil ui repository-filename
fossil server repository-filename
fossil http repository-filename
fossil cgi-script-name

```
#!/usr/bin/fossil  
repository: repository-filename
```

Pathname directly
from HTTP header

CGI script name
removed from front
of pathname by
web-server

Locating The Repository File

~~fossil ui directory~~

fossil server **directory**

fossil http **directory**

fossil **cgi-script-name**



```
#!/usr/bin/fossil  
directory: directory
```

Note keyword change

<http://core.tcl.tk/fossil/tcl/timeline>

/home/www/core_tcl_tk.website/fossil:

```
#!/usr/bin/fossil  
directory: /fossil
```

- HTTP header: **/fossil/tcl/timeline**
- Web-server to Fossil: **/tcl/timeline**
- Locate repo: /fossil/tcl.fossil
- Used for processing: **/timeline**

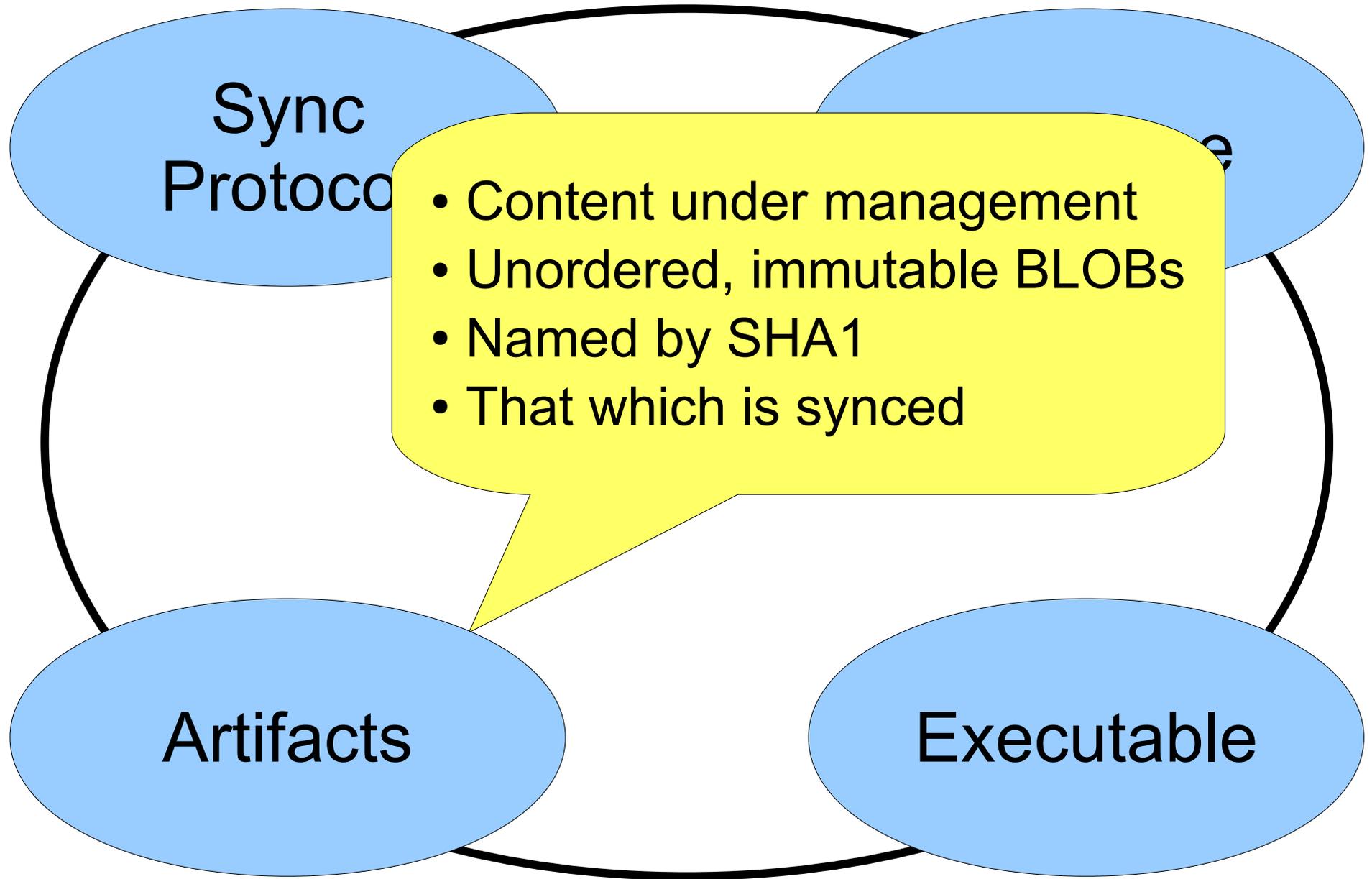
/etc/xinetd.d/http-alt

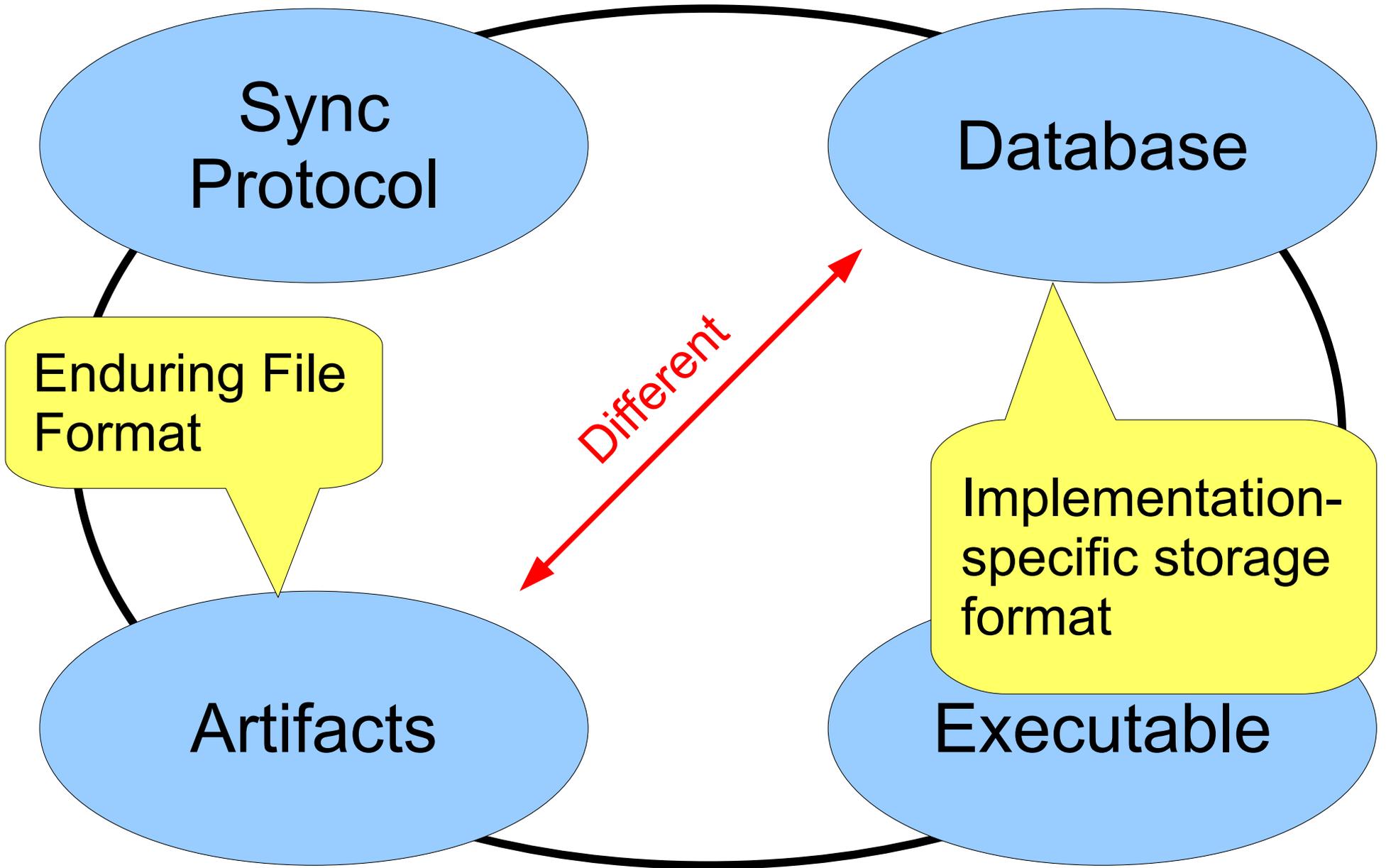
```
service http-alt
{
  port = 591
  socket_type = stream
  wait = no
  user = root
  server = /home/drh/bin/fossil
  server_args = http /home/drh/www/repos
}
```

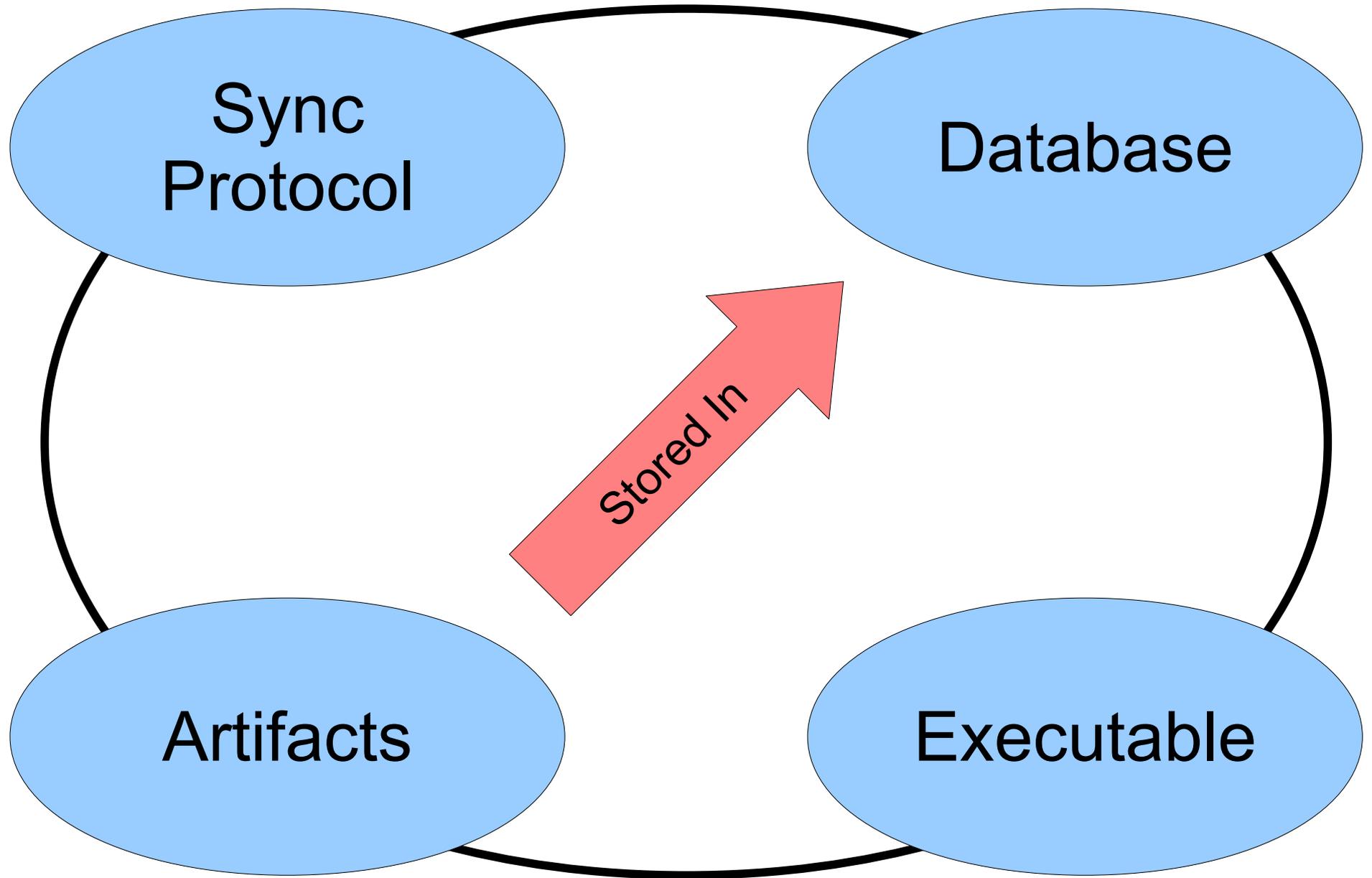
Directory holding all repositories

Executable Summary

- Small program that does one thing and exits
 - Liberal use of global variables
 - Single Threaded
 - Do not stress over memory leaks
- `/* COMMAND: command-name */`
- `/* WEBPAGE: page-name */`
- Automatically generated header files
- Automatic gathering of help text
- `@`-lines with `%h()` formatter







Artifacts

- Arbitrary binary data
 - Though control artifacts have a specific format
- Unordered
- Immutable
- Named by SHA1 hash

SHA1 Name Collisions

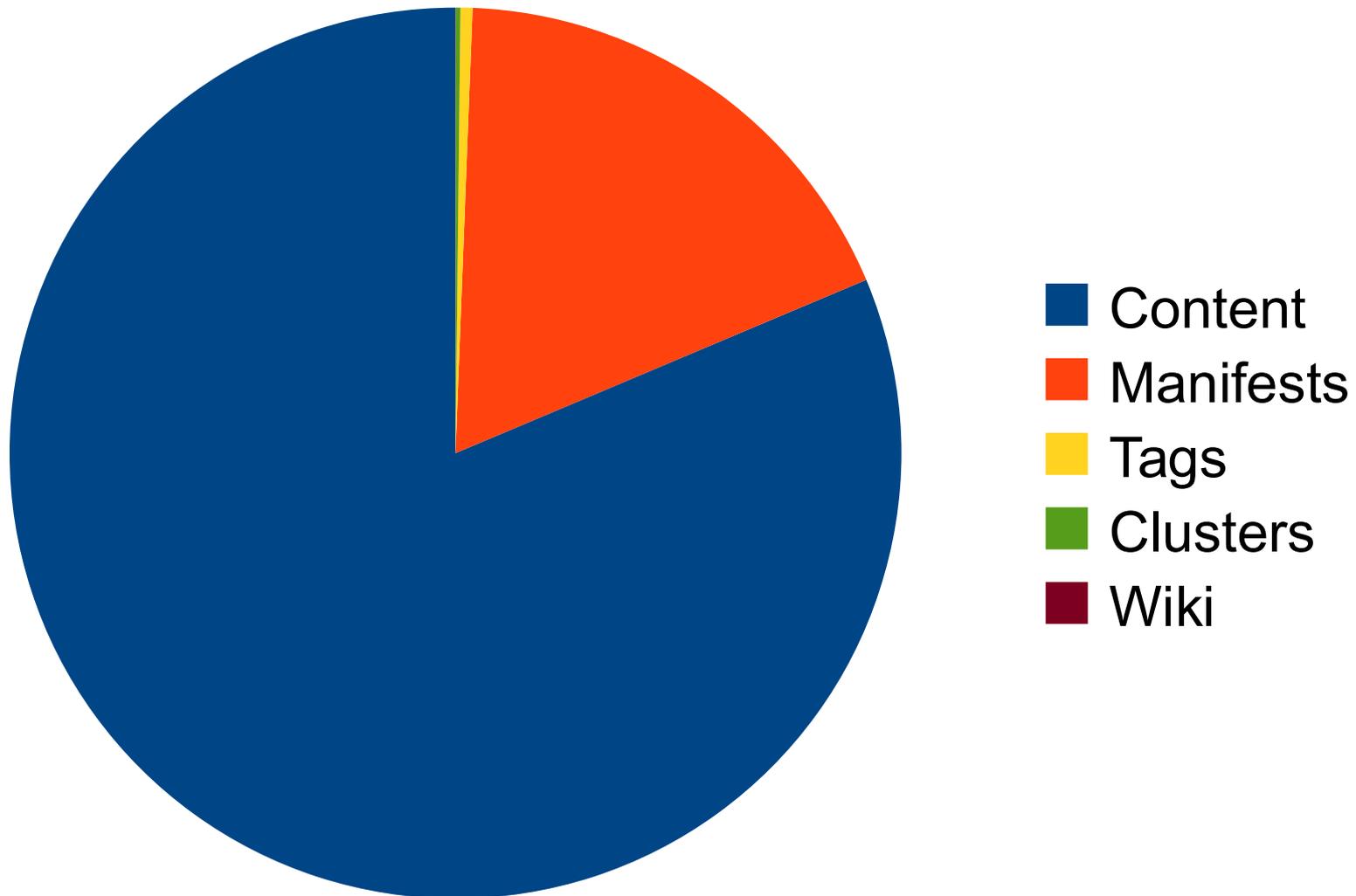
- SQLite averages over 10 years:
 - 9.1 new version numbers per day
 - 46KB bytes of disk per version
- Expected time to collision: $3.6e20$ years
 - 26 billion times longer than the estimated age of the universe
- Expected repository size: $5e28$ bytes
 - 50 million billion terabytes

Types Of Artifacts

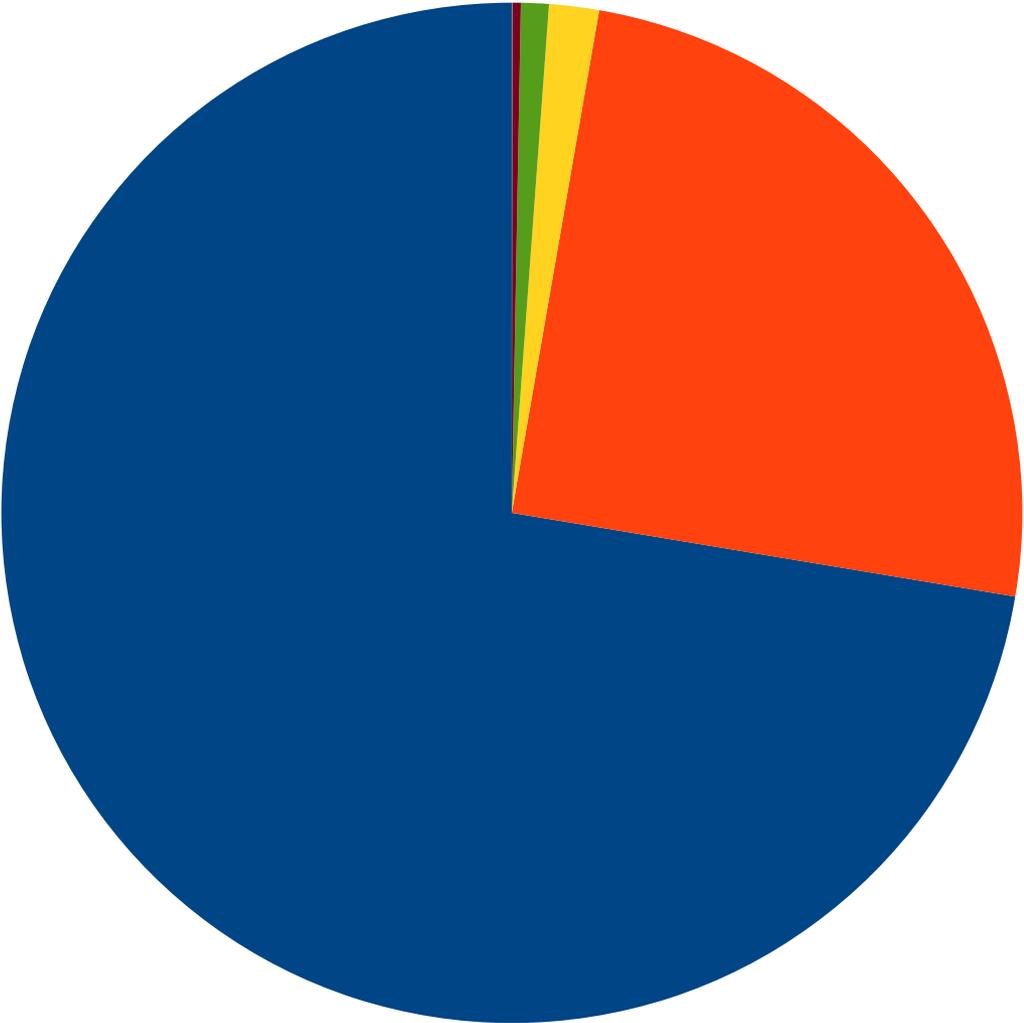
- **Content** - Project files
-

- **Manifests** - All files in a particular version
- **Tags** - Edit tags, comments, colors, etc.
- **Tickets** - One per ticket edit
- **Wiki** - One per wiki-page edit
- **Attachments** - Metadata for an attachment
- **Events** - Blog entries
- **Clusters** - Lists of other artifacts

Tcl

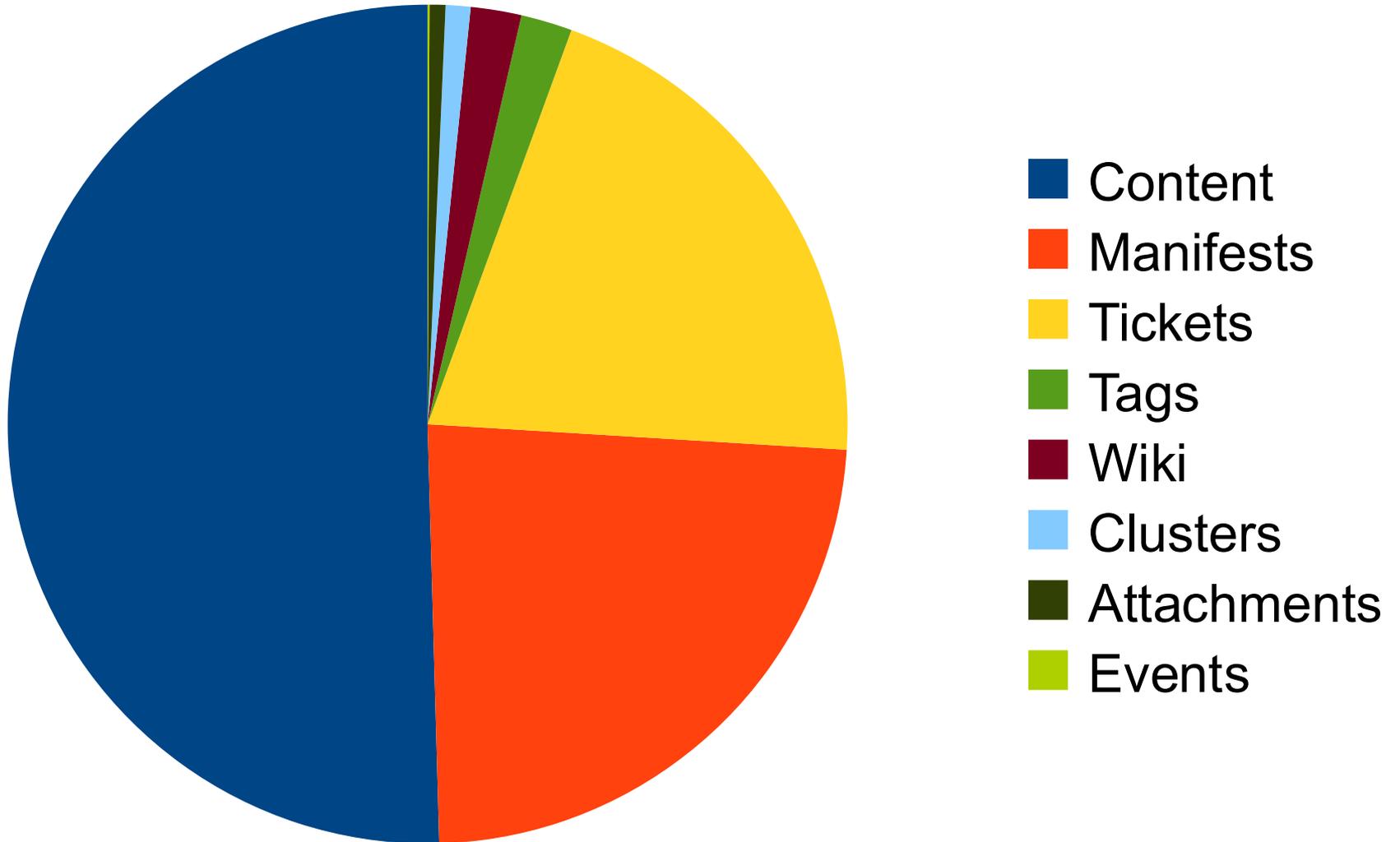


SQLite



- Content
- Manifests
- Tickets
- Tags
- Clusters
- Wiki
- Attachments

Fossil



Control Artifact Syntax

- One or more “cards”
 - Separated by a single \n
- Single-character “card type” + arguments
 - Single space separator
- Strict lexicographical order
- Optional PGP signature
- No surplus whitespace
- No syntax flexibility

The First TCL Manifest

```
C initial\sempty\scheck-in
D 1998-03-26T14:45:58.000
P
R d41d8cd98f00b204e9800998ecf8427e
T *branch * trunk
T *sym-trunk *
U root
Z 2ee30e4acf28abddaca8b92e808a0556
```



core.tcl.tk/tcl/timeline?c=1970-01-01&n=1



Feedback

Tcl Source Code: Timeline



Logged in as drh

Tcl Source Code Timeline

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

200 Entries

Checkins Only

Events Only

Show Files

Tickets Only

Wiki Only

7 timeline items occurring around 1970-01-01.

1998-04-29

17:09



[\[fd32610091\]](#) added call to TcplFinalize (user: [stanton](#), tags: [trunk](#))

1998-04-28

18:53



[\[a027dd039f\]](#) Initial revision (user: [stanton](#), tags: [trunk](#))

1998-03-26

14:56



[\[f86c34e38d\]](#) Initial revision (user: [rjohnson](#), tags: [trunk](#))

14:45



[\[cacdd0f329\]](#) Initial revision (user: [rjohnson](#), tags: [trunk](#))

14:45



[\[731fd7d7c1\]](#) initial empty check-in (user: [root](#), tags: [trunk](#))

Click Here



Tcl Source Code Check-in [731fd7d7c1]

[Home](#) [Timeline](#) [Files](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Admin](#) [Logout](#)

Overview

SHA1 Hash: 731fd7d7c17acea9408795854093cb272d41a342 (Record ID: 1)
Date: [1998-03-26 14:45:58](#)
User: [root](#)
Comment: initial empty check-in
Received From: kennykb @ 74.208.74.66 on 2011-02-28 02:56:33
Timelines: [family](#) | [descendants](#) | [trunk](#)
Other Links: [files](#) | [Tarball](#) | [ZIP archive](#) | [manifest](#) | [edit](#)

Tags And Properties

- **branch=trunk** propagates to descendants
- **sym-trunk** propagates to descendants



core.tcl.tk/tcl/artifact/731fd7d7c17acea9

Feedback ▾

Tcl Source Code: Artifact Content



Logged in as drh

Tcl Source Code

Artifact Content

[Home](#)[Timeline](#)[Files](#)[Branches](#)[Tags](#)[Tickets](#)[Wiki](#)[Admin](#)[Logout](#)[Download](#)[Hex](#)[Shun](#)

Artifact 731fd7d7c17acea9408795854093cb272d41a342

Manifest of check-in [\[731fd7d7c1\]](#) - initial empty check-in by [root](#) on [1998-03-26 14:45:58](#).

```
C initial\sempty\scheck-in
D 1998-03-26T14:45:58.000
P
R d41d8cd98f00b204e9800998ecf8427e
T *branch * trunk
T *sym-trunk *
U root
Z 2ee30e4acf28abddaca8b92e808a0556
```

Typical Manifest

26638820c0a75487c97d5fd030579333d41153fa

```
C Update\stzdata.\s\sUpdate\schanges.  
D 2011-07-28T14:45:32.004  
F ChangeLog 5085beac0c3c8888ca11d7775f9054f8c68c38a1  
F ChangeLog.1999 280c964ab66bfa44d318ea1b7e56f72adf8d5706  
F ChangeLog.2000 76009e650d22e320c0f1e2f2b2f7a5c0b6fc987b  
...  
F win/tclWinTime.c 20f6863da59c1660a1a139b45a1c8df97f170c79  
F win/tclooConfig.sh 36f87f2c6ef7def23e20b6a9c40b7b5c1b4e5e70  
F win/tclsh.ico 54ce97ad2c00398e7e4bfb15a8f6aea3a2e7a7de  
F win/tclsh.rc 1f3495a8ab4fd8bb6ac65ff13b5349185b57d645  
P b90f24729918.... 6e66b1bc3296e...  
R edb457a36007e56cb6dfcd18134b4954  
U dgp  
Z c0e1076c70ec922a2139515e5ebadedd
```

Typical Delta Manifest

e8226eb7d09f8e98ca4a9d2f168f4442cbcbaa3a

```
B 26638820c0a75487c97d5fd030579333d41153fa
C Fix\sAC_DEFINE\sinvocation\sfor\sNEED_FAKE_RFC2553.
D 2011-07-28T15:51:40.619
F ChangeLog b002a6919c79b875a58c2ac92a1b2151ebf4a5f7
F unix/tcl.m4 8e39af14120cf51688a73e87e450b01668940227
P 26638820c0a75487c97d5fd030579333d41153fa
R 2224a95c9f1ba0df49e1aa9359b01bdd
U max
Z d769e1f81876ccf94e436c0be6a09272dedd
```

Delta Manifest Rules

- Delta always references a single, complete baseline
 - All files of a check-in can be located by looking at no more than 2 manifests
- Baselines inserted automatically to minimize total manifest size
- Repositories are baseline-only by default

Tag Artifact

b131874eece21f33e6d8deb2cbec464c90bcbb00

D 2011-08-27T04:35:38.350

T +closed 34daf5b5b37cfe8...

T +comment 34daf5b5b37cfe8... Repaired\sthe\s...

U dgp

Z d717f63c8c00e046ccb51094e36b3de6

meets or beats the former trunk (and current trunk by magnitudes) in tclbench.

Received From: drh @ 67.18.92.124 on 2011-08-31 19:31:40

Timelines: [family](#) | [ancestors](#) | [revert-3396731](#)

Other Links: [files](#) | [Tarball](#) | [ZIP archive](#) | [manifest](#) | [edit](#)

Tags And Properties

- **bgcolor=#f0a0a0** inherited from [\[7e909249a4\]](#)
- **branch=revert-3396731** inherited from [\[7e909249a4\]](#)
- **closed** added by [\[b131874eec\]](#) on [2011-08-27 04:35:38](#)
- **comment=Repaired the lost performance in the copy loop hotspots. Now meets or beats the former trunk (and current trunk by magnitudes) in tclbench.** added by [\[b131874eec\]](#) on [2011-08-27 04:35:38](#)
- **sym-revert-3396731** inherited from [\[7e909249a4\]](#)

Changes

[\[show diffs\]](#) [\[patch\]](#)

Modified [generic/tclStringObj.c](#) from [\[667ba8aa470037d2\]](#) to [\[43f41b7bb516c900\]](#).
[\[diff\]](#)

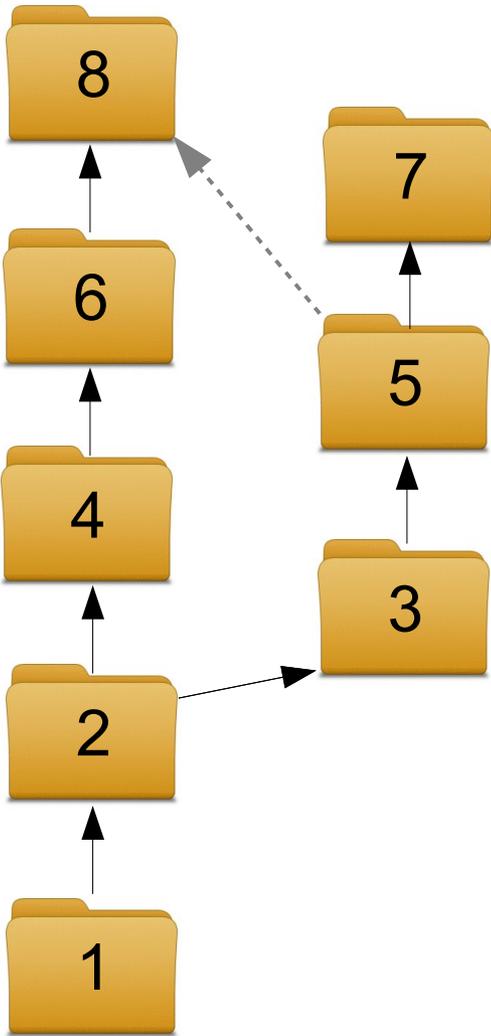
Tag Artifact

b131874eece21f33e6d8deb2cbec464c90bcbb00

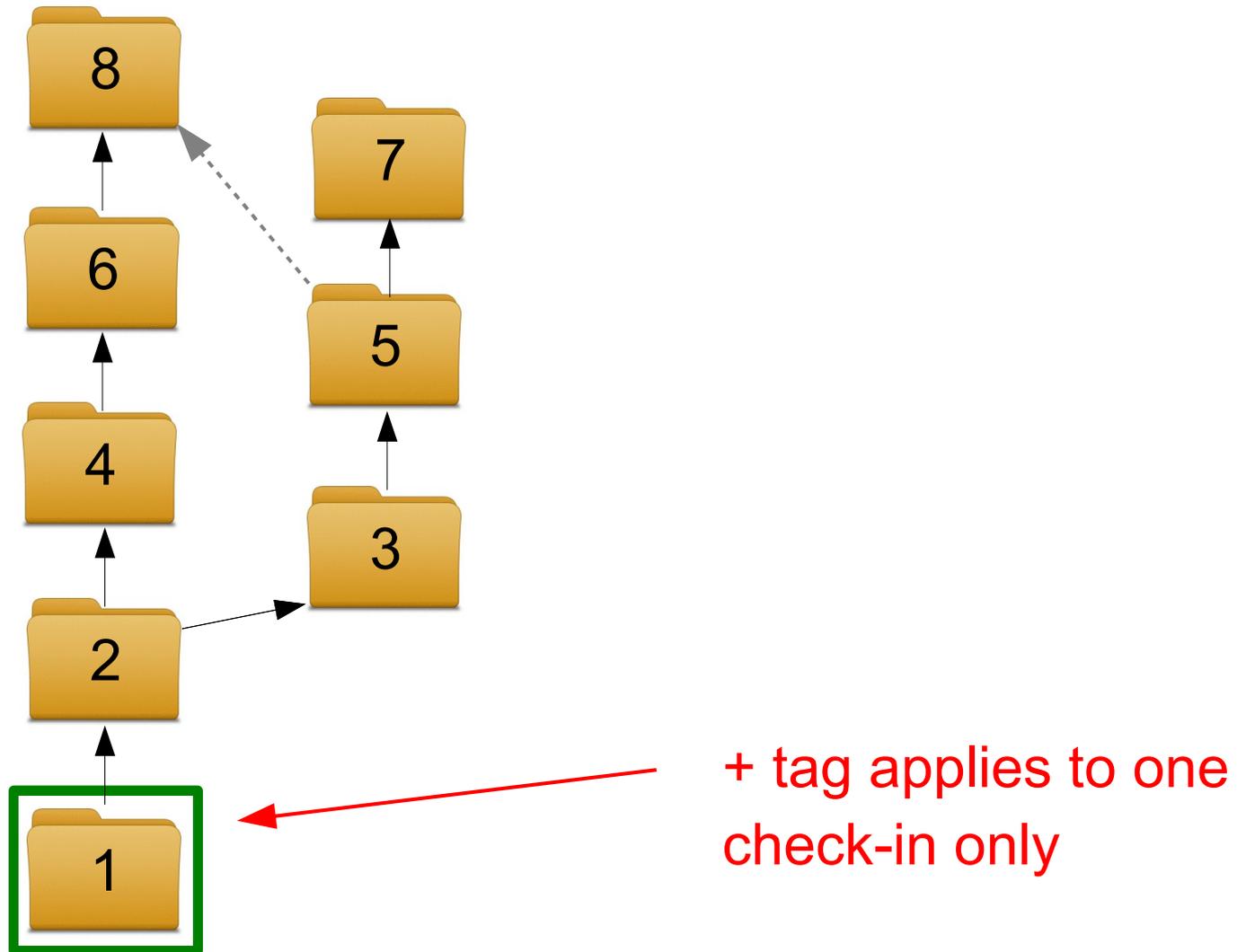
```
D 2011-08-27T04:35:38.350
T +closed 34daf5b5b37cfe8...
T +comment 34daf5b5b37cfe8... Repaired\sthe\s...
U agp
Z d717f63c8c00e046ccb51094e36b3de6
```

- 
- Cancel the tag
 - + Add tag to this a single artifact
 - * Add to artifact & all descendants

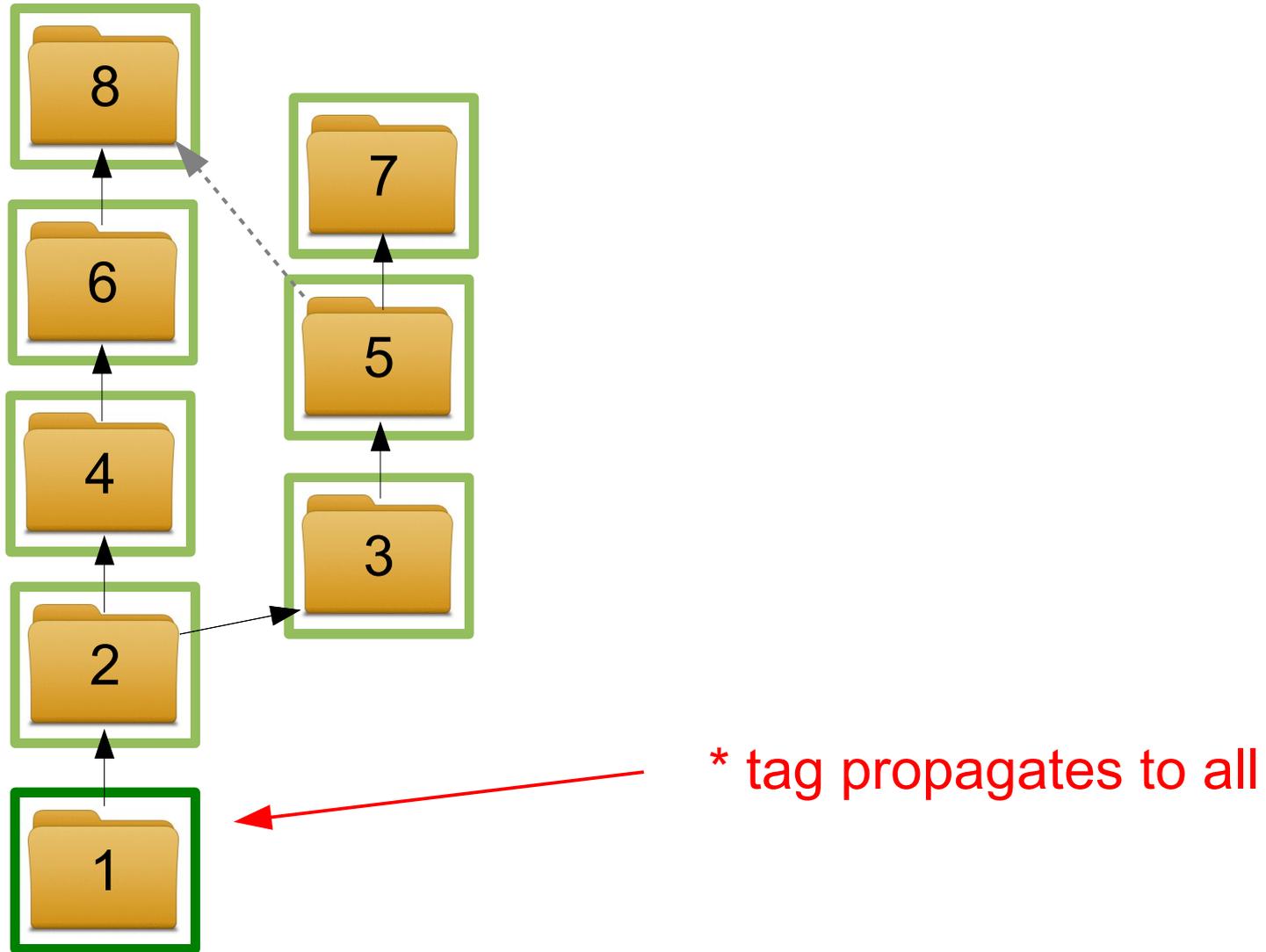
Tag Propagation



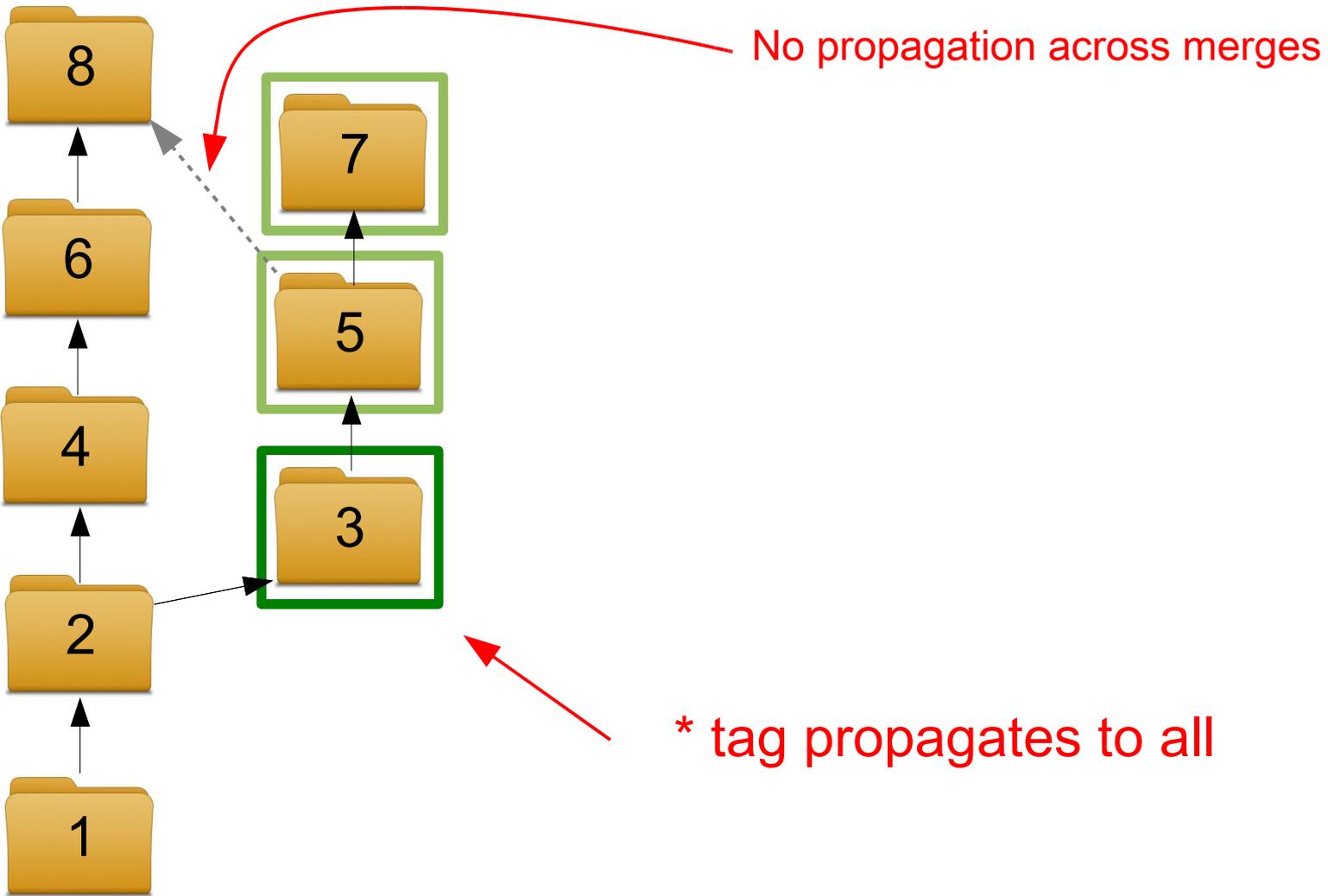
Tag Propagation



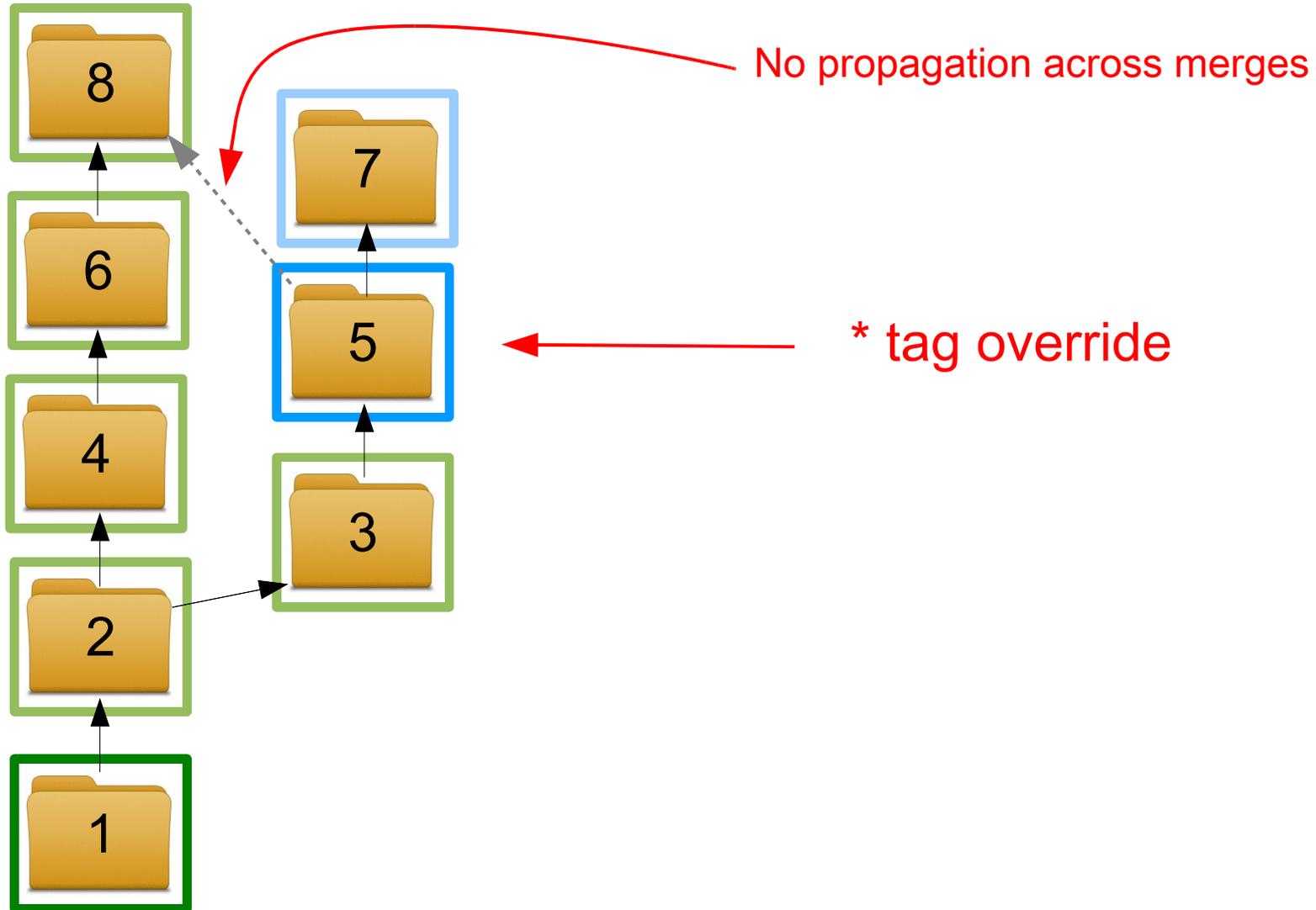
Tag Propagation



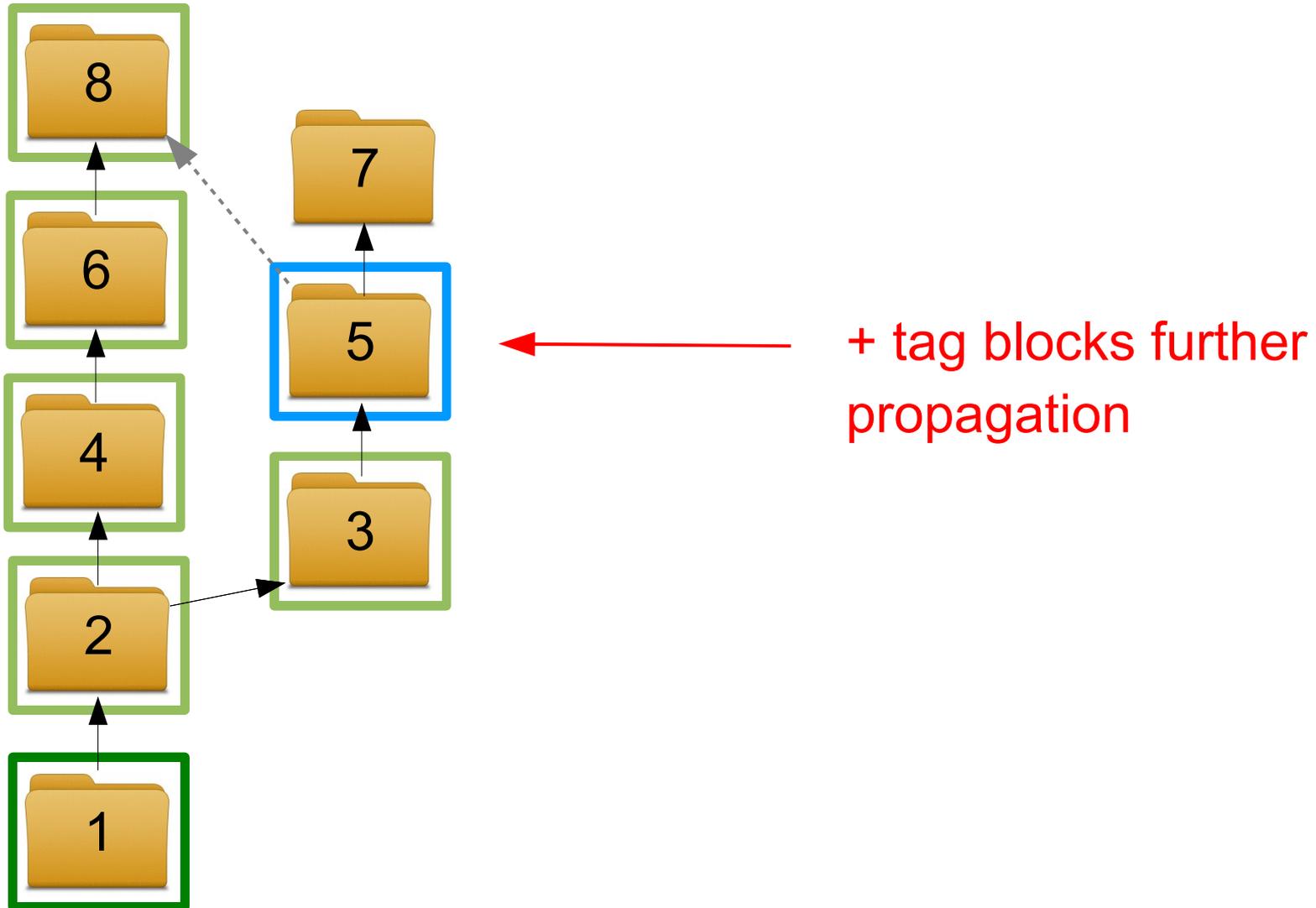
Tag Propagation



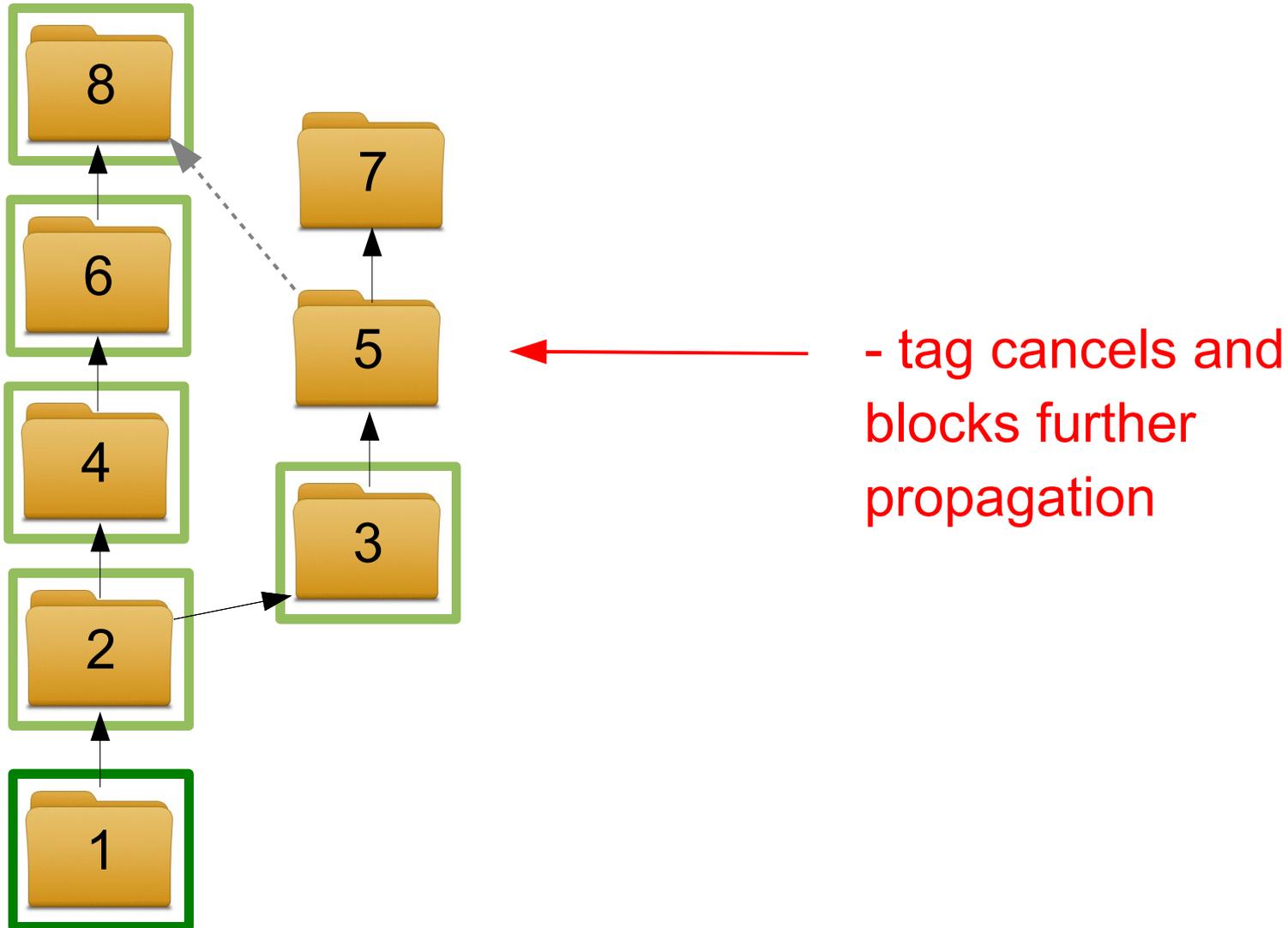
Tag Propagation



Tag Propagation



Tag Propagation



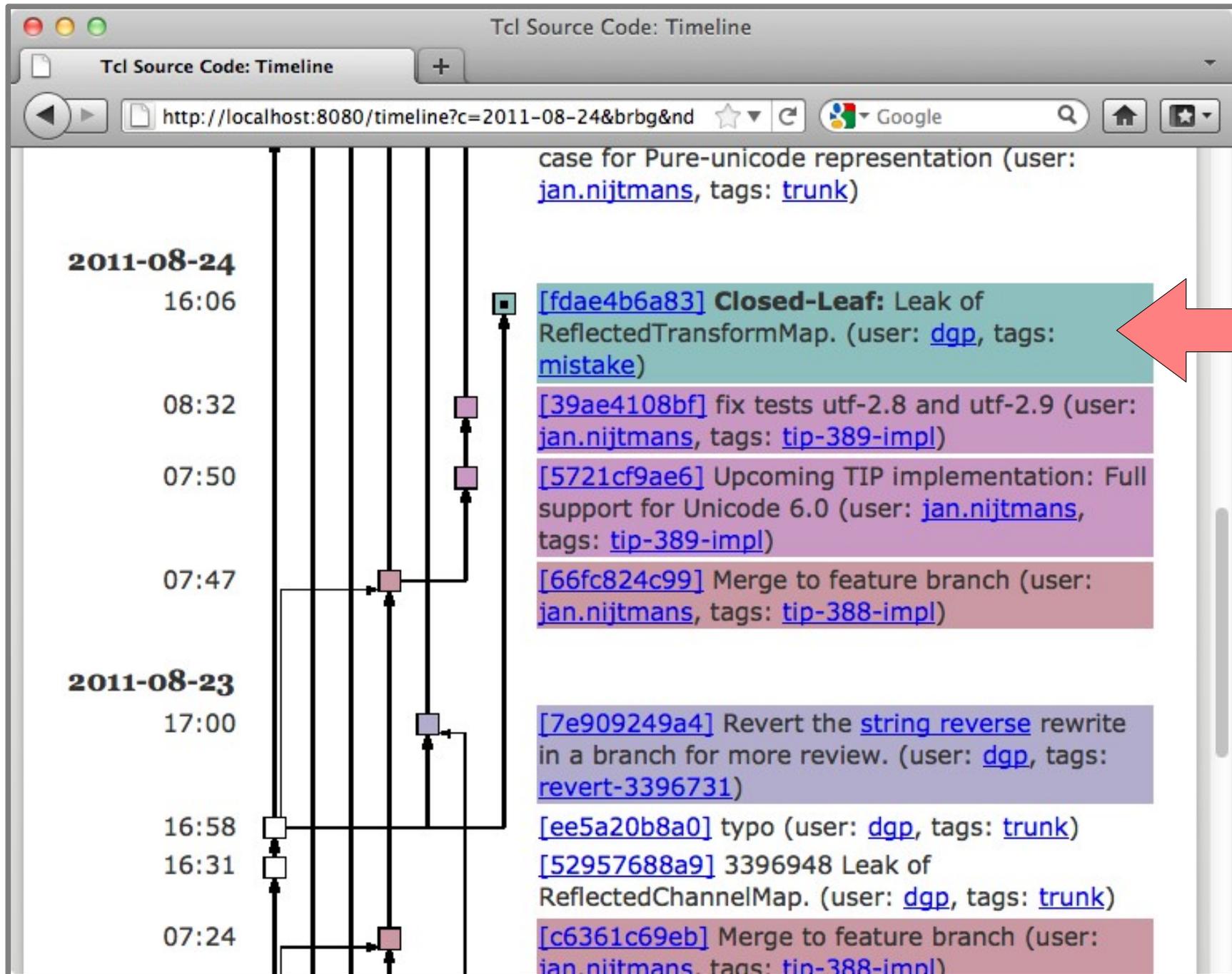
Tag Artifact

b131874eece21f33e6d8deb2cbec464c90bcbb00

```
D 2011-08-27T04:35:38.350
T +closed 34daf5b5b37cfe8...
T +comment 34daf5b5b37cfe8... Repaired\sthe\s...
U dgp
Z d717f63c8c00e046ccb51094e36b3de6
```

-
- bgcolor
 - branch
 - closed
 - comment
 - date
 - hidden
 - private
 - sym-*
 - user
 - *cluster*
 - *event-**
 - *tkl-**
 - *wiki-**

Internal only
Never in an artifact



Tcl Source Code: Check-in [fdae4b6a83]

Tcl Source Code: Check-in [fdae...]

http://localhost:8080/info/fdae4b6a83

Overview

SHA1 Hash: fdae4b6a83eb29e10d839a967f513bf76c6e7d05 (Record ID: 72720)

Date: [2011-08-24 16:06:14](#)

User: [dgp](#)

Comment: Leak of ReflectedTransformMap.

Received From: drh @ 67.18.92.124 on 2011-08-31 19:31:40

Timelines: [family](#) | [ancestors](#) | [mistake](#)

Other Links: [files](#) | [Tarball](#) | [ZIP archive](#) | [manifest](#) | [edit](#)

Tags And Properties

- **bgcolor=#404040** added by [\[6cfa8bc5ae\]](#) on [2011-08-24 16:14:53](#)
- **branch=mistake** propagates to descendants added by [\[6cfa8bc5ae\]](#) on [2011-08-24 16:14:53](#)
- **closed** added by [\[6cfa8bc5ae\]](#) on [2011-08-24 16:14:53](#)
- **sym-mistake** propagates to descendants added by [\[6cfa8bc5ae\]](#) on [2011-08-24 16:14:53](#)
- **sym-trunk** cancelled by [\[6cfa8bc5ae\]](#) on [2011-08-24 16:14:53](#)

Changes

Tag Artifact

6cfa8bc5aee10b7e4467f2fd41c02ed61d561985

D 2011-08-24T16:14:53.128

T *branch fdae4b6a83eb29e10d839a967f513bf76c6e7d05 mistake

T *sym-mistake fdae4b6a83eb29e10d839a967f513bf76c6e7d05

T +bgcolor fdae4b6a83eb29e10d839a967f513bf76c6e7d05 #404040

T +closed fdae4b6a83eb29e10d839a967f513bf76c6e7d05

T -sym-trunk fdae4b6a83eb29e10d839a967f513bf76c6e7d05

U dgp

Z 777e0a1a55d1122e90d41b8cfcb811c4

Tcl Source Code: Check-in [5b2d91d5e3]

Tcl Source Code: Check-in [5b2...]

http://localhost:8080/tcl/info/5b2d91d5e31e

Google

Logged in as drh

Tcl Source Code

Check-in [5b2d91d5e3]

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

Overview

SHA1 Hash: 5b2d91d5e31eeb96b582af7753e19ff484537917 (Record ID: 70816)

Date: [2011-01-18 19:26:56](#)

Original Date: [2011-01-18 11:26:56](#)

User: [andreask](#)

Comment: Brought no-nre v2 up-to-date with 8.6 head as of Jan 18 11:30 PST.

Received From: drh @ 192.132.92.17 on 2011-03-14 15:22:47

Timelines: [family](#) | [ancestors](#) | [descendants](#) | [both](#) | [activestate-nre-excised-variant-2-subtracted](#)

Other Links: [files](#) | [Tarball](#) | [ZIP archive](#) | [manifest](#) | [edit](#)

Tags And Properties

- **bgcolor=#f0ffc0** inherited from [\[2d93b1436c\]](#)
- **branch=activestate-nre-excised-variant-2-subtracted** inherited from [\[2d93b1436c\]](#)
- **date=2011-01-18 19:26:56** added by [\[0ef2e0ad2b\]](#) on [2011-03-10 22:33:38](#)
- **sym-activestate-nre-excised-variant-2-subtracted** inherited from [\[2d93b1436c\]](#)

Changes

[\[show diffs\]](#) [\[patch\]](#)

Tag Artifact

0ef2e0ad2ba2aa76ebe03b2bc9ae17585ef3f041

D 2011-03-10T22:33:38.100

T +date 5b2d91d5e31eeb96b582af775... 2011-01-18\s19:26:56

U andreask

Z 11960e21ef40b9cf2fa2eadf30cb4306

Ticket Artifact

527ffb7c4e675f3ee71c903f8e7af4b56339e171

D 2011-09-20T06:10:14.017

J comment I've\sgot\sa\shuge\srepository...

J private_contact f5490989678d6f2e65f1273b6b2da...

J severity Critical

J status Open

J title How\sto\scheckout\sa\sfolder,\sbut\sall\sof\sthe...

J type Feature_Request

K b64435dba9cceb709bd54fbc5883884d73f93491

U anonymous

Z 12b6cbc7a1dee6896f04bb397e52d326

Ticket Artifact

5065a5da060e181da49a618f8ae5dc245215e95b

```
D 2011-09-20T09:35:22.149
J +comment \n\n<hr\s/><i>stephan\sadded....
J resolution Works_As_Designed
K b64435dba9cceb709bd54fbc5883884d73f93491
U stephan
Z a97b3418fed901213a9add298dfbbe5f
```

“+” means append

Wiki Artifact

e30533ccc1986ee177295ac390e16d6b974e6ff6

D 2008-10-19T14:52:08

L Branching

P f4ecbbb4a4e9b1eade5248b6ac4b624e7a7692c3

U anonymous

W 1549

We probably need some notes on branching.

...

Z 8cb9839133fe420887114d55799cae9e

Attachment Artifact

de4f08b1027e7c45efd0e6bf9df98984d08c05ee

A tst.sh e8a10100e2.... 139aabf0a3f5c4....

C shell\sscript\sto\sexhibit\sthe\sproblem

D 2011-08-22T15:26:39.571

U martin.weber

Z 1f166ee89167a7df9b7cf2c26e22d485

Event Artifact

60c722950544e13343ba71bb619bc22f10ee9204

C Release\sNotes

D 2010-11-01T18:23:53

E 2010-11-01T17:24:02 d6ba73e22bf6ecbac3b6debb...

P a052101a8f2511546d561a93e535679fa3ae44cc

T +bgcolor * #d0c0ff

T +sym-release *

U drh

W 2424

<title>Release Notes 2010-11-01</title>

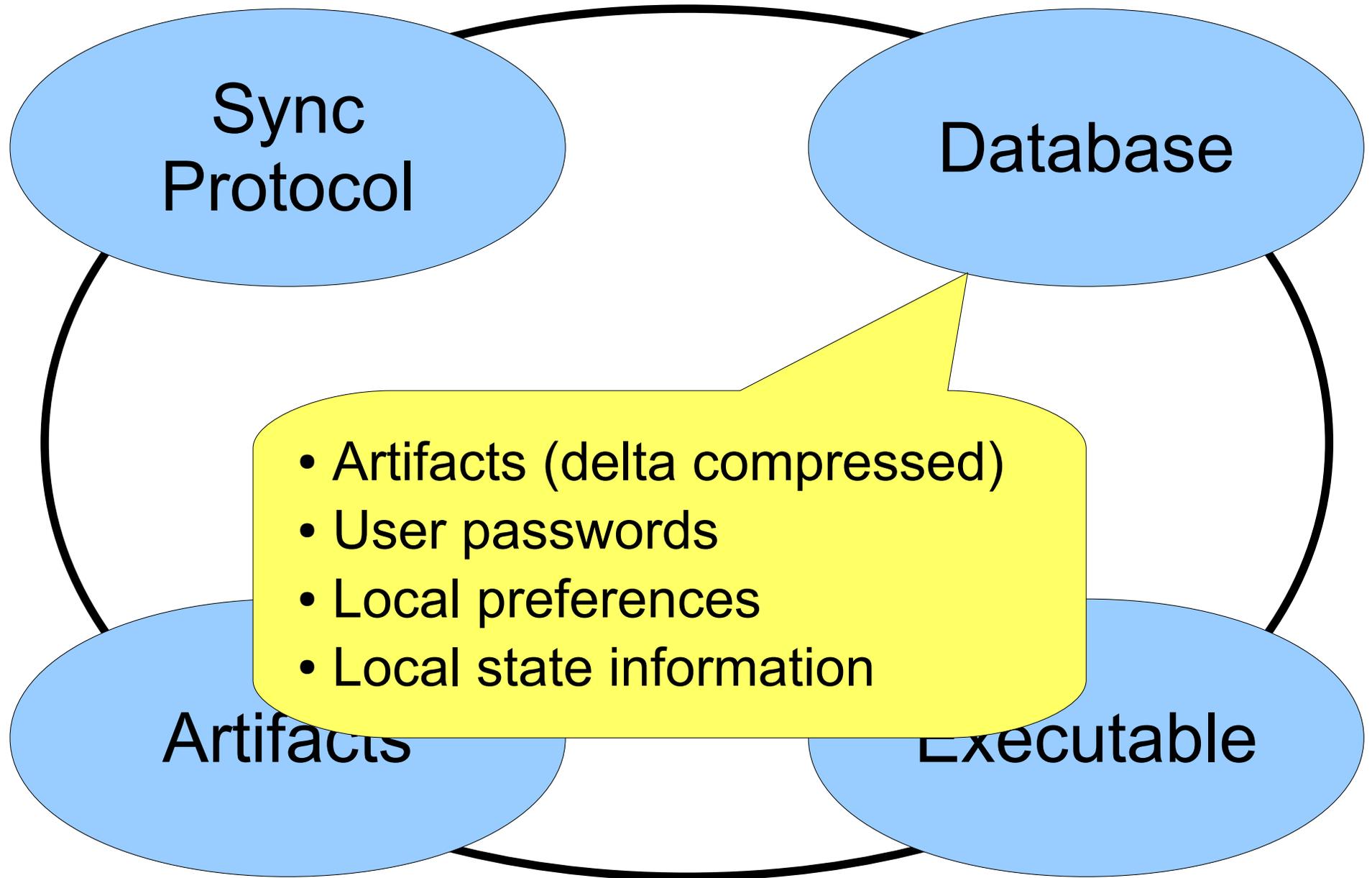
This note describes changes in the Fossil snapshot for..

Z 72cc5f9e9486576056b51020b19d8cae

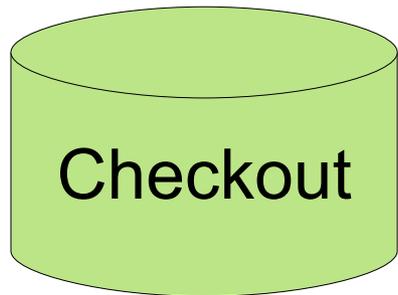
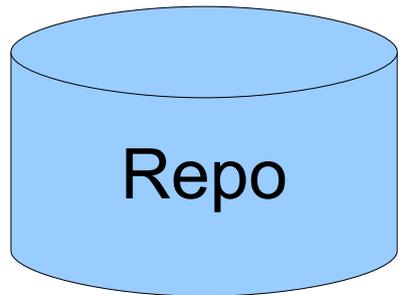
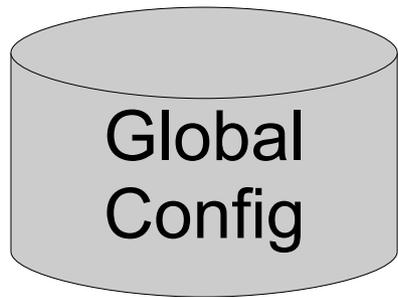
Cluster Artifact

58a49db76a43f5475567e435c8cd29ef17f56d72

```
M 0232fc9672a25b34608ccb40e7dc6464a631d0dc
M 02c5d705ffc1638da38fdd45d74d45db3b034834
M 036cbd7ddcf28c2c44f23dac8e2ad87dcc631775
M 0456de4ddb089b04d77507e3728598b1caaf9f4
M 06c0436f0421b3ee5c7fac0bd919e7dde362d3a6
M 08c372827446954b301b25a77150d0108aaa2f4b
M 091540cba92ac915e210a6f5f92c2dbbf6c58df6
M 0dfe959bf610f5aea73a4df57e5c07a6abfb8444
...
M fc7b1fbbed45a85edc2b621f4456c3804422d54c
M fe2f12390ff375f58d2e8d22bd050dd324e2bc1d
M ff1aa95edf8ca032629d7eb2ead5d386a54bfc45
M ff6cb3f219069c12402263cbbac46eabe44ac8fe
M ffc52b181f83faaef4cbfa6e1731bcb0e88aa63f
Z fec73aa4317dcd518bad7bb7e149474b
```

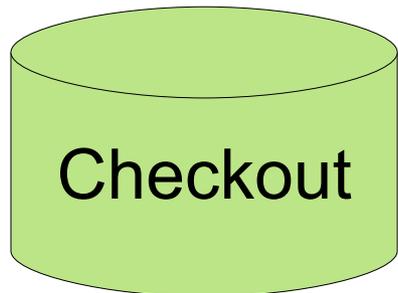
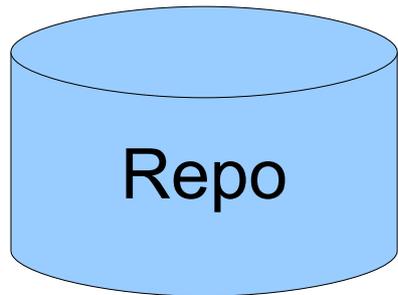
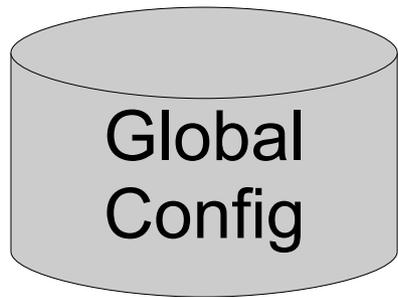


Three Databases



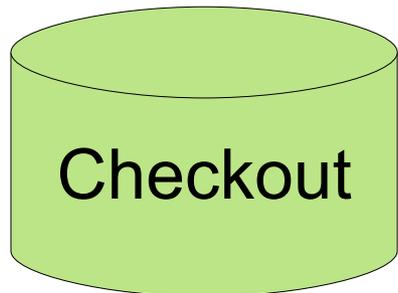
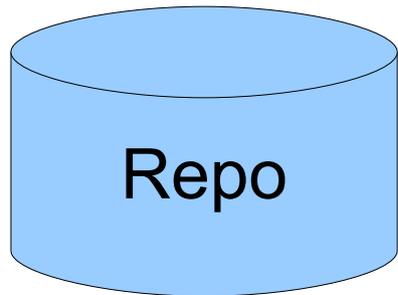
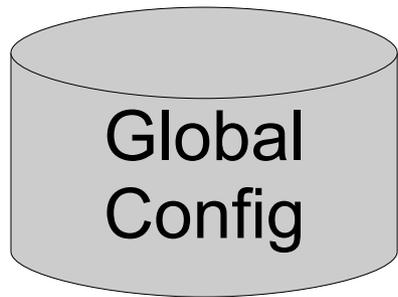
- `~/.fossil`
- List of repositories
- Global settings

Three Databases



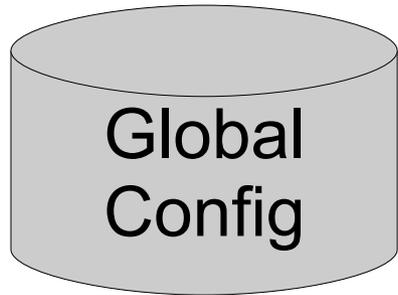
- *project.fossil*
- Artifacts
- Project settings
- Web-interface display preferences
- User credentials and permissions
- Artifact metadata

Three Databases

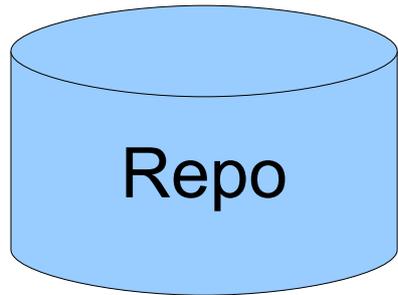


- `_FOSSIL_` or `.fos`
- Version currently out
- Location of repository
- Files added, removed, or renamed
- Last known timestamps
- stash
- undo/redo history

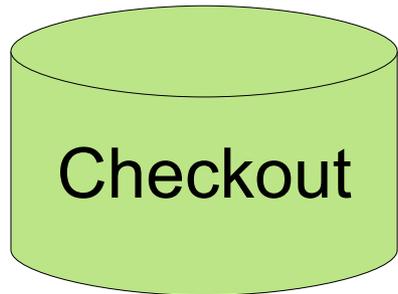
Three Databases



← `~/.fossil`

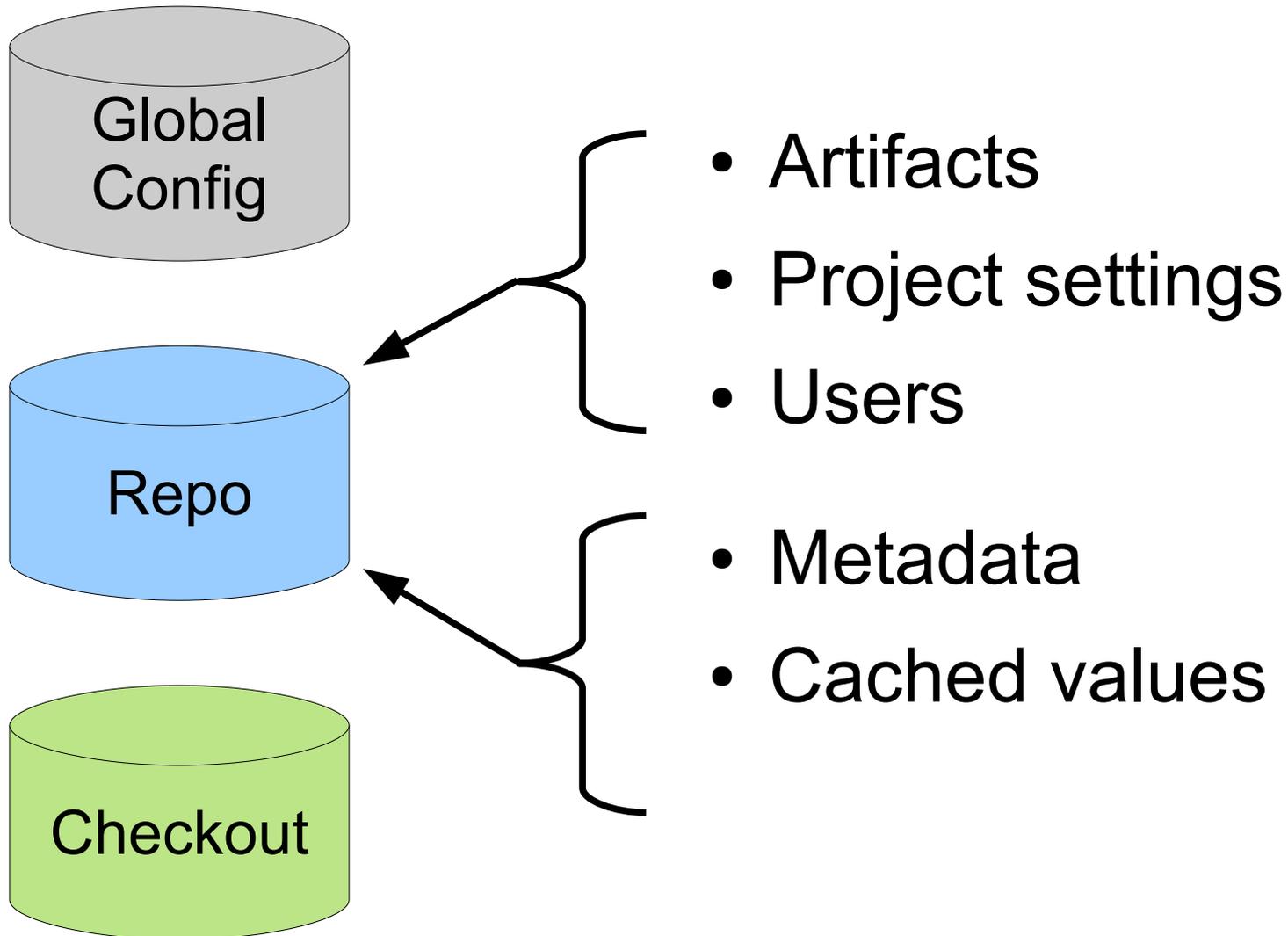


← *project.fossil*

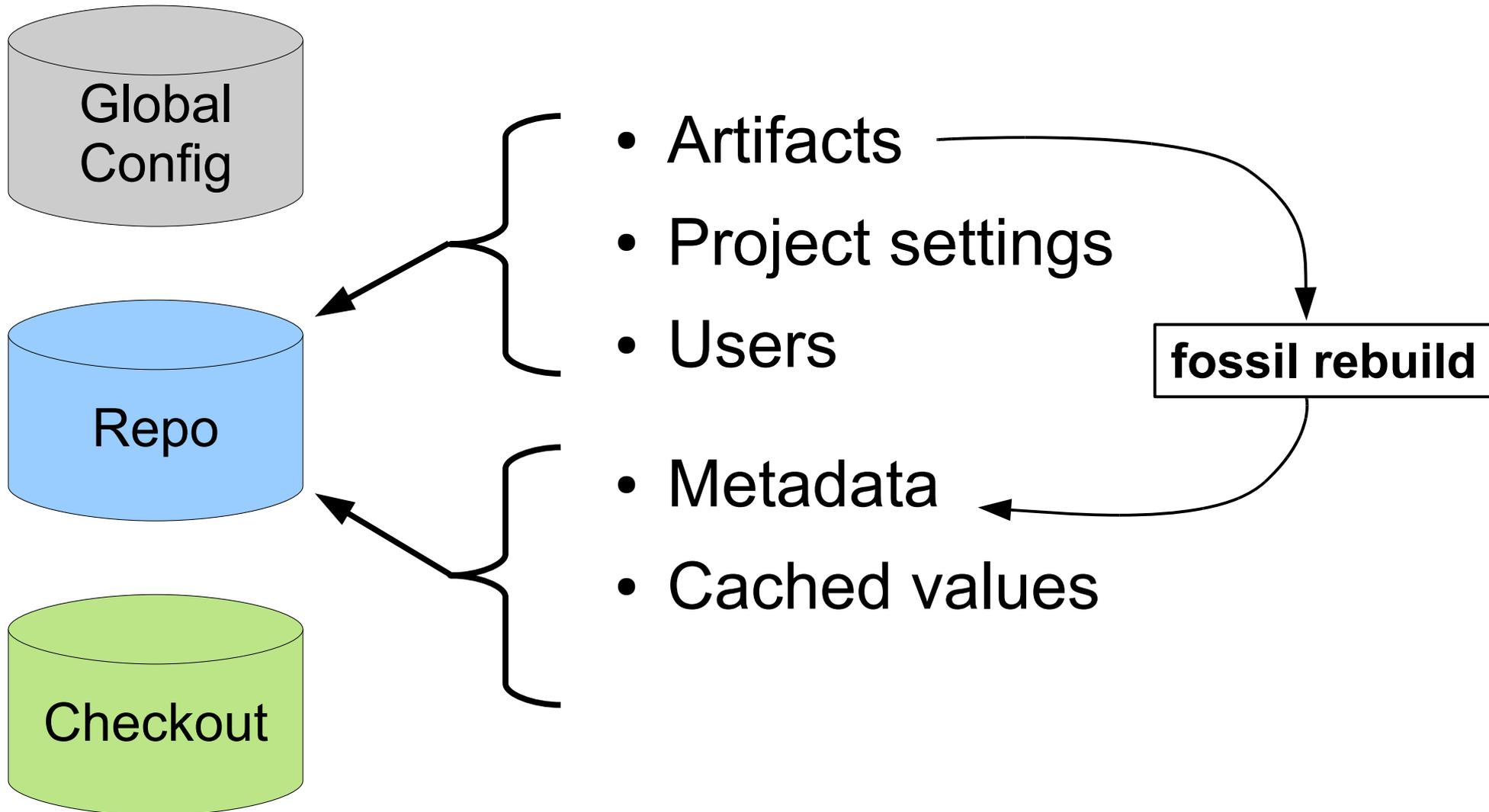


← `_FOSSIL_`

Three Databases



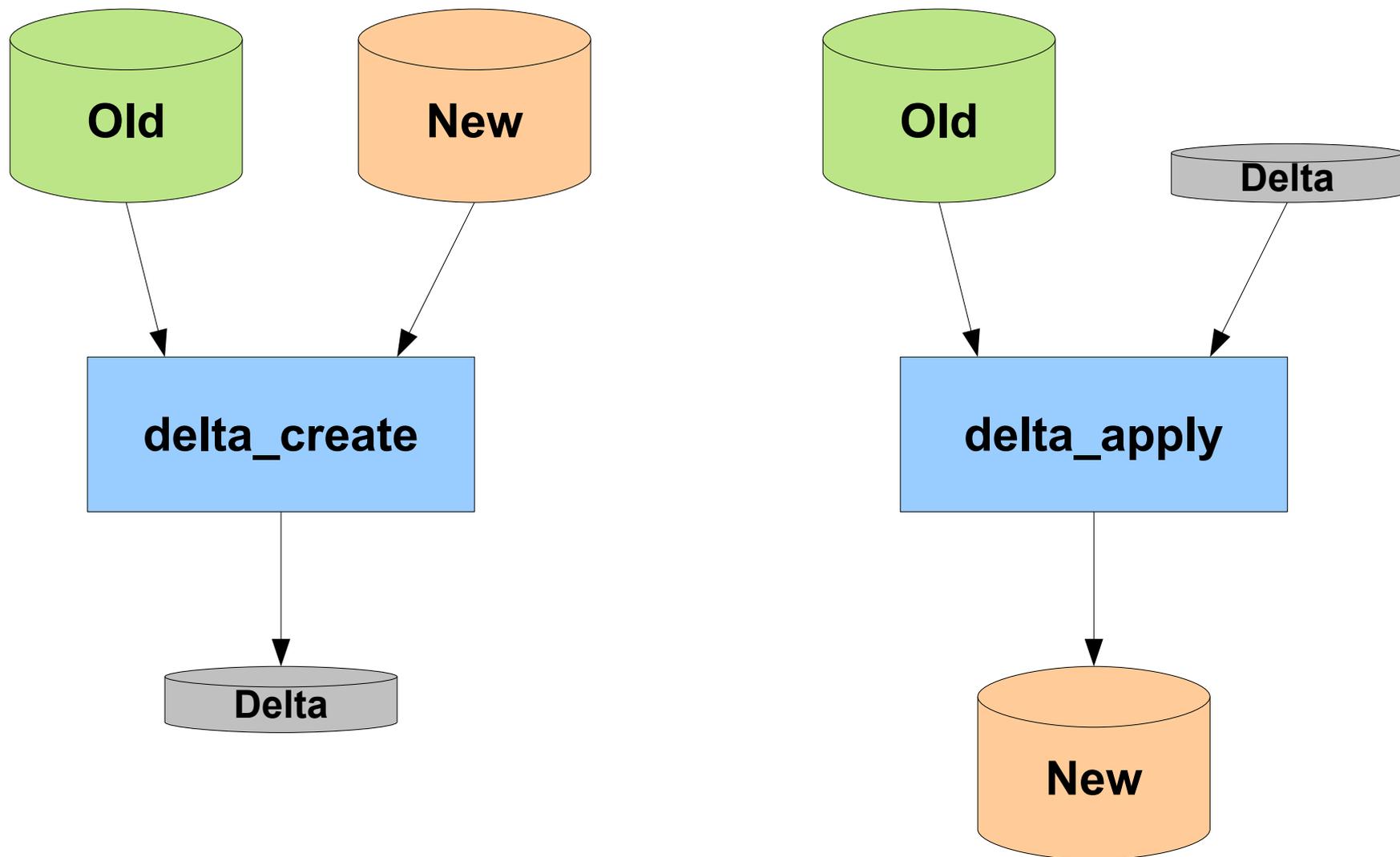
Three Databases



Artifact Storage

```
CREATE TABLE blob(  
  rid INTEGER PRIMARY KEY,  
  rcvid INTEGER,  
  size INTEGER,  
  uuid TEXT UNIQUE NOT NULL  
  content BLOB,  
  CHECK( length(uuid)==40 AND rid>0 )  
);  
CREATE TABLE delta(  
  rid INTEGER PRIMARY KEY,  
  srcid INTEGER NOT NULL REFERENCES blob  
);
```

Delta Encoding



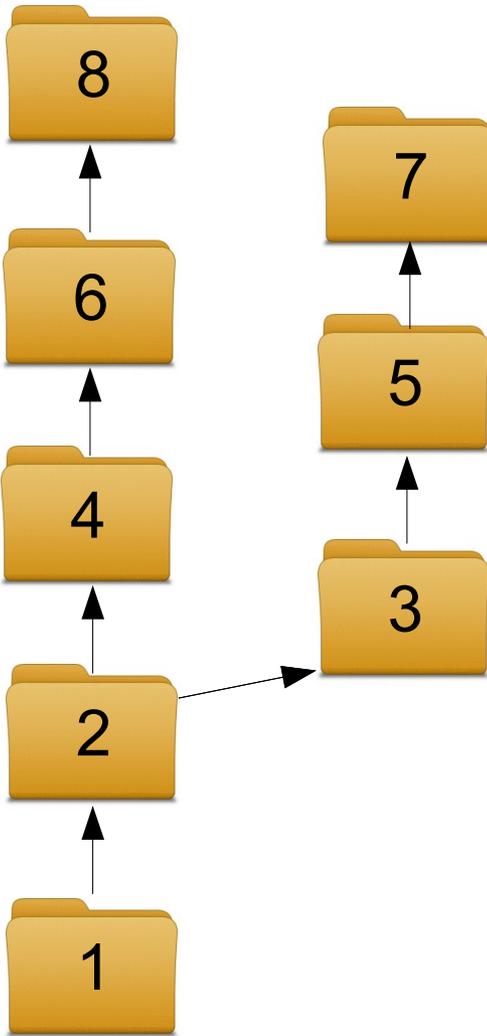
Delta Encoding Format

- Size of output
- Repeat zero or more times:
 - Emit N bytes at offset X of the input
 - Emit N bytes that follow
- 32-bit checksum on output

Delta Encoder Features

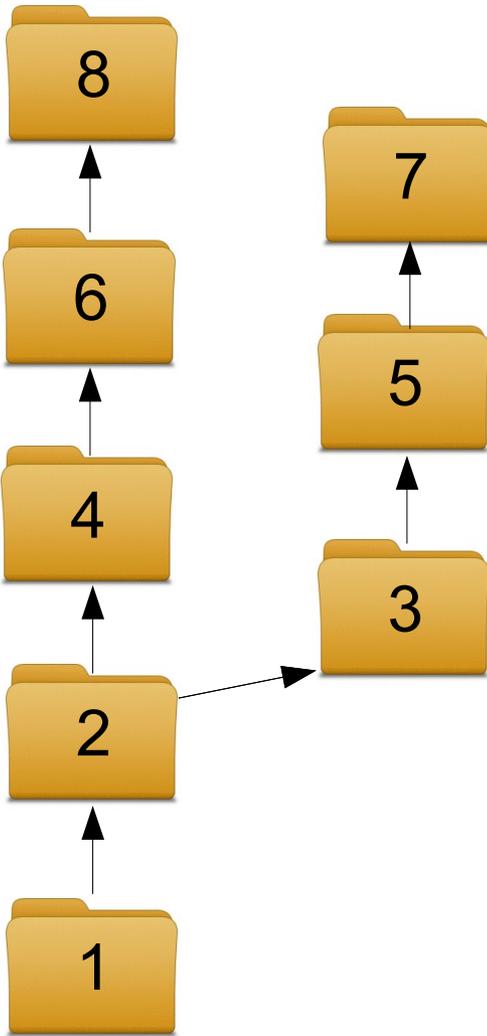
- Works with binary files
- ASCII old & ASCII new → ASCII delta
- Delta is much smaller than a diff or patch
- Test-commands:
 - fossil test-delta-create OLD NEW DELTA
 - fossil test-delta-apply OLD DELTA NEW
- Rsync-like algorithms used to compute delta
- Large fraction of time spent on the checksum

Delta compression



- 8 and 7 are full text
- 6 is a delta from 8
- 5 is a delta from 7
- 4 is a delta from 6
- 3 is a delta from 5
- 2 is a delta from 3 or 4
- 1 is a delta from 2

fossil rebuild --compress



- 8 is full text
- 7 is a delta from 8
- all the rest are the same

Sanity Checking

- 1) BEGIN
- 2) Do some work
 - a) Remember the RID of any artifact that changes (delta applied or removed).
- 3) Verify that all modified artifacts can be reconstructed
- 4) COMMIT

Configuration

```
CREATE TABLE config(  
  name TEXT PRIMARY KEY NOT NULL,  
  value CLOB,  
  mtime DATE,  
  CHECK( typeof(name)='text' AND length(name)>=1 )  
);
```

- Settings
- Web page templates
- CSS
- Logo
- Project code
- “remote” URL
- Ticket scripts
- and so forth...

Users

```
CREATE TABLE user(  
  uid INTEGER PRIMARY KEY,  
  login TEXT UNIQUE,  
  pw TEXT,  
  cap TEXT,  
  cookie TEXT,  
  ipaddr TEXT,  
  cexpire DATETIME,  
  info TEXT,  
  mtime DATE,  
  photo BLOB  
);
```

Ticket Report Formats

```
CREATE TABLE reportfmt(  
  rn INTEGER PRIMARY KEY,  
  owner TEXT,  
  title TEXT UNIQUE,  
  mtime DATE,  
  cols TEXT,  
  sqlcode TEXT  
);
```

Fossil: Ticket Main Menu

www.fossil-scm.org/fossil/reportlist

Fossil: Ticket Main Menu



Ticket Main Menu

Logged in as drh

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

Enter a new ticket:

- [New ticket](#)

Choose a report format from the following list:

1. [All Tickets](#) (by *drh*) [[copy](#)] [[edit](#)] [[sql](#)]
2. [All open tickets.](#) (by *drh*) [[copy](#)] [[edit](#)] [[sql](#)]
3. [Not Closed or Fixed, Doc or Feature](#) (by *kkinnell*) [[copy](#)] [[edit](#)] [[sql](#)]
4. [Open by type](#) (by *kkinnell*) [[copy](#)] [[edit](#)] [[sql](#)]
5. [Open feature requests](#) (by *martin.weber*) [[copy](#)] [[edit](#)] [[sql](#)]
6. [Recently changed tickets.](#) (by *drh*) [[copy](#)] [[edit](#)] [[sql](#)]
7. [Ticket Counts By Status](#) (by *drh*) [[copy](#)] [[edit](#)] [[sql](#)]
8. [Top stale tickets](#) (by *lrem*) [[copy](#)] [[edit](#)] [[sql](#)]

Create a new ticket display format:

- [New report format](#)

Fossil version [b54b8e751a] 2011-09-17 17:35:11



Edit Report Format

Logged in as drh

[Home](#) [Timeline](#) [Files](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Admin](#) [Logout](#)[Cancel](#) [Delete](#)

Report Title:

Enter a complete SQL query statement against the "TICKET" table:

```

SELECT
  CASE WHEN status IN ('Open','Verified') THEN '#f2dcdc'
        WHEN status='Review' THEN '#e8e8e8'
        WHEN status='Fixed' THEN '#cfe8bd'
        WHEN status='Tested' THEN '#bde5d6'
        WHEN status='Deferred' THEN '#caca5'
        ELSE '#c8c8c8' END AS 'bgcolor',
  substr(tkt_uuid,1,10) AS '#',
  datetime(tkt_mtime) AS 'mtime',
  title
FROM ticket
WHERE status='Open'
AND type='Feature Request'
ORDER BY tkt_mtime DESC

```

Report owner:

Enter an optional color key in the following box. (If blank, no color key is displayed.) Each line contains the text for a single entry in the key. The first token of each line is the background color for that line.

```

##### Key:
#f2dcdc Active
#e8e8e8 Review
#cfe8bd Fixed
#bde5d6 Tested
#caca5 Deferred
#c8c8c8 Closed

```

[Apply Changes](#)[Delete This Report](#)

Concealed Ticket Field Content

```
CREATE TABLE concealed(  
  hash TEXT PRIMARY KEY,  
  mtime DATE,  
  content TEXT  
);
```

Fossil ticket f91862eed3

artifact fb7ba146204b7f

D 2011-05-11T15:29:48.475

J comment \r\nFrom\sthe\sTk\schat...

J foundin 9a63d1f048

J private_contact d65c8f42ef81f14ced10171bf205f9a35ce6dff4

J severity Severe

J status Open

J title annotations\sassign\slines\sto\sincorrect\scheckin

J type Code_Defect

K f91862eed36716dec2129daf75060e4905cbc409

U anonymous

Z 904ff3d9cab84b20e517d39cfc38028e

Concealed Ticket Field Content

```
CREATE TABLE concealed(  
  hash TEXT PRIMARY KEY,  
  mtime DATE,  
  content TEXT  
);
```

```
SELECT content  
  FROM concealed  
 WHERE hash='d65c8f42ef81f1...';
```

```
drh@tallis:~$ sqlite3 ~/www/repos/fossil.fossil
SQLite version 3.7.8 2011-08-31 23:57:22
Enter ".help" for instructions
Enter SQL statements terminated with a ";"
sqlite> .mode line
sqlite> select * from concealed where content glob 'dgp*';
  hash = d65c8f42ef81f14ced10171bf205f9a35ce6dff4
content = dgp@nist.gov
  mtime = 1303870798
sqlite> □
```

View Ticket

Logged in as drh

[Home](#) [Timeline](#) [Files](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Admin](#) [Logout](#)

[Attach](#)

[Check-ins](#)

[Edit](#)

[History](#)

[New Ticket](#)

[Timeline](#)

Ticket UUID:	f91862eed36716dec2129daf75060e4905cbc409		
Title:	annotations assign lines to incorrect checkin		
Status:	Fixed	Type:	Code_Defect
Severity:	Important	Priority:	
Subsystem:		Resolution:	Fixed
Last Modified:	2011-05-12 01:13:35	Contact:	dgp@nist.gov
Version Found In:	9a63d1f048		

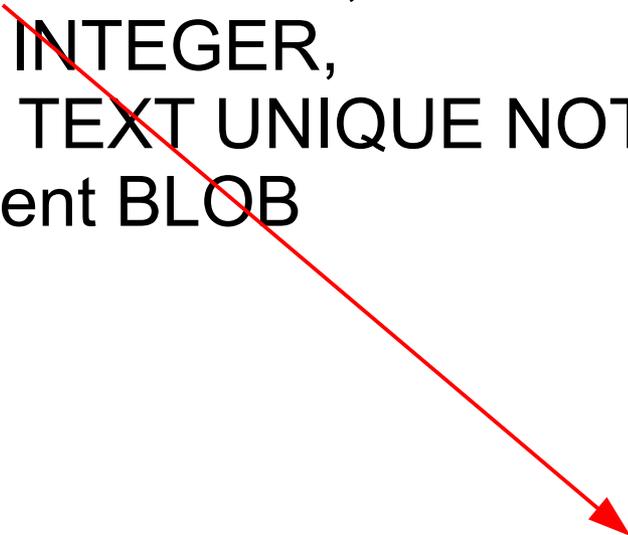
Private & Shunned Content

```
CREATE TABLE shun(  
  uuid UNIQUE,  
  mtime DATE,  
  scom TEXT  
);  
CREATE TABLE private(  
  rid INTEGER PRIMARY KEY  
);
```

Logs

```
CREATE TABLE rcvfrom(  
  rcvid INTEGER PRIMARY KEY,  
  uid INTEGER REFERENCES user,  
  mtime DATETIME,  
  nonce TEXT UNIQUE,  
  ipaddr TEXT  
);  
CREATE TABLE accesslog(  
  uname TEXT,  
  ipaddr TEXT,  
  success BOOLEAN,  
  mtime TIMESTAMP  
);
```

```
CREATE TABLE blob(  
  rid INTEGER PRIMARY KEY,  
  ravid INTEGER,  
  size INTEGER,  
  uuid TEXT UNIQUE NOT NULL  
  content BLOB  
);
```



```
CREATE TABLE rcvfrom(  
  ravid INTEGER PRIMARY KEY,  
  uid INTEGER REFERENCES user,  
  mtime DATETIME,  
  nonce TEXT UNIQUE,  
  ipaddr TEXT  
);
```

Tcl Source Code: Content Sources

core.tcl.tk/tcl/rcvfromlist

Tcl Source Code: Content Sources

Logged in as drh

Tcl Source Code Content Sources

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

Older

Whenever new artifacts are added to the repository, either by push or using the web interface, an entry is made in the RCVFROM table to record the source of that artifact. This log facilitates finding and fixing attempts to inject illicit content into the repository.

Click on the "rcvid" to show a list of specific artifacts received by a transaction. After identifying illicit artifacts, remove them using the "Shun" feature.

rcvid	Date	User	IP Address
1072	2011-10-04 08:44:46	dkf	127.0.0.1
1071	2011-10-04 05:11:36	venkat	108.194.198.110
1070	2011-10-04 05:01:01	venkat	108.194.198.110
1069	2011-10-03 10:45:42	dkf	127.0.0.1
1068	2011-10-03 07:51:06	dkf	127.0.0.1
1067	2011-10-02 16:30:09	dkf	127.0.0.1
1066	2011-09-29 14:59:05	dkf	127.0.0.1
1065	2011-09-29 10:58:26	dkf	127.0.0.1
1064	2011-09-28 08:33:11	jan.nijtmans	92.254.115.234
1063	2011-09-28 08:32:08	jan.nijtmans	92.254.115.234
1062	2011-09-28 01:39:38	miguel	190.55.217.47
1061	2011-09-28 01:39:17	miguel	190.55.217.47
1060	2011-09-27 09:57:06	dkf	127.0.0.1
1059	2011-09-27 09:49:34	dkf	127.0.0.1

Tcl Source Code: Access Log

core.tcl.tk/tcl/access_log

Tcl Source Code: Access Log

Logged in as drh

Tcl Source Code Access Log

Home Timeline Files Branches Tags Tickets Wiki Admin Logout

All Older

Date	User	IP Address
2011-10-04 16:03:51	drh	65.6.136.250
2011-10-04 09:29:07	anonymous	212.143.84.146
2011-10-04 09:27:04	test	65.49.14.78
2011-10-04 08:51:23	anonymous	137.208.114.112
2011-10-04 06:09:29	jenglish	75.52.240.163
2011-10-04 04:43:40	venkat	24.5.73.243
2011-10-04 01:43:34	anonymous	99.240.178.74
2011-10-03 21:55:29	ferrieux	2.11.212.253
2011-10-03 21:27:42	anonymous	24.67.177.179
2011-10-03 18:51:26	anonymous	79.67.231.95
2011-10-03 18:50:56	anonymous	79.67.231.95

Timeline Events

```
CREATE TABLE event(  
  type TEXT, -- Type of event: 'ci', 'w', 'e', 't'  
  mtime DATETIME, -- Time of occurrence. Julian day.  
  objid INTEGER PRIMARY KEY, -- Associated record ID  
  tagid INTEGER, -- Associated ticket or wiki name tag  
  uid INTEGER REFERENCES user, -- User who caused the event  
  bgcolor TEXT, -- Color set by 'bgcolor' property  
  euser TEXT, -- User set by 'user' property  
  user TEXT, -- Name of the user  
  ecomment TEXT, -- Comment set by 'comment' property  
  comment TEXT, -- Comment describing the event  
  brief TEXT, -- Short comment when tagid already seen  
  omtime DATETIME -- Original unchanged date+time, or NULL  
);
```

Tags

```
CREATE TABLE tag(  
  tagid INTEGER PRIMARY KEY,      -- Numeric tag ID  
  tagname TEXT UNIQUE            -- Tag name.  
);  
CREATE TABLE tagxref(  
  tagid INTEGER REFERENCES tag,    -- The tag that added or removed  
  tagtype INTEGER,               -- 0:-,cancel 1:+,single 2:*,propagate  
  srcid INTEGER REFERENCES blob,  -- Artifact of tag. 0 for propagated tags  
  origid INTEGER REFERENCES blob, -- check-in holding propagated tag  
  value TEXT,                    -- Value of the tag. Might be NULL.  
  mtime TIMESTAMP,              -- Time of addition or removal. Julian day  
  rid INTEGER REFERENCE blob,    -- Artifact tag is applied to  
  UNIQUE(rid, tagid)  
);
```

Check-in Lineages

```
CREATE TABLE plink(  
  pid INTEGER REFERENCES blob,      -- Parent manifest  
  cid INTEGER REFERENCES blob,      -- Child manifest  
  isprim BOOLEAN,                  -- pid is the primary parent of cid  
  mtime DATETIME,                  -- the date/time stamp on cid. Julian day.  
  UNIQUE(pid, cid)  
);
```

Changes Of A Check-in

```
CREATE TABLE filename(  
  fnid INTEGER PRIMARY KEY,      -- Filename ID  
  name TEXT UNIQUE              -- Name of file page  
);  
CREATE TABLE mlink(  
  mid INTEGER REFERENCES blob,   -- Manifest ID where change occurs  
  pid INTEGER REFERENCES blob,  -- File ID in parent manifest  
  fid INTEGER REFERENCES blob,  -- Changed file ID in this manifest  
  fnid INTEGER REFERENCES filename, -- Name of the file  
  pfnid INTEGER REFERENCES filename, -- Previous name. 0 if unchanged  
  mperm INTEGER                -- File permissions. 1==exec  
);
```

Tickets

```
CREATE TABLE ticket(  
  -- Do not change any column that begins with tkt_  
  tkt_id INTEGER PRIMARY KEY,  
  tkt_uuid TEXT UNIQUE,  
  tkt_mtime DATE,  
  -- Add as many field as required below this line  
  type TEXT,  
  status TEXT,  
  subsystem TEXT,  
  priority TEXT,  
  severity TEXT,  
  foundin TEXT,  
  private_contact TEXT,  
  resolution TEXT,  
  title TEXT,  
  comment TEXT  
);
```

Back Links

```
CREATE TABLE backlink(  
  target TEXT,          -- Where the hyperlink points to  
  srctype INT,         -- 0: check-in  1: ticket  2: wiki  
  srcid INT,           -- rid for checkin or wiki.  tkt_id for ticket.  
  mtime TIMESTAMP, -- when hyperlink was added.  
  UNIQUE(target, srctype, srcid)  
);
```

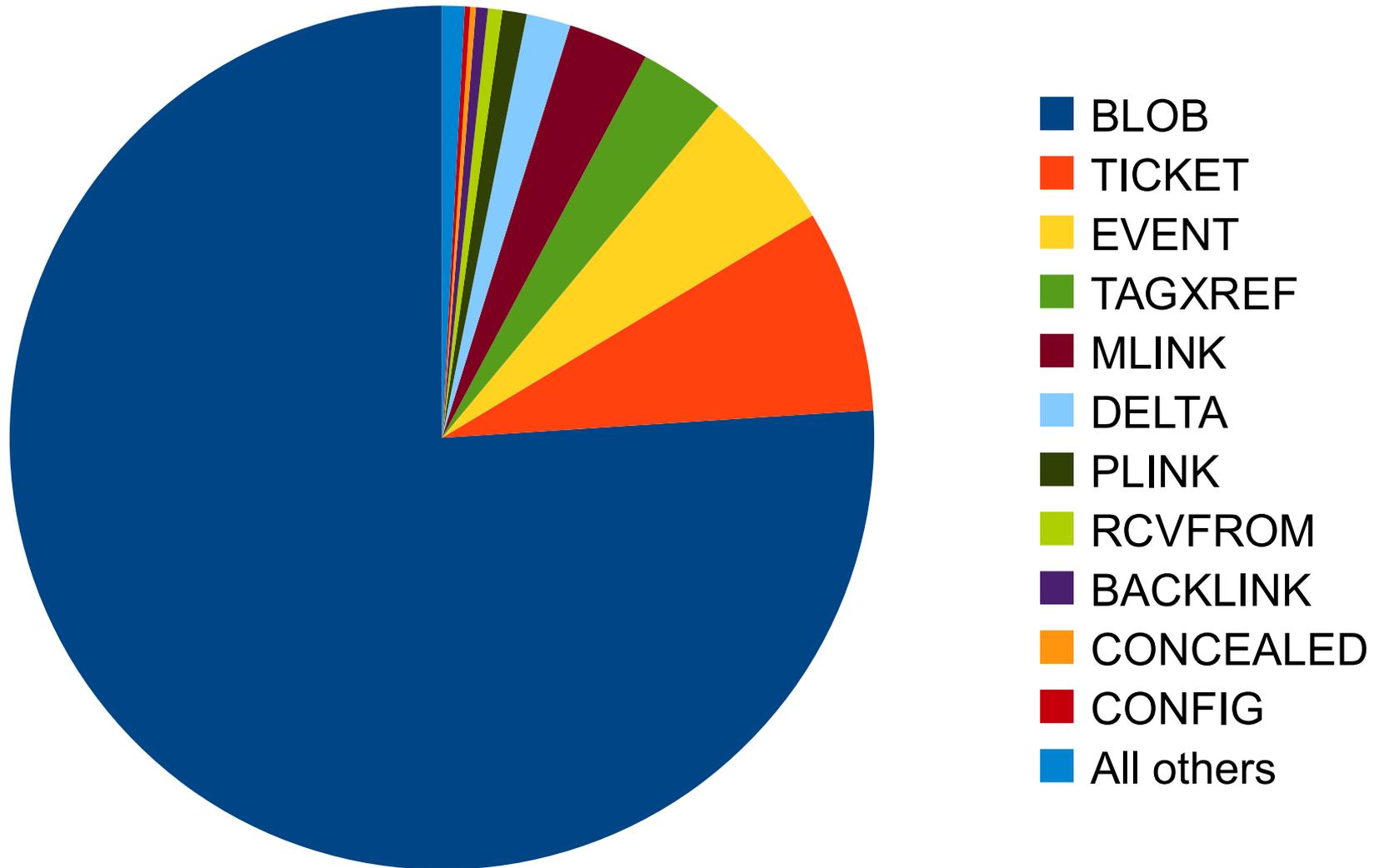
Attachments

```
CREATE TABLE attachment(  
  attachid INTEGER PRIMARY KEY, -- Local id for this attachment  
  isLatest BOOLEAN DEFAULT 0,   -- True if this is the one to use  
  mtime TIMESTAMP,             -- Last changed. Julian day.  
  src TEXT,                     -- UUID of the attachment. NULL to delete  
  target TEXT,                  -- Object attached to. Wikiname or Tkt UUID  
  filename TEXT,                -- Filename for the attachment  
  comment TEXT,                 -- Comment associated with this attachment  
  user TEXT                      -- Name of user adding attachment  
);
```

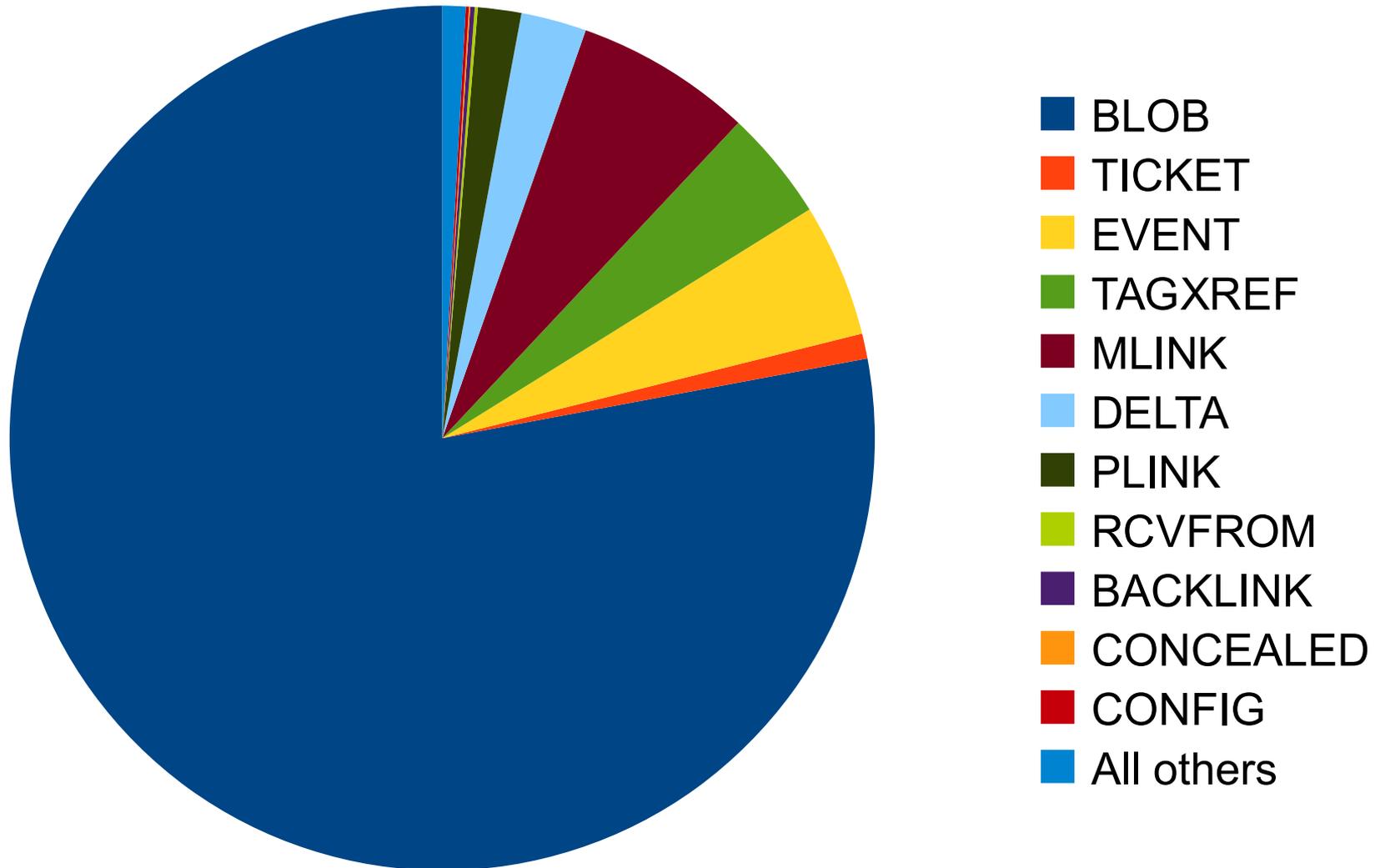
Artifact List Tables

- **LEAF**
- **ORPHAN**
- **PHANTOM**
- **UNCLUSTERED**
- **UNSENT**

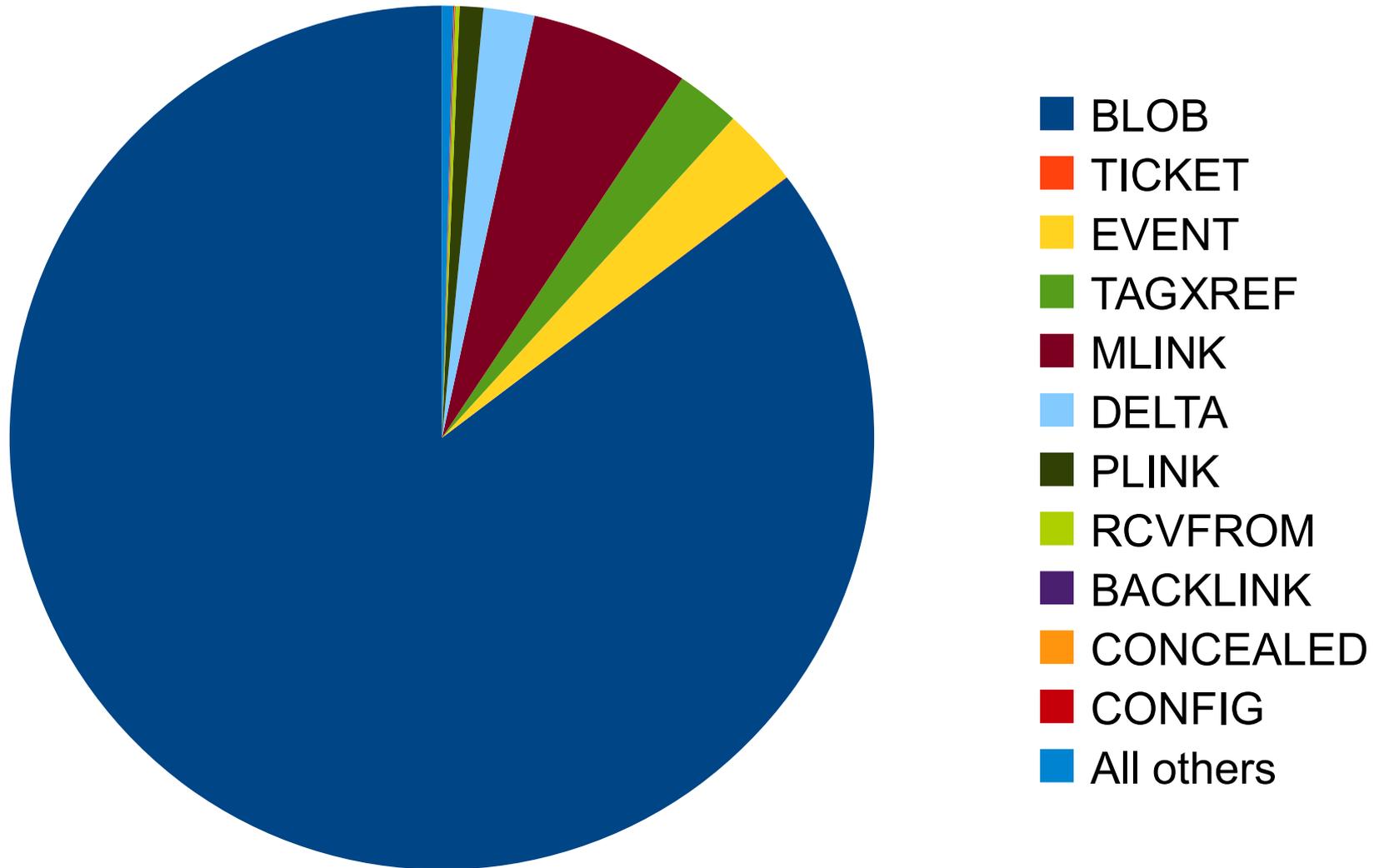
Fossil Content Size

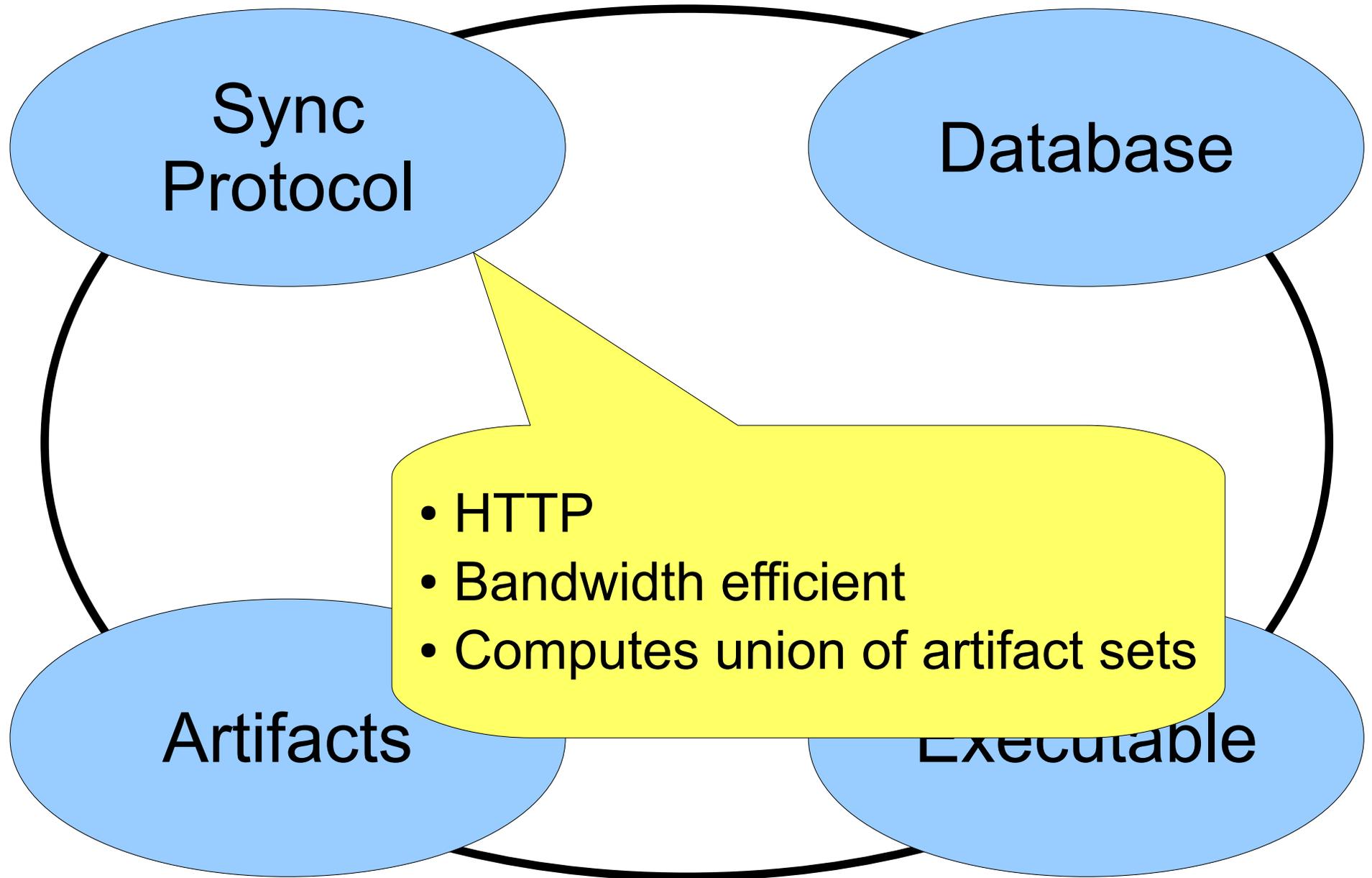


SQLite Content Size

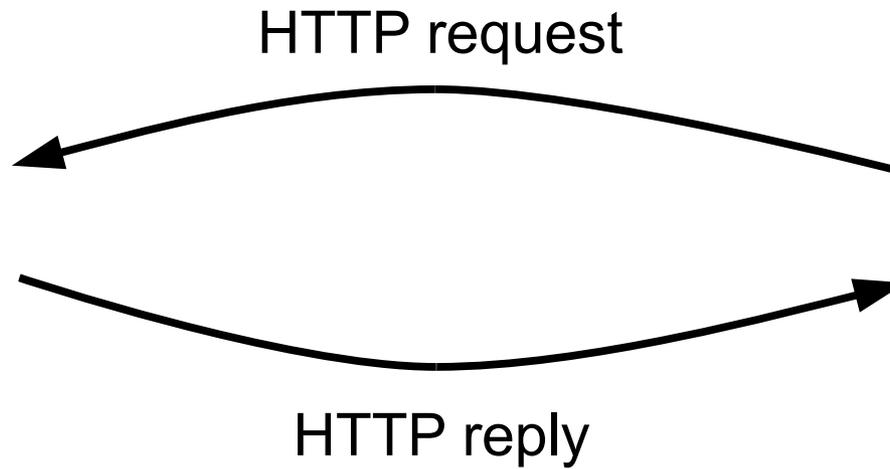


TCL Content Size





(1) Procedure name + arguments



(3) Result

(2) Run specified function

(1) xfer-procedure + payload



HTTP request



HTTP reply



(3) Return result payload

(2) Run the xfer procedure



/xfer payload

- mimetype: application/x-fossil
- Newline separated cards:
 - **login** ...
 - **gimme** *sha1-hash*
 - **igot** *sha1-hash*
 - **file** *sha1-hash delta-hash size \n content*
 - and a few others ...

General /xfer strategy

- Send **gimme** cards for every PHANTOM
- Send **file** for every **gimme** card received
- Send **igot** for each UNCLUSTERED
- Send **file** for each UNSENT
- Create a new cluster if UNCLUSTERED gets to be too big.
- Disregard every SHUNNED artifact
- Limit message size to a few megabytes
- Repeat until done



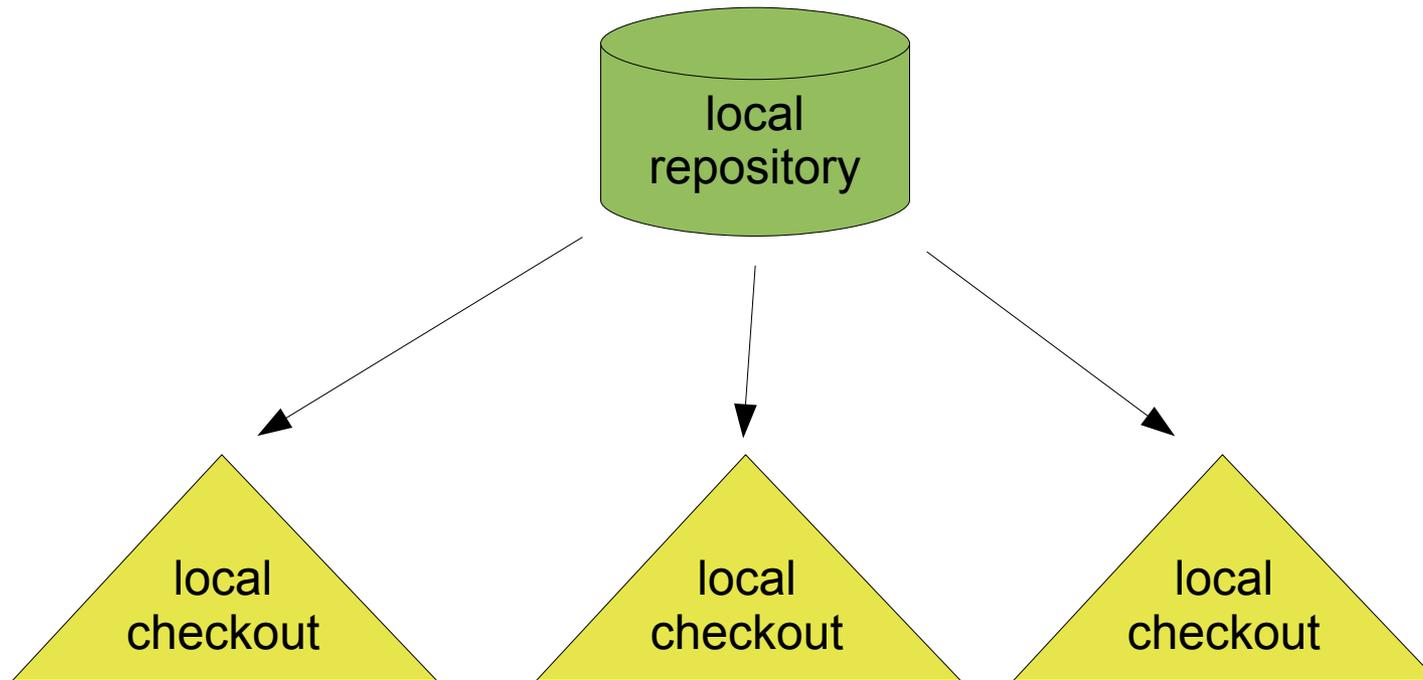
Stupid Fossil Tricks & Workflow Hints

fossil clean -f

instead of

make clean

Multiple Check-outs



- Performance comparison: trunk vs. release
- Run multiple tests simultaneously

Fossil Wiki Formatting Rules

- HTML
- Blank lines for paragraph break
- Bullets: “*” surrounded by two spaces
- Enumerations: “#” or “1.” with two spaces
- Begin with two space for indented paragraph
- Hyperlinks: [target] or [target|display text]
- <verbatim> and <nowiki>

Wiki Hints & Features

- `[text]` → `[text]`
- `<nowiki>[text]</nowiki>` → `[text]`
- `<title>...</title>` → First element only

Wiki Hyperlinks

- [http:...], [https:...], [ftp:...], [mailto:...]
- [/timeline]
- [../xyz.gif]
- [WikiPageName], [wiki:WikiPageName]
- [28a7fee342]
- [#fragment]
- [2010-01-01 08:30]

Embedded Documentation

`http://baseurl/doc/version/filepath`

- The fossil website is implemented this way
- *version* can be any version prefix, branch name, “**tip**”, or “**ckout**”
 - “**ckout**” allows viewing website before check-in
- MIME-Type from *filepath* suffix
- The “.wiki” suffix renders using wiki rules

Example Embedded Docs

- <http://www.fossil-scm.org/fossil/doc/tip/www/index.wiki>
- <http://core.tcl.tk/tcl/doc/trunk/libtommath/changes.txt>
- <http://core.tcl.tk/tk/doc/tip/library/images/logo100.gif>
- <http://core.tcl.tk/tk/doc/2009-01-01/generic/tk.h>

Workflow Hint #1

- Each project has `www/` holding documentation
 - Set `/home` to `/doc/trunk/www/index.wiki`
- Use for:
 - Project homepage
 - Developer notes & compilation instructions
 - API documentation
 - Checklists
 - Coding standards
 - Dodekatalogue

Workflow Hint #2

- Feature branches, not developer branches
 - Anyone can commit to any branch
 - Use automatic branch coloring
- Trunk is always release-ready or nearly so
 - Anything that isn't 100% working goes in a branch
 - Anything that might not be released goes in a branch

Workflow Hint #3

- Separate repositories for subprojects:
 - SQLite, SQLite-docs, SQL-Logic-Test, SEE, CEROD, ZIPVFS, TH3
 - Tcl, Tk, Tdbc, Threads, Tclconfig
- All repositories in a common directory
 - ... so that “fossil serve *FOLDER*” works

Check-in Names

- SHA1 hash (or unique prefix)
- Tag
- Branch
- Timestamp: *YYYY-MM-DD HH:MM:SS.SSS*
- *branch : timestamp*
- Special names: **tip current next previous ckout**

Check-in Name Examples

- fossil diff --from [NAME](#) --to [NAME](#) | open -f
- fossil update [NAME](#)
- fossil merge [NAME](#)
- fossil info NAME
- [NAME](http://.../fossil/doc/<u>http://.../fossil/doc/[NAME](#)/www/index.wiki
- [NAME](http://.../fossil/info/<u>http://.../fossil/info/[NAME](#)
- [NAME](http://.../fossil/vdiff?from=<u>http://.../fossil/vdiff?from=[NAME](#)&to=[NAME](#)



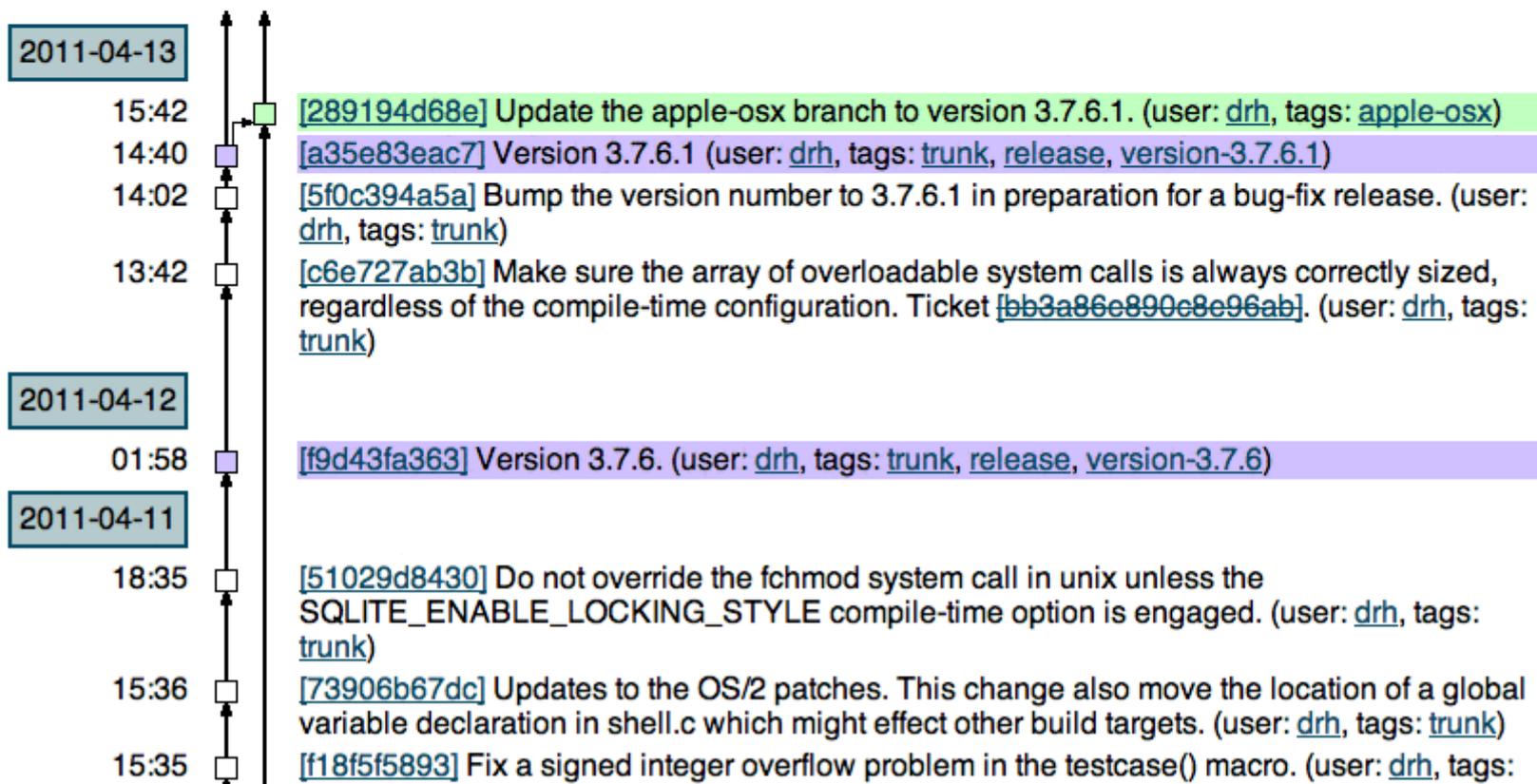
SQLite Timeline

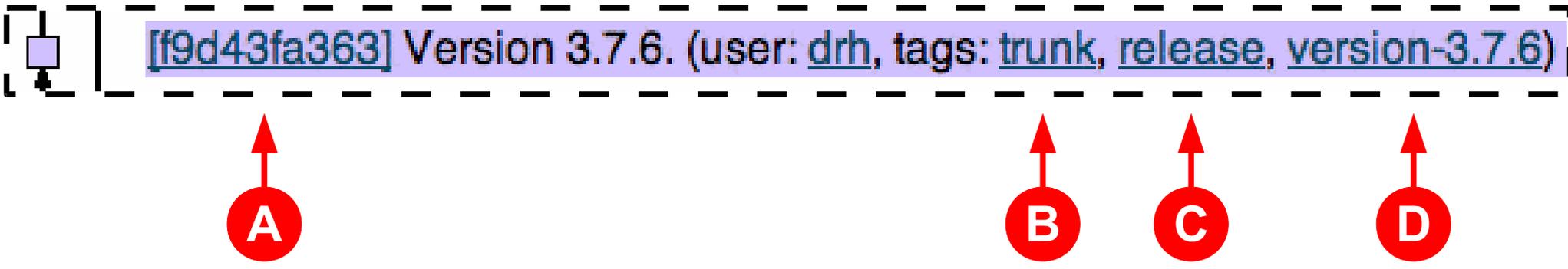
Logged in as anonymous

[Home](#) [Files](#) [Timeline](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Logout](#)

200 Entries All Types Events Only Show Files Tickets Only Wiki Only

10 checkins occurring around 2011-04-12.





[f9d43fa363] Version 3.7.6. (user: drh, tags: trunk, release, version-3.7.6)



A: fossil update f9d43f

B: fossil update trunk:2011-04-11t02:00

C: fossil update release:2011-04-12

D: fossil update version-3.7.6

Release Hint

- Tag each release with:
 - **release**
 - **version-X.Y.Z**
- Have a special background color for releases
- Use Events for release notes

Situational Awareness

fossil diff | open -f

open:

```
proc browser {x} {
    exec firefox $x &
}
proc open_file {x} {
    if {$x=="-f"} {
        view_stdin
        return
    }
    if {[regexp {^http://} $x] || [regexp {^https://} $x]} {
        browser $x
    }
    switch -- [string tolower [file ext $x]] {
        .html -
        .htm {browser $x}
        .gif -
        .jpg -
        .jpeg -
        .tiff {exec display $x &}
        .odp -
        .odt -
        .ods {exec libreoffice $x &}
        default {exec e $x &}
    }
}
proc view_stdin {} {
    set today [clock format [clock seconds] -format {%Y%m%d%M%H%S}]
    set tmp /var/tmp/stdin-$today-[expr {int(rand()*100000000)}]
    set fd [open $tmp w]
    puts -nonewline $fd [read stdin]
    close $fd
    exec e -remove $tmp &
}
foreach x $argv {open_file $x}
```

fossil diff | v

V:

```
#!/bin/sh
# the next line restarts using wish \
exec /usr/bin/wish "$0" "$@"
wm withdraw .
set body {}
set mx 80
set nLine 0
while {[eof stdin]} {
    set line [gets stdin]
    incr nLine
    set n [string length $line]
    if {$n>$mx} {set mx $n}
    append body $line\n
}
if {$nLine>55} {set nLine 55}
if {$mx>200} {set mx 200}
text .t -yscroll {.sb set} -width $mx -height $nLine
pack .t -side left -fill both -expand 1
scrollbar .sb -command {.t yview} -orient vertical
pack .sb -side left -fill y
.t insert end $body
wm deiconify .
```

fossil diff --from release --to current | open -f

fossil diff --from trunk --to feature-branch | open -f

fossil diff --from release -y --context 15 | open -f

fossil diff --from release --to current | v

fossil diff --from trunk --to feature-branch | v

fossil diff --from release -y --context 15 | v

```
fossil setting -global gdiff-cmd /usr/bin/tkdiff
```

```
...
```

```
fossil gdiff
```

SQLite Pre-Checkin Checklist

- **fossil diff** → no stray changes
 - **fossil extra** → no unmanaged files
 - check-in will go to the intended branch
 - auto-sync is on, or system time verified correct
 - If files added/removed → makefiles updated
 - no compiler warnings
 - at least one test suite run and passed
- } Trunk
Check-ins
Only

Fossil Pre-Checkin Checklist

- **fossil diff** →
 - No stray changes
 - All changes comply with license
 - All inputs are scrubbed before use
 - No injections via %s
- **fossil status** → no trunk check-ins w/o approval
- Short, succinct checklist - Long, verbose “commentary”

Verification Checklist For SQLite 3.7.9

www.sqlite.org/checklists/3070900

Verification Checklist For SQLit...

3. Source code change review. **"fossil diff --from release --to trunk"**

	---	---	---
a. No stray changes	---	---	---
b. All significant changes are mentioned in the "changes" log of the documentation	---	---	---
c. New code complies with style guidelines	---	---	---
d. New code complies with design rules	---	---	---
e. Comments have been updated to reflect code changes	---	---	---
f. Variables and functions have been renamed to reflect changes in their use	---	---	---

4. OMIT, ENABLE, and DISABLE options:

	---	---	---
a. tclsh ../tool/omittest.tcl -skip_run	---	---	---

5. Tests for platform *Linux x86*:

	---	---	---
a. tclsh releasetest.tcl	---	---	---
b. tclsh th3make cov.rc (<i>verify 100% branch test coverage</i>)	---	---	---
c. tclsh fulltest.tcl fast.rc test.rc	---	---	---
d. tclsh th3make fast-ex.rc	---	---	---
e. At least one of the above using GCC 4.1.0	---	---	---
f. At least one of the above using GCC 4.4.1	---	---	---

6. Tests for platform *Linux x86_64*:

	---	---	---
a. tclsh th3make cov.rc (<i>verify 100% branch test coverage</i>)	---	---	---

/timeline options

- c=TIMESTAMP
- n=COUNT
- brbg
- ubg
- ng
- s=SEARCH
- u=USER
- from=NAME&to=NAME&nomerge

File Edit View History Bookmarks Tools Help

www.fossil-scm.org/fossil/artifact/08d5ebebb28?ln=874-890

Fossil: Artifact Content

```
866     if( j>0 ){
867         @ </ul></td>
868     }
869     @ </tr></table>
870 }
871 style_footer();
872 }
873
874 /*
875 ** WEBPAGE: test-all-help
876 **
877 ** Show all help text on a single page.  Useful for proof-reading.
878 */
879 void test_all_help_page(void){
880     int i;
881     style_header("Testpage: All Help Text");
882     for(i=0; i<count(aCommand); i++){
883         if( memcmp(aCommand[i].zName, "test", 4)==0 ) continue;
884         @ <h2>%s(aCommand[i].zName):</h2>
885         @ <blockquote><pre>
886         @ %h(aCmdHelp[i])
887         @ </pre></blockquote>
888     }
889     style_footer();
890 }
891
892 /*
893 ** Set the g.zBaseUrl value to the full URL for the toplevel of
894 ** the fossil tree.  Set g.zTop to g.zBaseUrl without the
895 ** leading "http://" and the host and port.
896 */
897 void set_base_url(void){
898     int i;
899     const char *zHost;
```

?ln=M-N

Tarballs and ZIPs

- /tarball/*filename.tar.gz*?uuid=*TAG*
 - /zip/*filename.zip*?uuid=*TAG*
-

Example:

<http://core.tcl.tk/tcl/tarball/tcl.tar.gz?uuid=trunk>



Tcl Source Code

Environment Test

Logged in as drh

Show Cookies

```
uid=33, gid=33
g.zBaseURL = http://mirror1.tcl.tk/tcl
g.zTop = /tcl
g.userId = 7
g.zLogin = drh
capabilities = abcefg hijk mnoprst wz
```

```
HTTP_HOST = mirror1.tcl.tk
PATH_INFO = /test_env
QUERY_STRING =
REMOTE_ADDR = 65.6.136.250
SCRIPT_NAME = /tcl
```

Tcl Source Code Repository Statistics

[Home](#) [Timeline](#) [Files](#) [Branches](#) [Tags](#) [Tickets](#) [Wiki](#) [Admin](#) [Logout](#)

Repository Size:	89767936 bytes
Number Of Artifacts:	73945 (stored as 5662 full text and 68283 delta blobs)
Uncompressed Artifact Size:	69271 bytes average, 3583312 bytes max, 5122170557 bytes total
Compression Ratio:	57:1
Number Of Check-Ins:	13290
Number Of Files:	2416
Number Of Wiki Pages:	2
Number Of Tickets:	0
Duration Of Project:	4947 days or approximately 13.54 years
Project ID:	1ec9da4c469c29f4717e2a967fe6b916d9c8c06e
Server ID:	36f280ca72138c3a2df1397f5f8c591370b855ce
Fossil Version:	1.19 2011-09-19 19:13:06 [8d4c564277] (gcc-4.4.5)
SQLite Version:	2011-09-19 14:49:19 [3e0da808d2] (3.7.8)
Database Stats:	10958 pages, 8192 bytes/page, 12 free pages, UTF-8, wal mode

Command Lists

- fossil help
- fossil test-commands
- fossil test-list-webpage
- <http://localhost:8080/test-all-help>

Default Branch Colors

- Hash the branch name
- HSV color from hash:
 - Hue: 0..360
 - Saturation: 25..50%
 - Value: 72..84%
- <http://localhost:8080/brlist?colortest>
- fossil test-hash-color

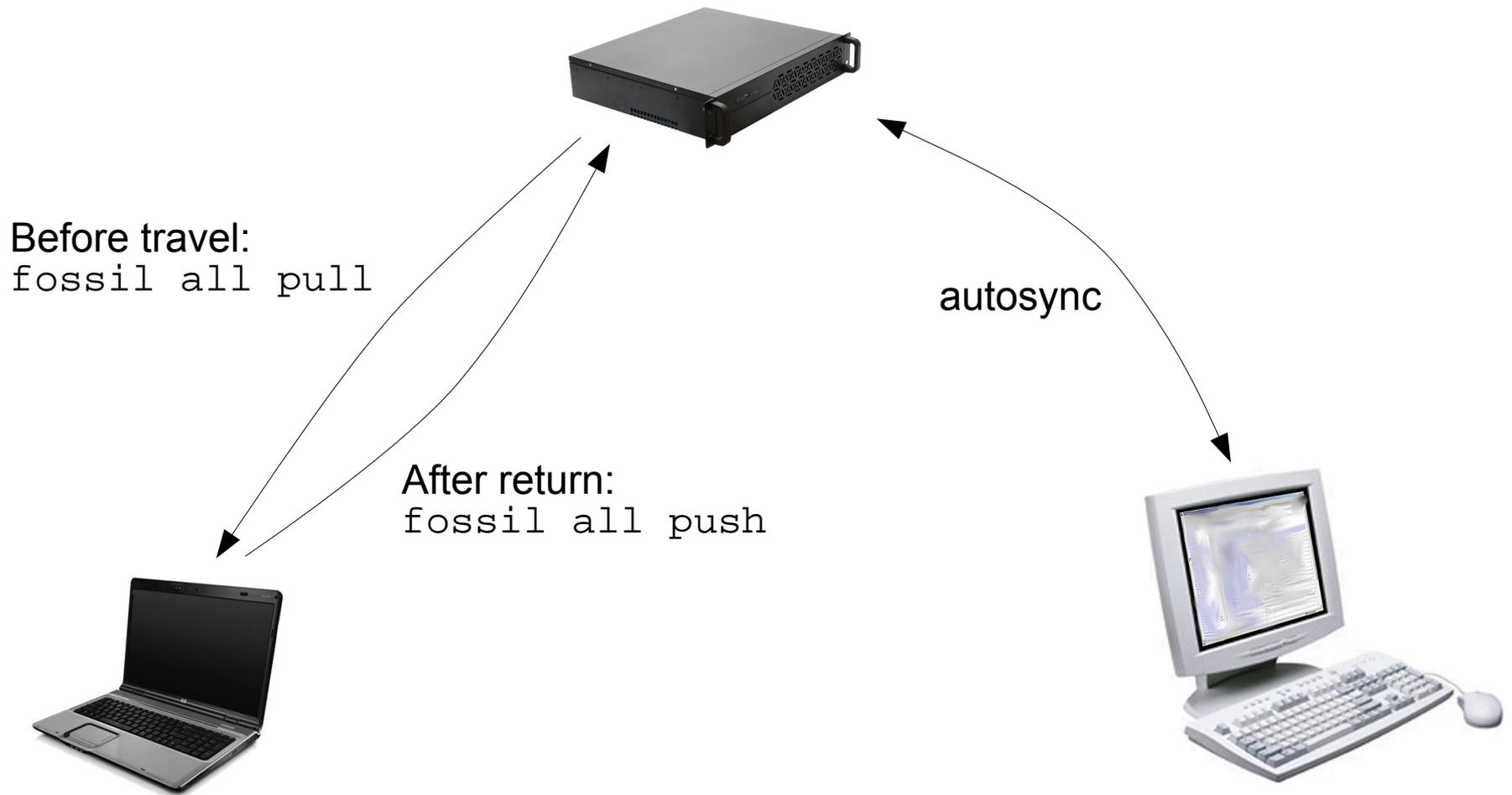
Private Branches

- fossil commit --branch xyzzy --private
- fossil sync --private
 - Requires “x” capability on server

Events

- Mark on the timeline + extended commentary
- Editable
- Uses:
 - Release notes
 - Milestones
 - Blog entries
 - News
 - Announcements

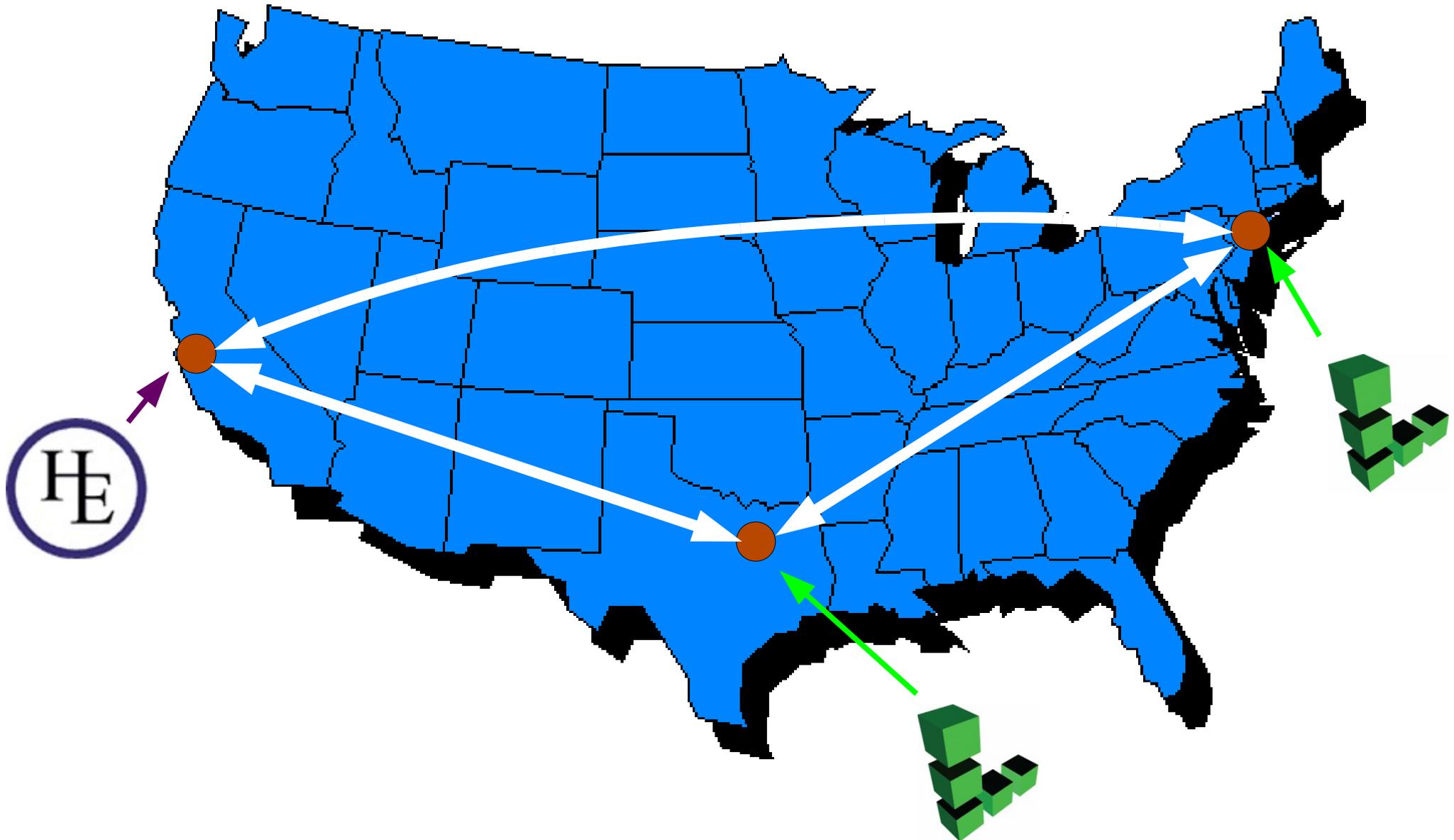
fossil all



Fossil “all”

- fossil all sync
- fossil all push
- fossil all pull
- fossil all rebuild
- fossil all list
- fossil all ignore
- fossil all test-integrity

Disaster Preparedness



<http://www3.sqlite.org/cgi/src>

1. Copy `sqlite.fossil` into `~/fossil`
2. Copy `fossil` into `~/bin`
3. `~/public_html/www3.sqlite.org/cgi/.htaccess:`

```
Options +ExecCGI  
SetHandler cgi-script
```

4. `~/public_html/www3.sqlite.org/cgi/src:`

```
#!/home/hwaci/bin/fossil  
repository: /home/hwaci/fossil/sqlite.fossil
```

Server Synchronization

1. fossil remote -R ~/fossil/sqlite.fossil http://drh@sqlite.org/src

2. ~/bin/sync_fossil:

```
#!/bin/sh
~/bin/fossil sync -R ~/fossil/sqlite.fossil
```

3. crontab -e

```
# m h dom mon dow  command
# Sync fossil at 43 minutes after every 3rd hour
43 1-23/3 * * * $HOME/bin/sync_fossil >>$HOME/sync.out 2>&1
```

Must be the same user as the web-server

Shunning

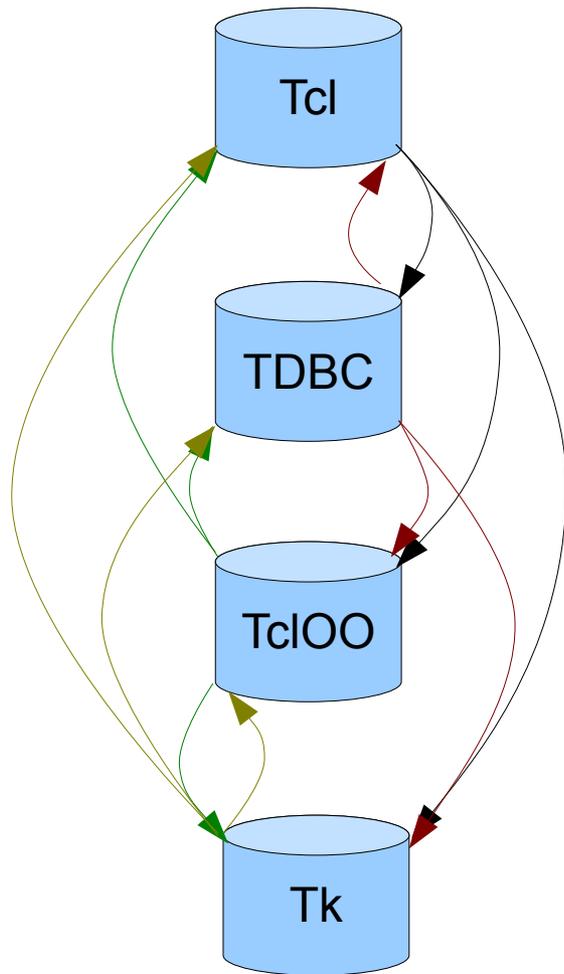
- Add SHA1 hash to the SHUN table
- Run “fossil rebuild”
- Use rarely for:
 - Wiki or Ticket spam
 - Profane or illegal content
 - Content under NDA mistakenly added

Shunning

Q: How do I remove a bunch of files from a repository?
▪ I know we can use "fossil rm/delete" to tell Fossil to stop versioning a file, but in this case, I really want to purge the repo of some test files I no longer need.

A: Don't do that

Login Groups



- CONFIG table:
 - peer-name-*
 - peer-repo-*
- If login cookie does not match USER table, consult USER table of peer.
- Optionally apply USER table changes to peers.

Bisect

- fossil bisect reset
- fossil bisect option auto-next \$BOOLEAN
- fossil bisect option direct-only \$BOOLEAN
- fossil bisect bad \$VERSION
- fossil bisect good \$VERSION
- fossil bisect next
- fossil bisect vlist

Bisect Workflow

1. fossil bisect reset
2. fossil bisect bad
3. fossil update 2010-01-01
4. fossil bisect good
5. *test...*
6. *If build error:*
 - a) fossil update next|prev; *goto 5*
7. fossil bisect good|bad
8. *goto 5*

Future Directions

- Improved search using FTS4.
- Hooks.
- Automatic server sync
- JSON and AJAX
- Sync individual branches
- Sub-repositories



FOSSIL

Q & A