

Sprinting with Bazaar

Distributed Version Control

Robert Collins
`robertc@robertcollins.net`

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Introduction

Why I am interested...

Sprinting with bzd, D-Bus and Avahi

Sprinting with bzd, D-Bus & Avahi

Share the code

Get your branches now

Combining the changes sprinters make

Internals

dbus-broadcast

lan-notify

commit-notify

share

browse

The End

Questions?



Why I am interested...

Or, "Who am I?"

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Or, “Who am I?”

I work for Canonical — <http://www.canonical.com/> on ...

- ▶ Bazaar — <http://bazaar-vcs.org/>
- ▶ Launchpad — <https://launchpad.net/>
- ▶ Ubuntu — <http://www.ubuntu.com/>

and hack on numerous other things :).



Sprinting...

<http://en.wikipedia.org/wiki/Hackathon#Sprints>

A sprint is a short period of software development.

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As with the larger hackathons, a significant benefit of sprinting is that the project members meet in person, socialize, and start to communicate more effectively when working together remotely.



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When sprinting, we want a smooth environment to focus on the sprint.



bzd...

<http://bazaar-vcs.org/>

Bazaar is a distributed version control system available under the GPL that aids open source development and reduces barriers to participation. Our priorities are to be safe, friendly, free and fast, and to support Windows, Linux, UNIX and the Mac OS. Bazaar gives you fast, distributed revision control that "Just Works", supporting renames of files and directories smoothly. Bazaar is designed to maximise the level of community participation in your project.



bzd...

<http://bazaar-vcs.org/>

- ▶ Version Control Software
- ▶ Written in python (2.4 and above)
- ▶ Extremely easy to use
- ▶ Adapts to your needs
- ▶ Plays nice with others
- ▶ Portable - runs on most everything



D-Bus...

<http://www.freedesktop.org/wiki/Software/dbus>

- ▶ D-Bus is a message bus system, a simple way for applications to talk to one another.
- ▶ Quite portable —
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- ▶ Written in C
- ▶ Python bindings



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Usually zero-setup networking



Bazaar: Get the most out of your sprint



Basic bzd

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- ▶ Start up a web/ftp/sftp server and paste its address to IRC
- ▶ Fire up bzd serve and paste its address to IRC

Installing bzd-avahi

```
$ sudo aptitude install python-avahi python-dbus  
python-gobject  
$ bzd branch https://launchpad.net/bzd-avahi/  
~/.bazaar/plugins/avahi
```



bzd share

```
$ cd workspace  
$ ls  
foo  
bar  
$ bzd share
```

Basic bzd

```
$ bzd branch URL [PATH]
```

As long as...



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- ▶ You can find the URL on the IRC channel/whiteboard

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bzd browse

```
$ bzd browse  
foo: bzd://hostname.local:1234/foo  
bar: bzd://hostname.local:1234/bar
```

Copy and paste the URL for branch you want.



Vanilla bzd. . .

- ▶ Commit to a shared branch. . . hope you haven't caused any regressions.

Vanilla bzd...

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- ▶ Send a *bundle*...

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- ▶ Send a *bundle*... wait for email.

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- ▶ Send a *bundle*. . . wait for email.
- ▶ Share the branch (vanilla style). . .

Vanilla bzd. . .

- ▶ Commit to a shared branch. . . hope you haven't caused any regressions.
- ▶ Send a *bundle*. . . wait for email.
- ▶ Share the branch (vanilla style). . . all the caveats of that apply and also there is more synchronisation required.



Installing bzd-dbus

```
$ sudo aptitude install python-dbus
$ bzr branch https://launchpad.net/bzd-dbus/
  ~/.bazaar/plugins/dbus
$ mkdir -p ~/.local/share/dbus-1/services/
$ cp ~/.bazaar/plugins/dbus/org.bazaarvcs.
  plugins.dbus.Broadcast.service
  ~/.local/share/dbus-1/services/
$ pkill -HUP dbus-daemon
```



Installing bzd-gtk

```
$ sudo aptitude install python-gtk python-notify  
$ bzd branch https://launchpad.net/bzd-gtk/  
  ~/.bazaar/plugins/gtk
```



Seeing commits as they happen

```
$ bzd commit-notify
```

New revision 4 in

bzd://0.0.0.0:60745/foo/

Committer: Robert Collins

<robertc@robertcollins.net>

Date: Sun 2007-07-08 19:04:14 +1000

Commit something interesting.

Inspect

Branch

Sharing commit notifications on the LAN

```
$ bzd lan-notify
```

New revision 8 in

bzd://192.168.1.34:4155/bar/

Committer: Robert Collins

<robertc@robertcollins.net>

Date: Sun 2007-07-08 19:28:51 +1000

A commit on a remote host.

Inspect

Branch

dbus-broadcast

- ▶ Holds URL maps for bzd servers.
- ▶ D-Bus service file is a little annoying as the exact path to the command to launch needs to be specified.

URL maps

- ▶ Any path you can commit to may be aliased multiple times.
- ▶ A client cannot tell which aliases are most suitable for other programs.
- ▶ So we map the url activities occur at to all the aliases we can determine.

Branch advertising.

- ▶ Clients subscribe to to receive adverts.
- ▶ The bzd process that has changed a branch submits an advert to dbus-broadcast.

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- ▶ Clients subscribe to to receive adverts.
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- ▶ dbus-broadcast maps the urls and raises a D-Bus signal to all subscribers.

Plans

- ▶ A 'recently seen' service might be nice.

To-LAN

- ▶ D-Bus branch adverts are converted to local subnet broadcast packets.
- ▶ Trivial and compact encoding.
- ▶ Outbound adverts are added to a seen-cache to prevent broadcast storms.

From-LAN

- ▶ Packets to port 4155 are parsed into a branch advertisement.
- ▶ The advert is looked up in the seen-cache.
- ▶ Cache misses are added, and then submitted to the D-Bus as a new advertisement.

Plans

- ▶ Automatic startup on login if configured to do so.
- ▶ Translate localhost urls from other machines.

commit-notify

- ▶ Subscribes to the branch advertiser.
- ▶ Connects to the urls in each advert until one works.
- ▶ Reads the revision data for the named revision from the found branch.
- ▶ Shows it trivially using pynotify.

Plans

- ▶ Automatic startup on login
- ▶ Selectable URL's
- ▶ More buttons?
- ▶ Notification area support - backlist of recent commits.
- ▶ Mugshot?
- ▶ Deal with potential information overload.
- ▶ Rate limit the outbound connections.

share

- ▶ Scans all directories from the current working directory down.
- ▶ Advertises each branch as a avahi *service*.
- ▶ Runs the smart server in readonly mode in the current working directory.

Plans

- ▶ Refactor to advertise what any anonymous bzd serve is serving
- ▶ Also list via avahi things served by apache/NFS/bzd+ssh (e.g. arbitrary url maps)
- ▶ Incremental branch discovery, and inotify to become aware of new ones
- ▶ Possibly add acl support and or read-write support.
- ▶ Advertise shared branches over D-Bus as they become shared.

browse

- ▶ Avahi service discovery

Plans

- ▶ A graphical browser.
- ▶ Optionally filter branches that are displayed to ones for the same project.
- ▶ Integrate other sources of 'what branches exist' information.
- ▶ Perhaps add the ability to query a server for more branches than are advertised on mDNS.

The End

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