Making My Own CPAN

brian d foy
Stonehenge Consulting Services
September 20, 2007

CPAN

- http://www.cpan.org

- Comprehensive Perl Archive Network

- Best, most powerful feature of Perl

- "Grokking CPAN" by Elaine Ashton
  http://backpan.perl.org/authors/id/H/
  HF/HFB/grok-cpan-1.01.pdf

Goals

- Make my own version of CPAN (MyCPAN)

- Freeze MyCPAN

- Make a CPAN for something else

History of CPAN

- Proposed in 1993 as a store for everything

- Created in 1995

- PAUSE created to upload modules

- Mirrors added (ongoing)

Stonehenge

How CPAN works

- Mirrors content (MIRRORED.FROM)

- Master server in Finland

- Primary ring of mirrors

- Secondary ring of mirrors

- Tools work with basic structure

Stonehenge

PAUSE

- http://pause.perl.org

- Perl Authors Upload SErver (PAUSE)

- Gateway for adding modules to CPAN

- CPAN Master mirror PAUSE

  - modules/

  - authors/

Stonehenge

PAUSE modules

- PAUSE puts modules into authors/

- Breaks down by PAUSE ID

  - authors/B/BD/BDFOY/Foo-1.23.tar.gz

- Path doesn't really matter

Stonehenge

PAUSE index files

- PAUSE indexes modules

- Creates index files for CPAN tool chain

  - modules/02packages.details.txt.gz

  - modules/03modlist.data.gz

  - modules/06perms.txt.gz

Stonehenge

02packages.details.txt

```
Date::Span    1.123   R/RJ/RJBS/Date-Span-1.123.tar.gz

Date::Tie      0.17   F/FG/FGLOCK/Date-Tie-0.17.tar.gz

Date::Tiny     0.02   A/AD/ADAMK/Date-Tiny-0.02.tar.gz
```

Stonehenge

03modlist.data.gz

```
[
'Fcntl',
'S',
'd',
'c',
'f',
'?',
'Defines fcntl() constants (see File::Lock)',
'JHI',
'4'
],
```

Stonehenge

06perms.txt

WWW::MySpaceBot,KIRSLE,m

WWW::Myspace,GRANTG,m

WWW::Myspace,OALDERS,c

WWW::Myspace::Comment,GRANTG,f

WWW::Myspace::Data,GRANTG,f

WWW::Myspace::Data,OALDERS,c

WWW::Myspace::FriendAdder,GRANTG,f

Stonehenge

Tool chain

- "Third Party" projects

- CPAN Search

- CPAN.pm

- CPANPLUS

- AnnoCPAN

Stonehenge

CPAN.pm

- Uses index files to find distro

- Looks for path on mirror

    - http://mirror/...

    - .../authors/

    - .../B/BD/BDFOY/Foo-1.23.tar.gz

Stonehenge

Installing a module

- Get from first mirror that has it

- Unpack, run Makefile.PL or Build.PL

- Discover dependencies

- Find, get, install dependencies

Stonehenge

MiniCPAN

- A local CPAN mirror

- Only has latest versions, indices

- Point CPAN.pm at local mirror

- Update from network

- Install without network

CPAN::Mini

- The module behind minicpan

- by Ricardo SIGNES

- Configurable

- Programmable

Stonehenge

Configure MiniCPAN

- ## Edit ~/.minicpanrc

```
local:      /MINICPAN

remote:     http://path/to_mirror

skip_perl: 1
```

Updating MiniCPAN

```
$ minicpan
authors/01mailrc.txt.gz ... updated
modules/02packages.details.txt.gz ... updated
modules/03modlist.data.gz ... updated
authors/id/J/JW/JWACH/Apache-
FastForward-1.1.tar.gz ... updated
```
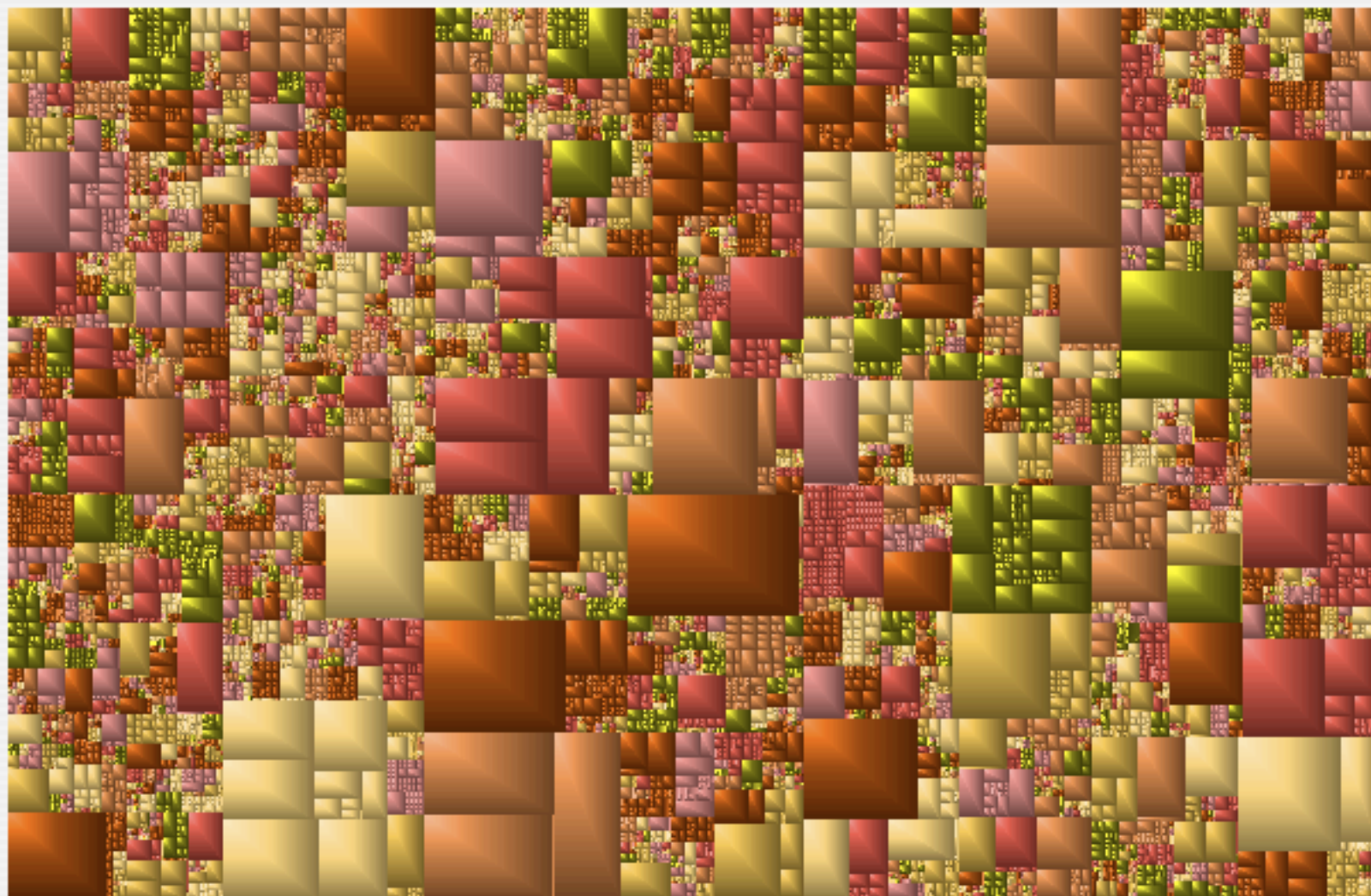
CPAN::Mini filters

- Don't mirror files you don't need

- Skip files you want to override

Stonehenge

MicroCPAN

```
  CPAN::Mini->update_mirror(
...,
path_filters   => [
 sub { !( $_[0] =~ /BDFOY/ ) }
 ],
module_filters   => [
 qr/Test/,
 ],
);
```

Stonehenge

Configuring CPAN.pm

- Edit CPAN/MyConfig.pm directly
  - probably not in library path
  - location set on first use
- Start CPAN.pm shell

Add MiniCPAN

```
$ cpan

cpan shell -- CPAN exploration and modules
installation (v1.9102)

cpan[2]> o conf urllist unshift file:///MINICPAN

cpan[3]> o conf commit

commit: wrote '/Users/brian/Library/Application
Support/.cpan/CPAN/MyConfig.pm'
```

MyCPAN

- Only the modules I want

- Only the versions I want

- Extra, private modules

- Public modules with local patches

- Internal server or removable media

Private modules

- Local modules for internal use

- Want to install with same tools

- Want to replicate

- Want to distribute internally

Stonehenge

CPAN::Mini::Inject

- Creates a parallel archive

- Update MiniCPAN first

- Inject parallel archive into MiniCPAN

- Update PAUSE index files locally

Command line

```
$ mcpani --add --module Foo::Bar \

    --authorid BDFOY --modversion 0.01 \

    --file ./Foo-Bar-0.01.tar.gz
```

Stonehenge

~/.mcpani/config

```
    local: /MyCPAN
remote: ftp:///MINICPAN
repository: /AddThesePrivateModules
passive: yes
dirmode: 0755
```

Stonehenge

Replacing public distros

- Sometimes I want local patches
  - absent author
  - truculent author
- Don't want the latest distro

Stonehenge

Three steps

- Inject distros into parallel dir

- Update MiniCPAN

- Inject distros into MiniCPAN

BackPAN

- http://backpan.cpan.org

- All modules ever uploaded to PAUSE

- Not integrated with CPAN tool chain

- Which distro has module version?

Finding old distros

- It's all on BackPAN

- Brute force, right now

- Unpack a distro and check

- Repeat until you find it

Stonehenge

MyCPAN on a CD

- I have all the bits to carry around MyCPAN

  - MiniCPAN

  - Private modules

  - Configure CPAN.pm

- Need to discover MyCPAN location

Stonehenge

Dynamic config

```perl
use CPAN;

CPAN::Config->load(

    be_silent    => 1,

    write_report => 0,

    );

CPAN::Shell->o(

    qw( conf urllist unshift ),

    $where_i_found_cpan,

    );
```

Stonehenge

Future work

- Index all of BackPAN

- Make that searchable

- Easier injecting

- Integrate with CPAN tools

- Perhaps another CPAN Search