

Continuous Integration

























for Commitfests

Testing all the patches all the time

\$ whoami

- PostgreSQL hacker at EnterpriseDB (~3 years)
- Some things I've worked on: Parallel Hash Join, various parallel query infrastructure, transition tables for triggers (sous-chef), remote_apply, replay_lag, SKIP LOCKED, various portability stuff

cfbot.cputube.org














18/1500	csv output format for psql	Daniel Vérité	patch	  
18/1619	de-deduplicate code in DML execution hooks in postgres_fdw	Ashutosh Bapat	patch	  
18/1591	fix constraint exclusion failure for certain partition key types	Amit Langote	patch	
18/1620	generalized expression syntax for partition bounds	Tom Lane, Kyotaro Horiguchi, Amit Langote	patch	
18/1640	generate bootstrap entries for array types	John Naylor	patch	  
18/1536	get rid of StdRdOptions, use individual binary reloptions representation for eac...	Nikolay Shaplov	patch	
18/1540	hash joins with bloom filters	Tomas Vondra	patch	
18/1631	hostorder and failover_timeout for libpq	Ildar Musin	patch	  
18/1587	kNN for SP-GiST	Nikita Glukhov	patch	
18/1518	lc_messages parameter doesn't work on Windows	Aleksandr Parfenov	patch	  
18/1635	libpq compression	Konstantin Knizhnik	patch	  
18/1490	macOS Secure Transport SSL Support	Daniel Gustafsson	patch	

- List of current proposed patches
- Does the patch apply, do the tests pass on Windows, do the tests pass on Linux?
- Recent changes highlighted

Per author view

18/1491	Handling better supported channel binding types for SSL implementations	Michael Paquier	patch	
18/1204	Implement NULL-related checks in object address functions to prevent cache looku...	Michael Paquier	patch	  

Needs review

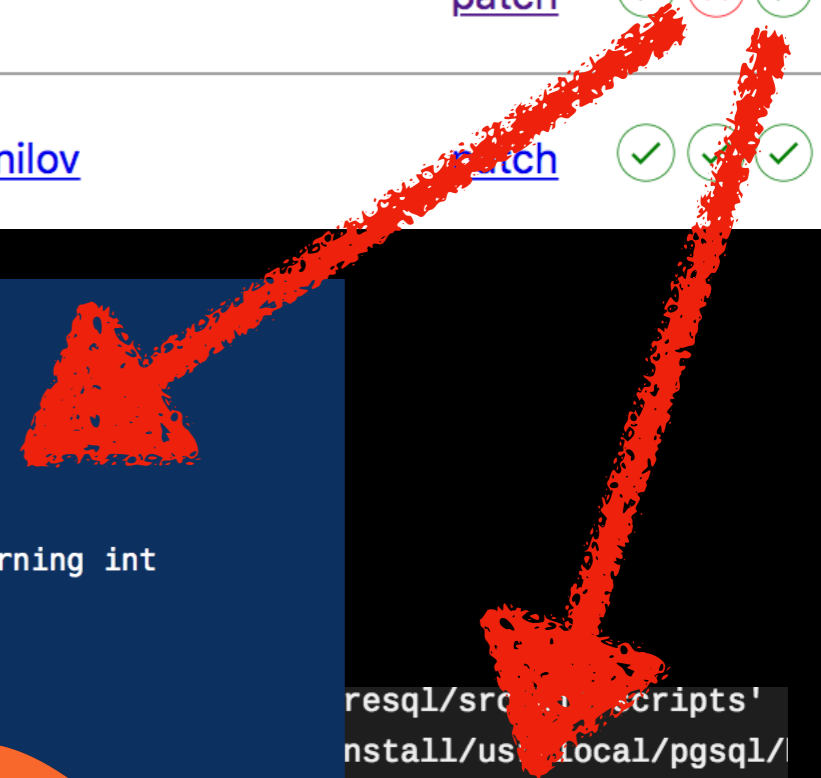
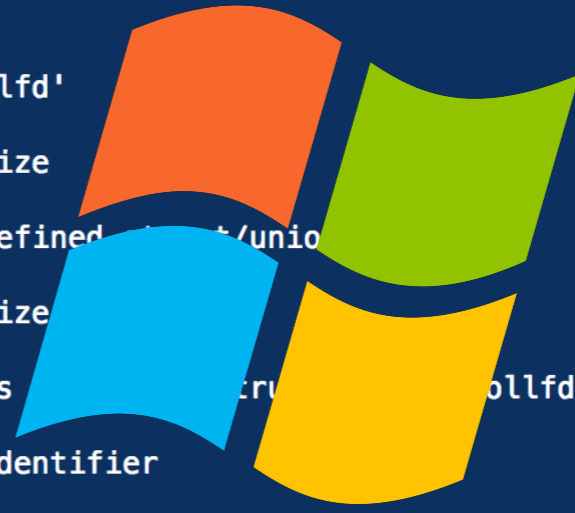
18/1642	Fix some error handling for read() and errno	Michael Paquier	patch	  
18/528	Fix the optimization to skip WAL-logging on table created in same transaction	Heikki Linnakangas , Michael Paquier , Kyotaro Horiguchi	patch	  
18/1633	Make description of heap records more talkative for flags	Michael Paquier	patch	  
18/1609	Simplify final sync in pg_rewind's target folder and add --no-sync	Michael Paquier	patch	
18/1630	Temporary WAL segments files not cleaned up after an instance crash	Michael Paquier	patch	  

18/669	pgbench - allow to store query results into variables	Fabien Coelho	patch	<input type="checkbox"/>
18/1388	pgbench - option to build using ppoll() for larger connection counts	doug rady	patch	<input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>
18/1389	verify ALTER TABLE SET NOT NULL by valid constraints	Sergei Kornilov	patch	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>

```

5839 Build FAILED.
5840
5841 "C:\projects\postgresql\pgsql.sln" (default target) (1) ->
5842 "C:\projects\postgresql\pgbench.vcxproj" (default target) (72) ->
5843 (ClCompile target) ->
5844   src/bin/pgbench/pgbench.c(6092): warning C4033: 'ignore_socket' must return a value
[C:\projects\postgresql\pgbench.vcxproj]
5845   src/bin/pgbench/pgbench.c(6120): warning C4013: 'ppoll' undefined; assuming extern returning int
[C:\projects\postgresql\pgbench.vcxproj]
5846
5847
5848 "C:\projects\postgresql\pgsql.sln" (default target) (1) ->
5849 "C:\projects\postgresql\pgbench.vcxproj" (default target) (72) ->
5850 (ClCompile target) ->
5851   src/bin/pgbench/pgbench.c(6064): error C2027: use of undefined type 'pollfd'
[C:\projects\postgresql\pgbench.vcxproj]
5852   src/bin/pgbench/pgbench.c(6080): error C2036: 'socket_set *' : unknown size
[C:\projects\postgresql\pgbench.vcxproj]
5853   src/bin/pgbench/pgbench.c(6080): error C2037: left of 'fd' specifies undefined type 'union'
[C:\projects\postgresql\pgbench.vcxproj]
5854   src/bin/pgbench/pgbench.c(6080): error C2036: 'socket_set *' : unknown size
[C:\projects\postgresql\pgbench.vcxproj]
5855   src/bin/pgbench/pgbench.c(6080): error C2037: left of 'revents' specifies undefined type 'union'
[C:\projects\postgresql\pgbench.vcxproj]
5856   src/bin/pgbench/pgbench.c(6080): error C2065: 'POLLRDHUP' : undeclared identifier
[C:\projects\postgresql\pgbench.vcxproj]
5857   src/bin/pgbench/pgbench.c(6080): error C2065: 'POLLERR' : undeclared identifier
6605 t/090_reindexdb.pl ..... ok
6606 t/091_reindexdb_all.pl .... ok
6607 t/100_vacuumdb.pl ..... ok
6608 t/101_vacuumdb_all.pl ..... ok
6609 t/102_vacuumdb_stages.pl .. ok
6610 t/200_connstr.pl ..... ok
6611 All tests successful.

```



```

4526 Core was generated by `postgres: travis regression [local] CREATE ASSERTION
4527 Program terminated with signal SIGABRT, Aborted.
4528 #0  0x00002b40a16a9c37 in raise () from /lib/x86_64-linux-gnu/libc.so.6
4529
4530 Thread 1 (Thread 0x2b40a018fb80 (LWP 19948)):
4531 #0  0x00002b40a16a9c37 in raise () from /lib/x86_64-linux-gnu/libc.so.6
4532 No symbol table info available.
4533 #1  0x00002b40a16ad028 in abort () from /lib/x86_64-linux-gnu/libc.so.6
4534 No symbol table info available.
4535 #2  0x00000000008889d7 in ExceptionalCondition (conditionName=conditionName@entry=0x9274b8 "!(ptr == ((void *)0) ||
(((const Node*)(ptr))->type) == type)", errorType=errorType@entry=0x8d577d "FailedAssertion",
fileName=fileName@entry=0x927490 "../.../src/include/nodes/nodes.h", lineNumber=lineNumber@entry=582) at
assert.c:54
4536 No locals.
4537 #3  0x0000000000478c5a in castNodeImpl (ptr=<optimized out>, type=T_SubLink) at
.../.../src/include/nodes/nodes.h:582
4538 No locals.
4539 #4  0x00000000005b243a in castNodeImpl (ptr=<optimized out>, type=T_SubLink) at
.../.../src/include/nodes/pg_list.h:79
4540 No locals.
4541 #5  visitSubLink (info=0x7ffc451dcd40, node=0x2ca3970) at constraint.c:843
4542     opExpr = 0x2ee0ed8
4543     expr = 0x2ee0ed8
4544     hasExpr = true
4545     operators = <optimized out>
4546     invert = <optimized out>
4547     inComparison = true
4548     inExists = false

```

- core file backtraces
- regression tests output diffs

```

6100 =====
6101 1 of 189 tests failed.
6102 =====
6103
6104 The differences that caused some tests to fail can be viewed in the
6105 file "C:/projects/postgresql/src/test/regress/regression.diffs". A copy of the test summary th
6106 above is saved in the file "C:/projects/postgresql/src/test/regress/regression.out".
6107
6108 Command exited with code 1
6109 perl dumpregr.pl
6110 === $path ===\n*** C:/projects/postgresql/src/test/regress/expected/psql.out Thu May 17 05:10
6111 --- C:/projects/postgresql/src/test/regress/results/psql.out Thu May 17 05:21:38 2018
6112 ****
6113 *** 261,267 ***
6114 border 1
6115 columns 0
6116 expanded off
6117 ! fieldsep ''
6118 fieldsep_zero off
6119 footer on
6120 format aligned
6121 --- 261,267 ----
6122 border 1
6123 columns 0
6124 expanded off
6125 ! fieldsep not used
6126 fieldsep_zero off
6127 footer on
6128 format aligned
6129
6130 =====

```

Motivation

pgsql-hackers@postgresql.org



- ~140 people contributing code
- ~500 people contributing to discussions
- Up to ~250 proposed patches in consideration at a time

commitfest.postgresql.org

- 4 times a year patches are reviewed and committed in a month-long 'commitfest'
- Patch submission and review is done entirely through the pgsql-hackers, pgsql-bugs, pgsql-committers mailing lists
- Patches are tracked through the commitfest.postgresql.org web app; registering a thread in the CF app is approximately like making a 'pull request' in many other projects

Commitfest 2018-09

Search/filter

Shortcuts ▾

New patch

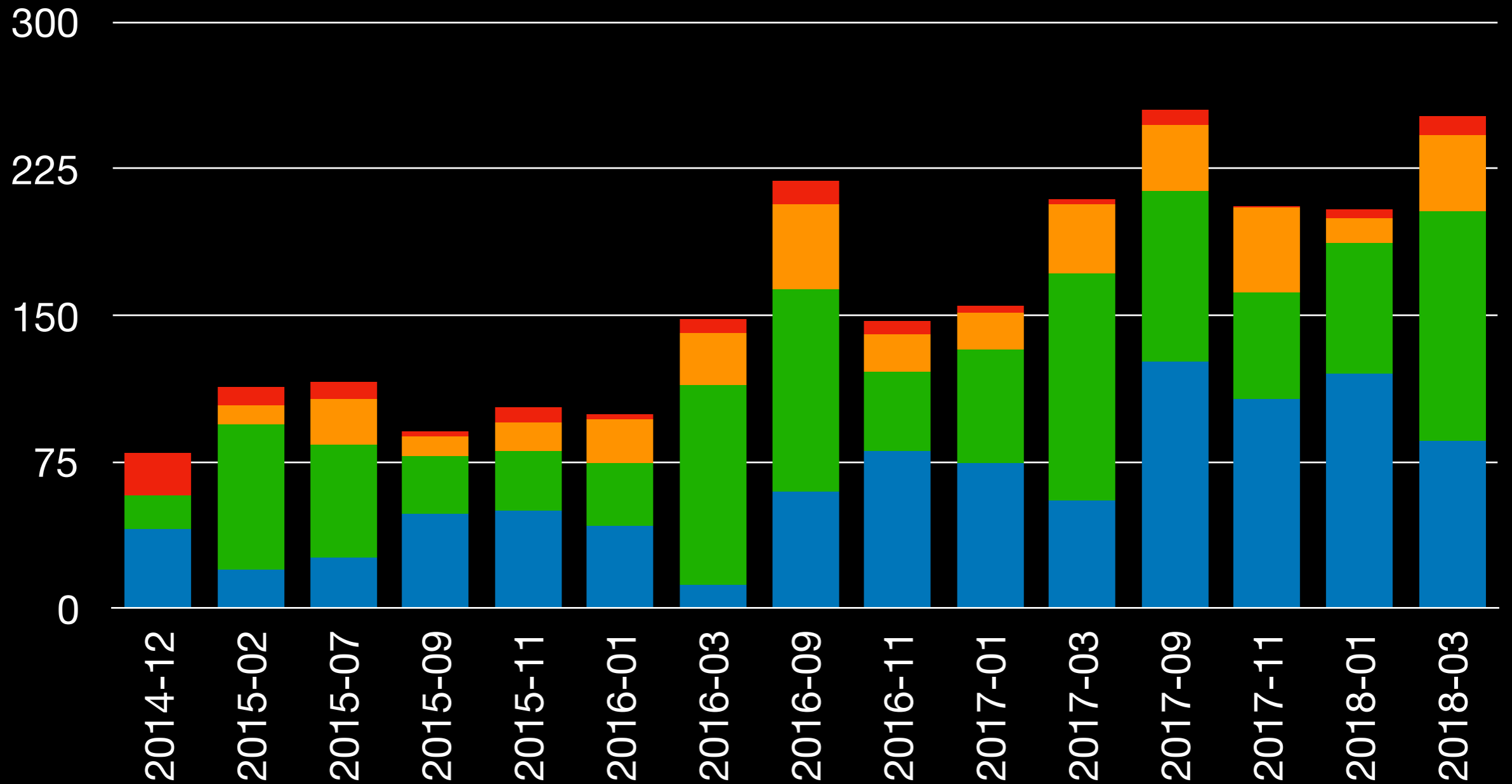
Status summary: Needs review: 89. Waiting on Author: 5. Ready for Committer: 21. Committed: 11. Total: 126.

Active patches

Patch	Status	Author	Reviewers	Committer	Latest activity	Latest mail
Bug Fixes						
Fix the optimization to skip WAL-logging on table created in same transaction	Needs review	Heikki Linnakangas (heikki), Michael Paquier (michael-kun), Kyotaro Horiguchi (horiguti)	Michael Paquier (michael-kun), Kyotaro Horiguchi (horiguti), satyanarayana Narlapuram (snarlap)		2018-04-10 18:17	2018-03-30 01:06
Failure at replay for corrupted 2PC files + reduce window between end of recovery	Ready for Committer	Heikki Linnakangas (heikki), Michael Paquier (michael-kun)	Alexander Korotkov (smagen), Takayuki Tsunoda (tsunoda)		2018-04-10 18:17	2018-01-13 00:10

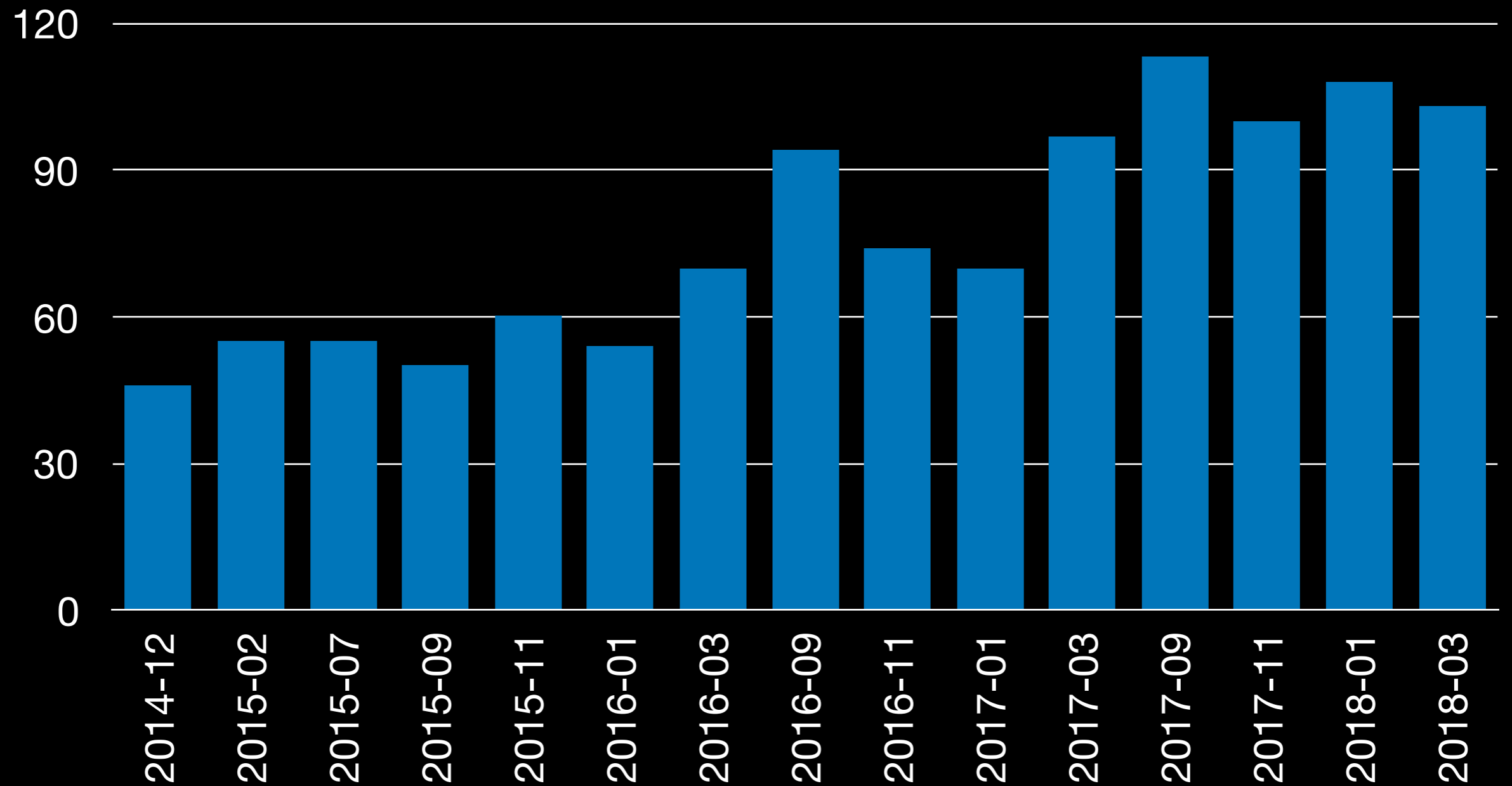
Patch inflation

Moved Committed Returned Rejected

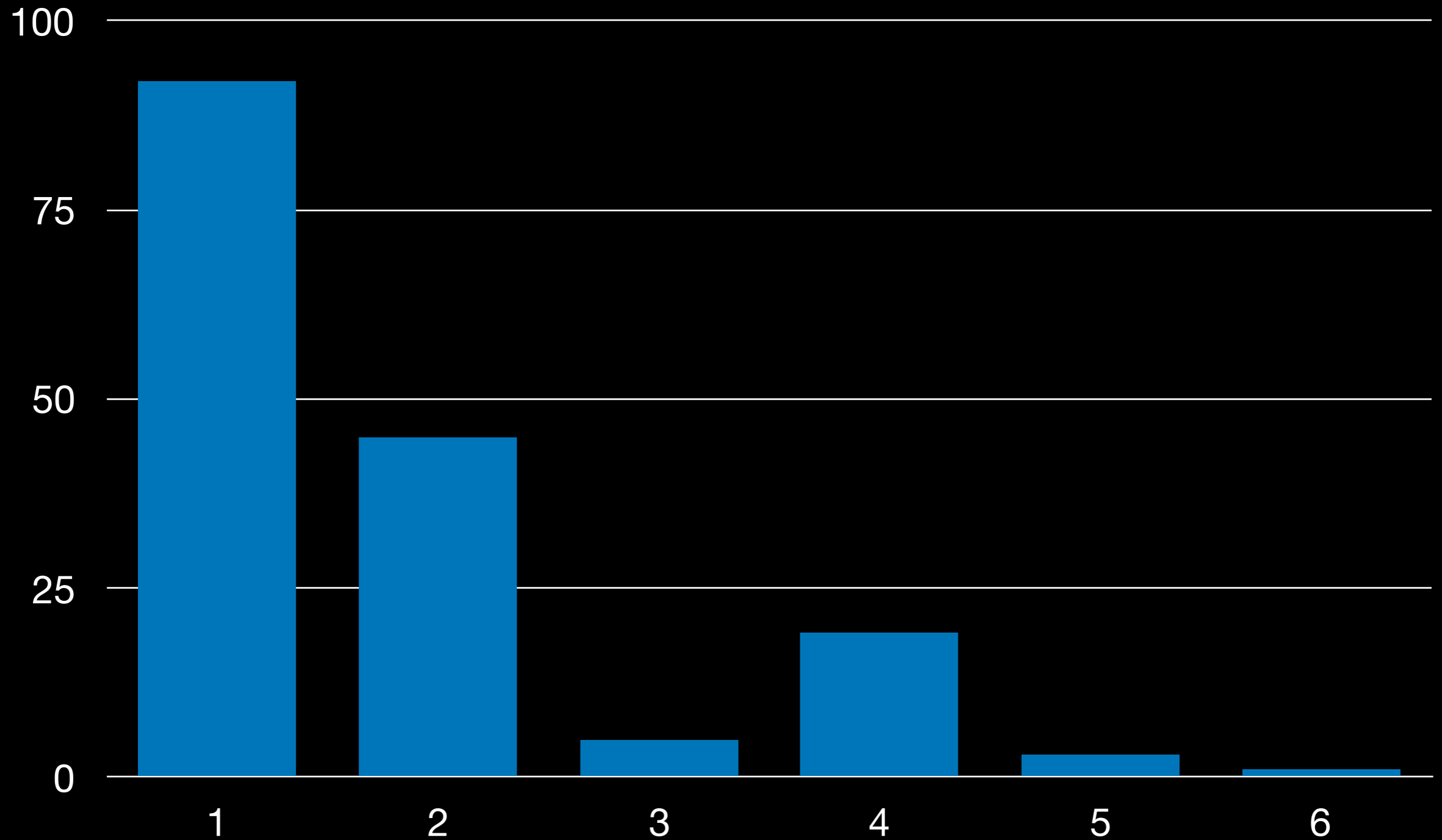


Welcome, new contributors

■ Distinct patch authors



How long do patches live?



Age (no. commitfests) of patches that reached final state in CF 2018-03



**Reviewer & committer
bandwidth is precious**

Automatically discoverable problems

- Bitrot: please rebase!
- Other compilers are pickier than yours
- Tests fail (maybe with obscure build options or full TAP tests)
- Portability bugs (endianness, word size, OS, libraries)
- Uninitialised data, race conditions, ...
- Documentation is broken

Build farm

- The build farm will find some of these problems automatically
- ... but that happens after commit, and consumes committer time and energy
- People will shout at you — ask me how I know
- Let's apply some of that sort of automation to proposals, during the review phase

Implementation

This time last year

- Daily cronjob to check for bitrot in time for morning coffee
- Various experiments with executing tests, but ... how safe is that?

```
From: Cron Daemon <munro@asterix>  
Subject: Cron <munro@asterix> /home/munro/patches/patchmon.sh  
  
7 out of 8 hunks failed while patching src/backend/libpq/auth.c  
Failed to apply /home/munro/patches/ldap-diagnostic-message-v3.patch  
1 out of 2 hunks failed while patching configure  
1 out of 2 hunks failed while patching configure.in  
Failed to apply /home/munro/patches/kqueue-v7.patch
```



**Let's execute random code
from the internet...**

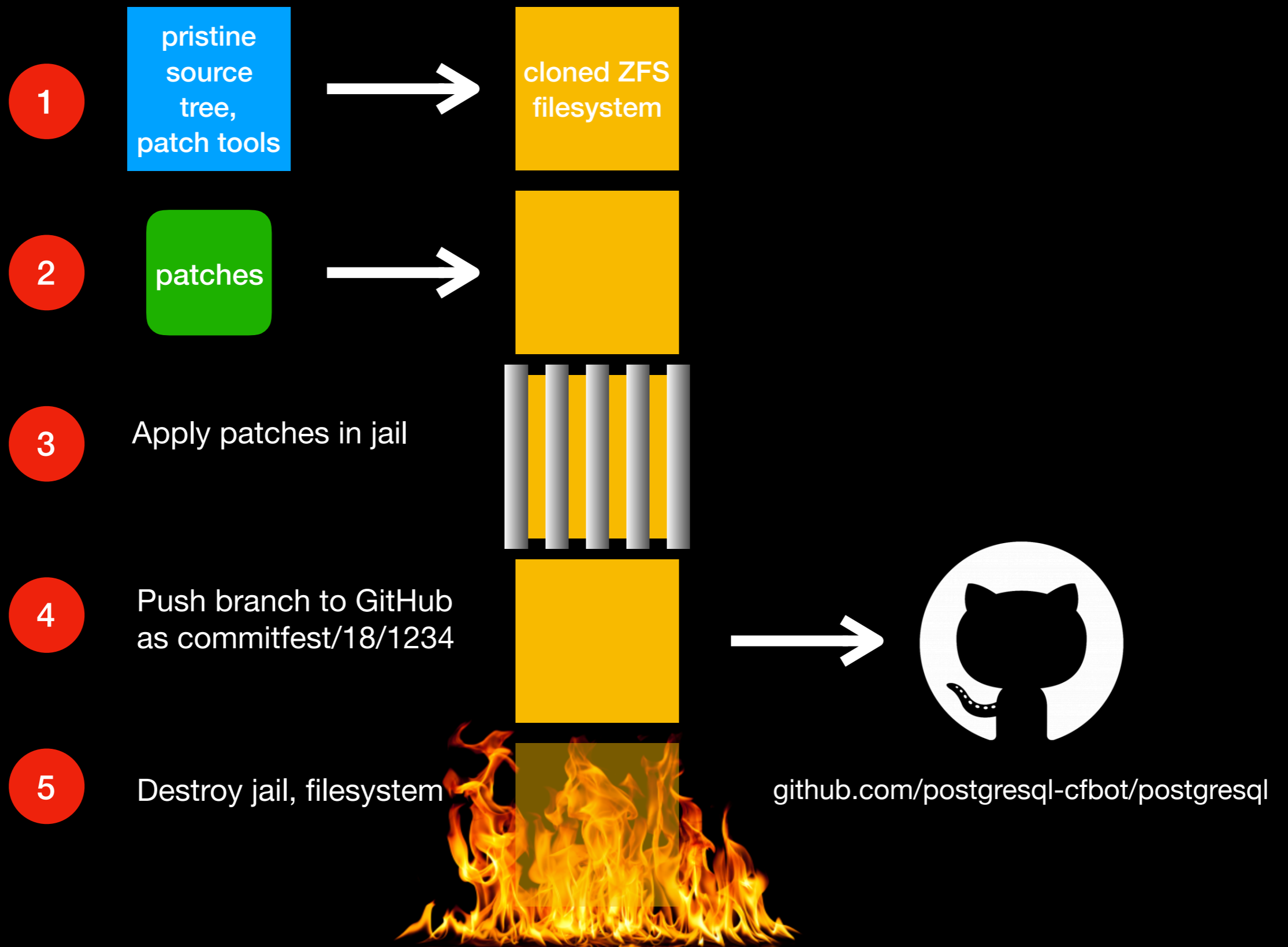
What could possibly go wrong?

patch -p1 < foo.patch

- CVE-2018-1000156
CVE-2016-10713
CVE-2015-1418
CVE-2015-1416
CVE-2015-1395
CVE-2015-1196
CVE-2014-9637
CVE-2010-4651
- patch: runs arbitrary shell commands
- patch: writes to files outside the target source tree
- patch: denial of service



Step 1: Quarantine and apply





This repository Search

Pull requests Issues Marketplace Explore

postgresql-cfbot / postgresql

Watch 0

Star

Code Issues 0 Pull requests 0 Projects 0 Wiki Insights

Overview Active Stale All branches

Search branches

Default branch		
master	Updated 5 months ago by tglsfdc	Default

Active branches		
commitfest/16/1394	Updated 5 minutes ago by Commitfest B...	● 0 853
commitfest/16/1389	Updated 10 minutes ago by Commitfest ...	● 0 853
commitfest/16/1388	Updated 15 minutes ago by Commitfest ...	✓ 0 853
commitfest/16/1387	Updated 20 minutes ago by Commitfest ...	✓ 0 853
commitfest/16/1386	Updated 25 minutes ago by Commitfest ...	✓ 0 853

[View more active branches >](#)



This repository

Search

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Issues

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Explore

postgresql-cfbot / postgresql

Watch 0

Star 0

Code

Issues 0

Pull requests 0

Projects 0

Wiki

Insights

[CF 16/1386] Atomic pgrename on Windows

This commit was automatically generated by cfbot at commitfest.cputube.org. It is based on patches submitted to the PostgreSQL mailing lists and registered in the PostgreSQL Commitfest application.

This branch will be overwritten each time a new patch version is posted to the email thread or the master branch changes.

Commitfest entry: <https://commitfest.postgresql.org/16/1386>

Patch(es): <https://www.postgresql.org/message-id/CAPpHfds7dyuGZt%2BPf2GL9qSSVV00ZnjNwqiCPjN7mirDw882tA%40mail.l>

Author(s): Alexander Korotkov

[commitfest/16/1386](#)



Commitfest Bot committed 26 minutes ago

1 parent [1cc4f53](#)

commit [5c2270755ec14258ba7209a53dc177ddc91552a5](#)

Showing **3 changed files** with **77 additions** and **3 deletions**.

[+ .travis.yml](#)

[src/backend/postmaster/pgstat.c](#)

[src/port/dirmod.c](#)

Step 2: Build and test

- Many wonderful, generous, free-for-open-source build-bot providers
- Running untrusted code in throw-away virtual machine images is their core business
- travis-ci.org for Ubuntu, macOS
appveyor.com for Windows
... there are many more
- Friendly result pages and APIs

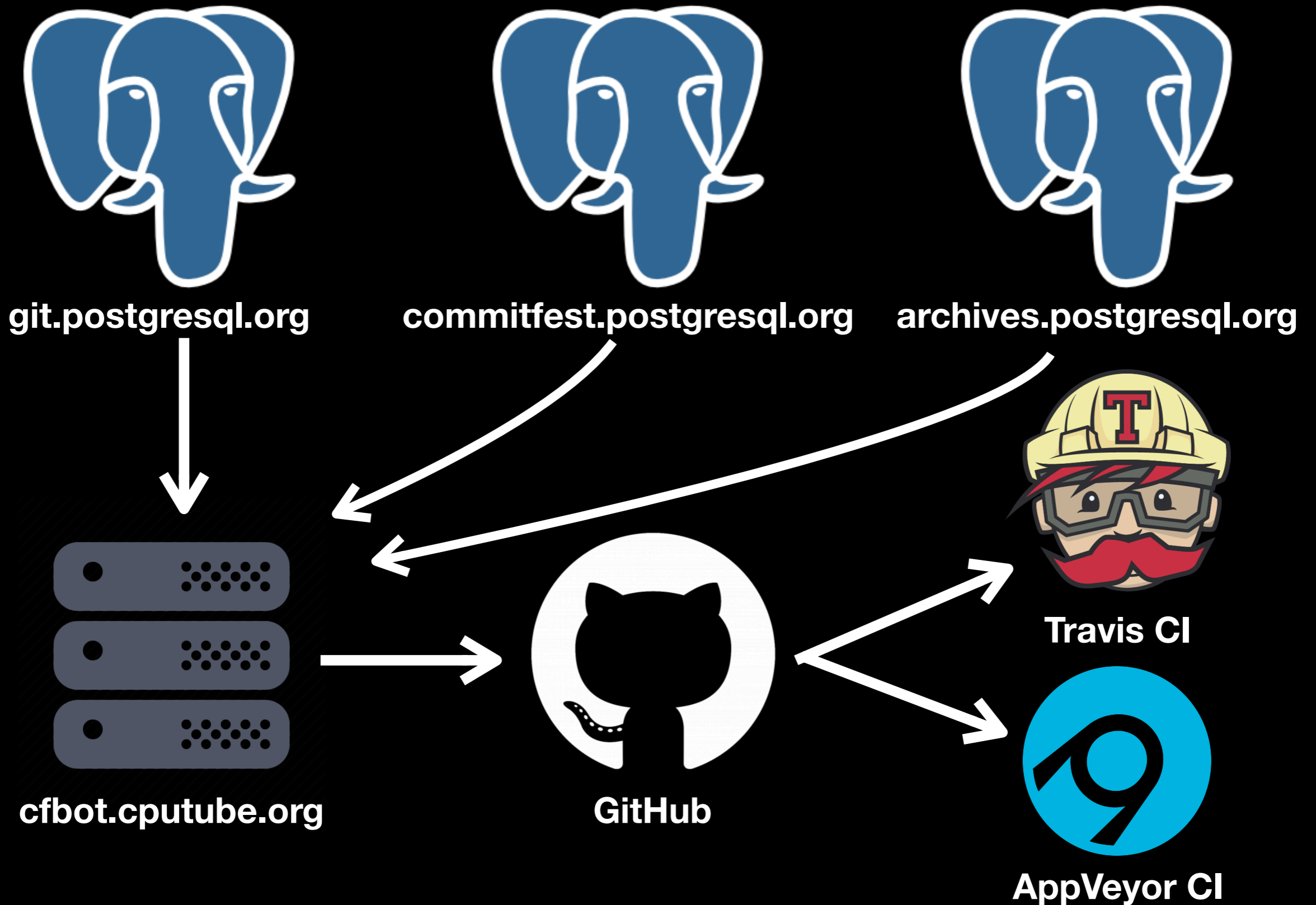
How to

- Tell travis-ci.org, appveyor.com, ... to watch your github.com, bitbucket.com, ... public source repository and build any branch with a control file in it
- Add the control file to your branch (.travis.yml, appveyor.yml etc as appropriate):

```
script: ./configure .. && make -j4 && make check
```

- This is a nice way to test your branches before you submit patches, and can send you emails, provide 'badges' for your web page, tell your IRC channel, release homing pigeons etc
- This talk is about plugging an old school mailing list workflow into this technology!

cfbot information flow





postgresql-cfbot / postgresql
































































































build unknown

Current Branches Build History Pull Requests

More options 

119

Active Branches

  commitfest/16/1479  14 builds	# 28284 started  -	 efbc690  Commitfest Bot	 	 	 	 	 
  commitfest/17/1478  14 builds	# 28283 started  -	 5531ca5  Commitfest Bot	 	 	 	 	 
  commitfest/17/1476  17 builds	# 28282 started  -	 85e4147  Commitfest Bot	 	 	 	 	 
  commitfest/17/1474  19 builds	# 28281 passed  4 minutes ago	 acbf300  Commitfest Bot	 	 	 	 	 
  commitfest/17/1470  19 builds	# 28280 passed  8 minutes ago	 94781ee  Commitfest Bot	 	 	 	 	 
  commitfest/17/1469	# 28279 passed	 f3e1aee	 	 	 	 	 

Step 3: Collect results

- CI providers have APIs where you can collect the results
- Collecting them in a small database allows consolidated reporting in one place
- You can also browse results directly at CI websites

Active battles

Windows

- Currently able to run `make check` on appveyor.com CI, but the tablespace test fails so I just exclude it
- Not yet attempting to run `check-world`
- If you know how to fix this, please see me after, I will pay you in beer



Rare transient false negatives

- —coverage .gdca files getting trampled on by multiple backends (later GCC will fix that)
- Failure to fetch “winflexbison” from sf.net
- Failure to fetch XSL files from oasis-open.org, sf.net
- Timeout of crash-restart TAP test —undiagnosed!

Plans for the future

Commitfest 2018-09

Terrible
mock-up

Search/filter Shortcuts ▾ New patch

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Failure at replay for corrupted 2PC files + reduce window between end-of-recovery record and history file write	Ready for Committer	Heikki Linnakangas (heikki), Michael Paquier (michael-kun)	Alexander Korotkov (smagen), Takayuki Tsunakawa (maumau)		2018-04-10 18:17	2018-01-13 22:13
Fix a bug that can prevent standby from restarting	Needs review	Kyotaro Horiguchi (horiguti)	Michael Paquier (michael-kun)		2018-04-10 18:17	2018-05-14 06:59
Replication status in logical replication	Ready for Committer	Masahiko Sawada (masahikosawada)	Simon Riggs (simon), Petr Jelínek (pjmodos), vaishnavi prabakaran (vaishnavip)	simon	2018-04-10 18:18	2018-04-10 14:11
Another oddity in handling of WCO constraints in postgres_fdw	Ready for Committer	Etsuro Fujita (efujita)	Arthur Zakirov (a.zakirov)		2018-04-10 18:18	2018-03-16 11:01
pg_rewind corrupts control file global/pg_control	Needs review	Michael Paquier (michael-kun)	Dmitry Dolgov (erthalion)		2018-04-10 18:18	2018-04-09 04:58



- Run Coverity and other static analysis tools?
- Run Valgrind, Clang asan etc to look for bugs?
- Add a big endian 32 bit non-Linux system for maximum portability bug detection with one stone?
- Display built documentation for review?
- Make Travis/AppVeyor fetch and apply patches themselves?
- Put .travis.yml, .appveyor.yml files in the tree?
- Andreas Seltenreich's SQL Smith?
- Code coverage report? (that is, reinstate)
- Automated performance testing...?

Questions, ideas?

- Thanks to Andres Freund, Dagfinn Ilmari Mannsåker, Andrew Dunstan, Peter van Hardenberg, Oli Bridgman for ideas and scripting improvements
- Thanks to Travis CI and AppVeyor CI for supporting open source
- Thanks to pgsql-hackers for all the patches