




Checks in Gerrit

First-class CI integration in Gerrit

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Agenda

Motivation

Concept: Checks in Gerrit

Outlook

Currently: How to integrate CI systems?

- “Use labels”
 - Configurable
 - Support permission/submit blocking
- “Build a plugin [on top of labels.]”
 - Task
 - Verify-status

The screenshot shows a GerritHub interface for a change titled "Travis CI: drop Go 1.9, add Go 1.13". The change is active and was updated on Nov 03. The owner is Jakob Unterwurzac... and the uploader is Han-Wen Nienhuys. The committer is also Han-Wen Nienhuys, and he is the assignee and reviewer. The repository is hanwen/go-fuse, on the master branch, with parent commit d6dc0f2. The strategy is "Rebase if Necessary".

The change has two reviews: a Code-Review (+2) and a Verified (+1), both by Han-Wen Nienhuys.

The commit message is "Travis CI: drop Go 1.9, add Go 1.13". The commit body contains the following text:

```
Go 1.9 fails to build the fs tests:  
  
# github.com/kylelemons/godebug/diff  
../../../../kylelemons/godebug/diff/diff.go:50:13: u  
? github.com/hanwen/go-fuse/example/zipfs  
FAIL github.com/hanwen/go-fuse/fs [build fail]
```

So drop Go 1.9.
Add Go 1.13, which is already at 1.13.3.
Change-Id: Id2286cddc3973a1388f94e1b294db36d7663

Labels & comments at scale

The screenshot shows a user interface for managing comments. At the top, there are two tabs: "Change Log" and "Comment Threads". Below the tabs is a toggle switch labeled "Only comments" which is currently turned off. To the right of the toggle is a link that says "EXPAND ALL". Below this is a horizontal bar containing two buttons: "SHOW ALL 4750 MESSAGES" and "SHOW 5 MORE". The "SHOW ALL 4750 MESSAGES" button is circled in red. Below this bar are two comment entries, each starting with a blue profile icon and the text "Patch Set 81: presubmit build finished with status: SUCCESS Uri: http://...".

UI: How to rerun?

- Remove label vote
(condition: granted global capability)
- Post comment

UI: Many change messages

- **Overview?**
- Redesign message list?

Infra: many change messages

- Parse commits
- Change notes cache
 $O(\text{message}^2)$ memory

Demanding customers build plugins

← → ↻ 🏠 🔒 <https://chromium-review.googlesource.com/c/chromium/src/+/1604442> ☆ 🟢 📧 📧 📧 📧 📧 📧 📧 📧

D	chrome/test/data/chromeos/app_mode/offline_enabled_kiosk_app/v2/app_main.js	■	+0	-8	▼
M	chrome/test/data/chromeos/app_mode/offline_enabled_kiosk_app/v2/main.js	■	+1	-5	▼
M	chrome/test/data/chromeos/app_mode/webstore/downloads/iiigpodgfihgabpagjehoocpakbnclp.crx		-343 B	(-12%)	▼
M	chrome/test/data/chromeos/app_mode/webstore/downloads/iiigpodgfihgabpagjehoocpakbnclp_v1.crx		-343 B	(-12%)	▼
M	chrome/test/data/chromeos/app_mode/webstore/downloads/iiigpodgfihgabpagjehoocpakbnclp_v2_permission_change...		-322 B	(-11%)	▼
M	chrome/test/data/chromeos/app_mode/webstore/downloads/iiigpodgfihgabpagjehoocpakbnclp_v2_required_platform_v...		-322 B	(-12%)	▼
			+121	-123	
				+/-0 B (-0%)	-2 KiB (-12%)

Tryjobs Last updated at 6:54:47 PM

- ✓ android-binary-size
- ✓ android-kitkat-arm-rel
- ✓ android-marshmallow-arm64-rel
- ✓ android_arm64_dbg_recipe
- ✓ android_clang_dbg_recipe
- ✓ android_compile_dbg
- ✓ android_cronet
- ✓ cast_shell_android
- ✓ cast_shell_linux
- ✓ chromeos-amd64-generic-rel
- ✓ chromeos-daisy-rel
- ✓ chromium_presubmit
- ✓ fuchsia_arm64
- ✓ fuchsia_x64
- ✓ ios-simulator
- ✓ linux-chromeos-compile-dbg
- ✓ linux-chromeos-rel
- ✓ linux-jumbo-rel
- ✓ linux-libfuzzer-asan-rel
- ✓ linux-ozone-rel
- ✓ linux-rel
- ✓ linux_chromium_asan_rel_ng
- ✓ linux_chromium_compile_dbg_ng
- ✓ linux_chromium_tsan_rel_ng
- ✓ mac-rel
- ✓ mac_chromium_compile_dbg_ng
- ✓ win-libfuzzer-asan-rel
- ✓ win10_chromium_x64_rel_ng
- ✓ win7-rel
- ✓ win_chromium_compile_dbg_ng

Tricum [Run 5446447117893632](#) FILE BUG

Change Log Comment Threads

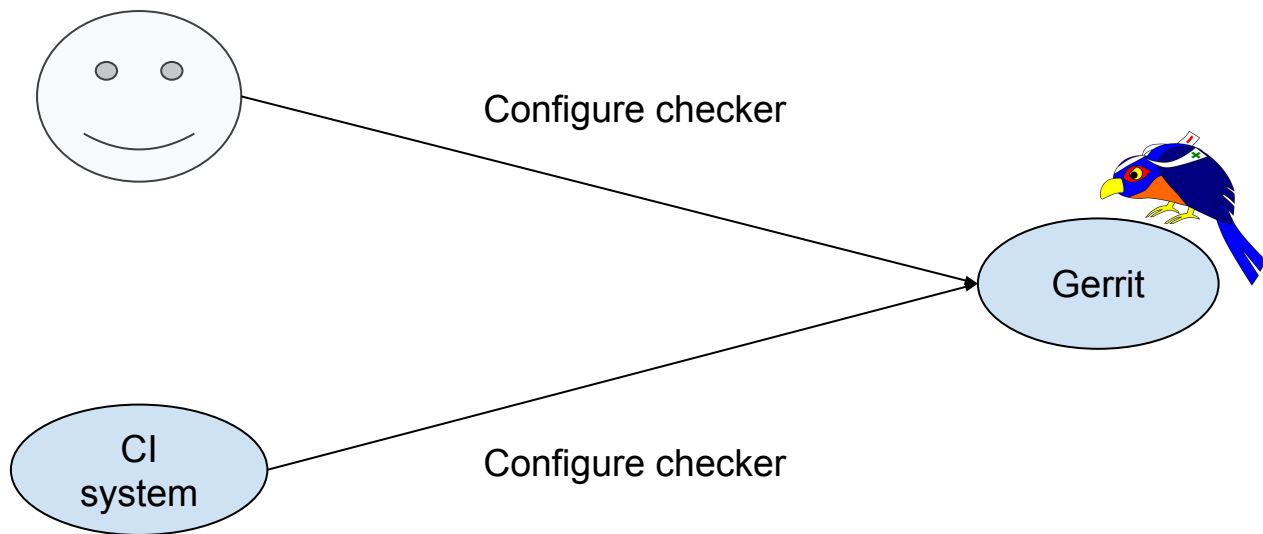
Only comments EXPAND ALL

👤 Toni Baržić added to CC: 📧 chromium-reviews@chromium.org 1:17 AM ▼

Checks in Gerrit

Files		Checks			
Latest checks for Patchset 1					
Name	For submit	Status	Started	Duration	
Build/Tests	Optional	✓ Successful	-	-	View log
Code Style	Optional	✓ Successful	-	-	View log

Configuration




Configuration

Why configuration?

Files **Checks**



No checks ran for this code review
Configure checkers to view the results here.

VS

 All required checks must pass

Files **Checks**

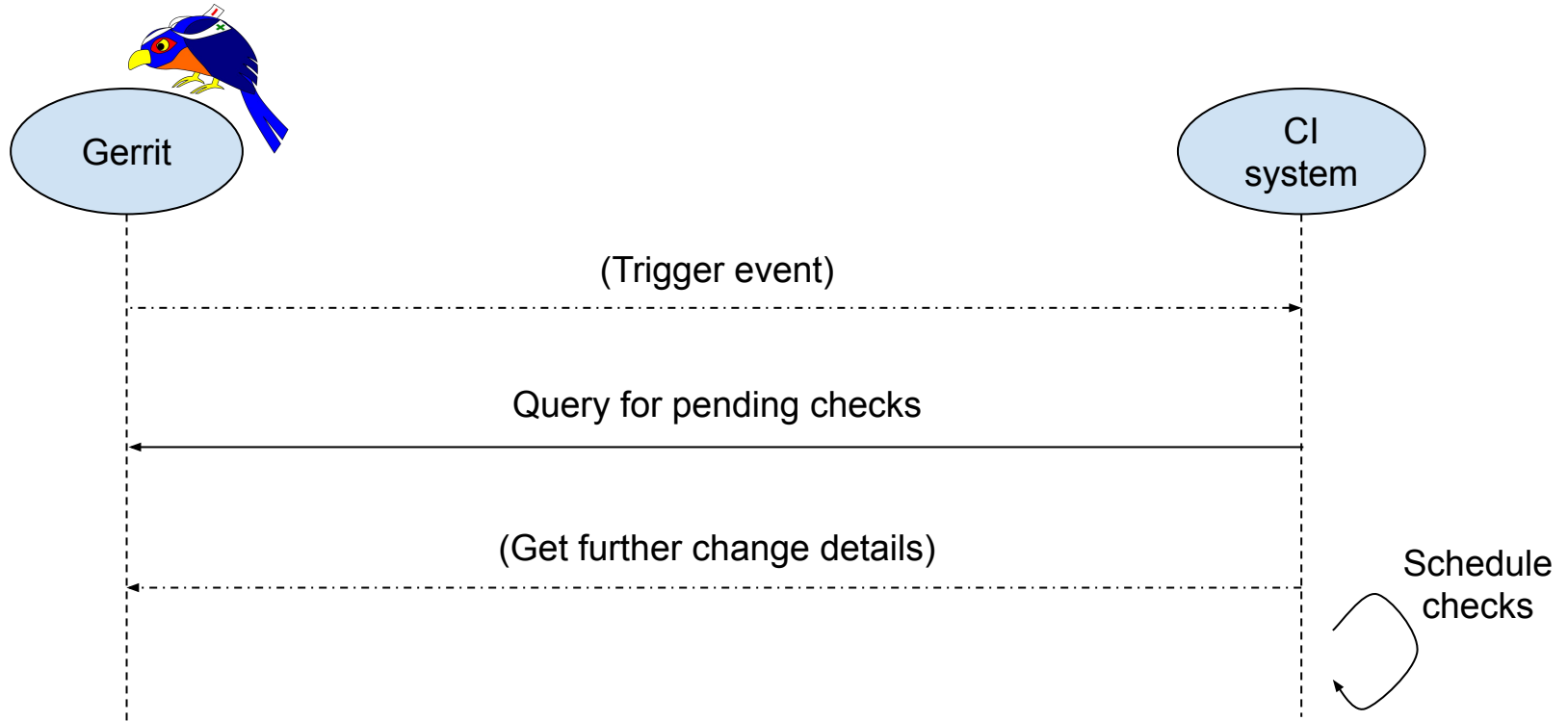
Latest checks for Patchset 1

Name	For submit	Status	Started	Duration	
Code Style	Optional	 Unevaluated	-	-	View log
Unit Tests	Required	 Unevaluated	-	-	View log

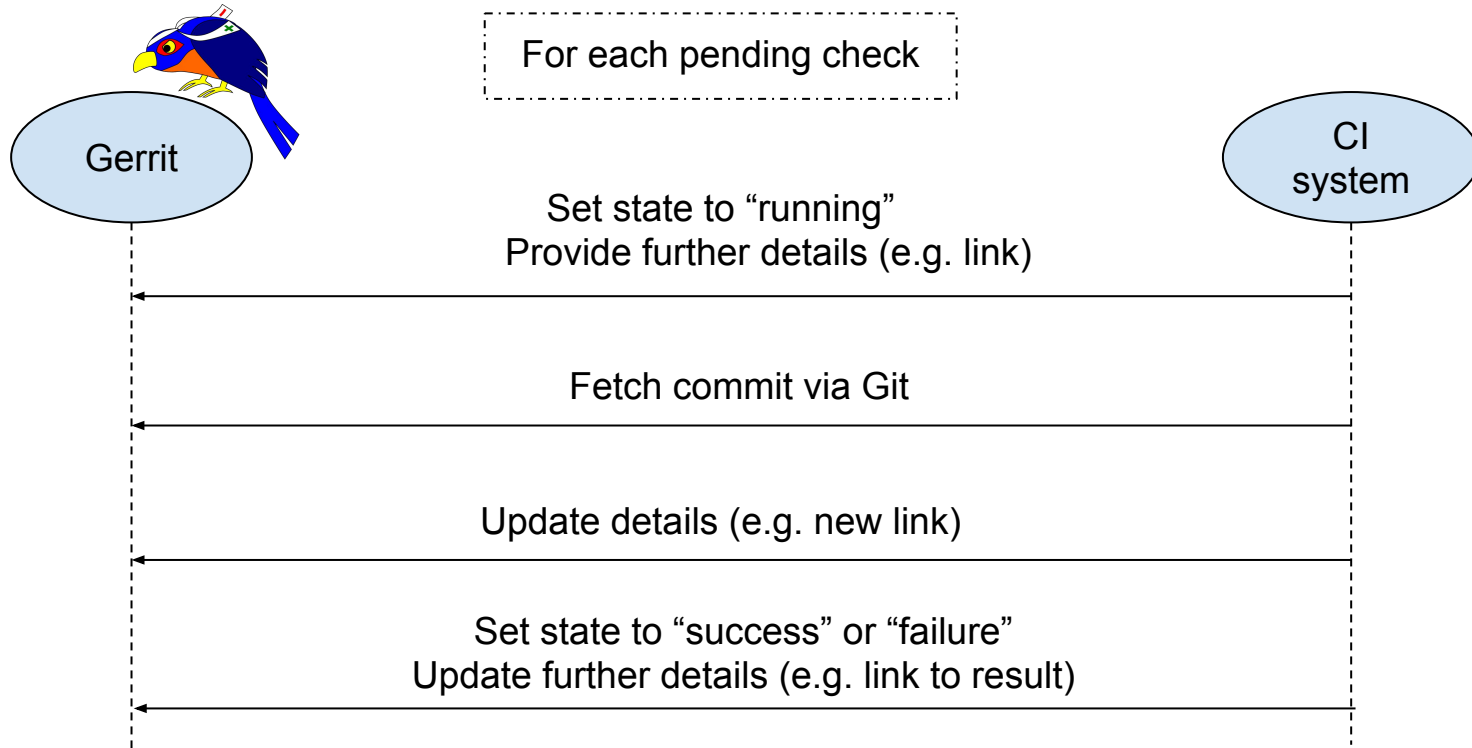
What to configure?

- Name, description, ...
- Repository
- Query
- Required/Optional

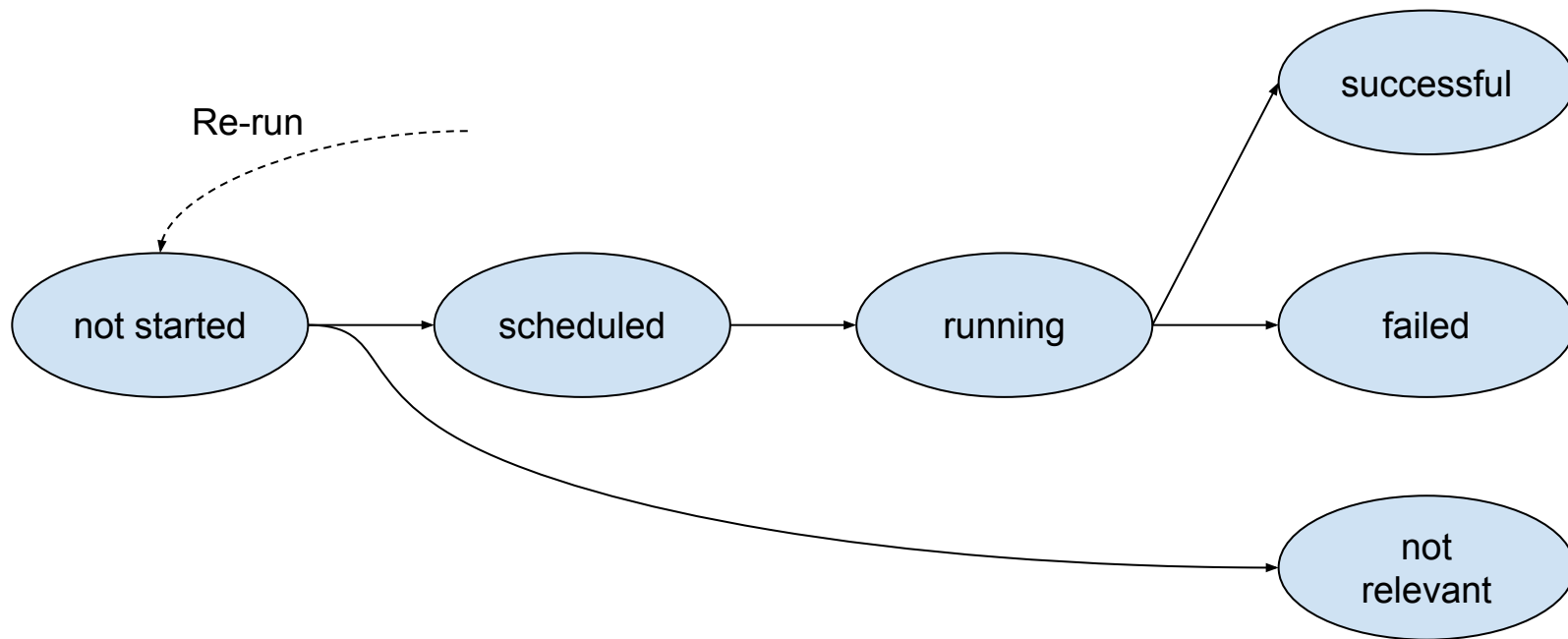
System interaction



System interaction



Check states

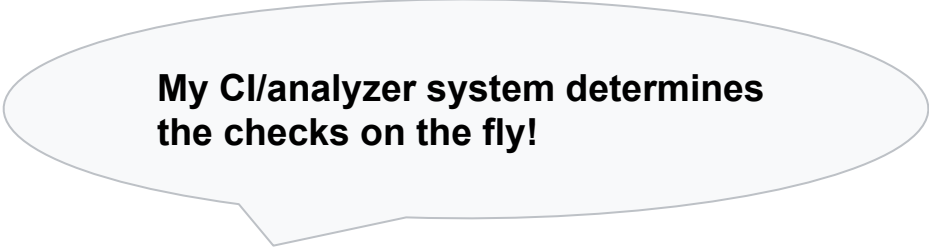


Checks in Gerrit

Why this design?

- Flexibility + Extensibility
- Robust against lost events
- Performance
- Scalability
 - We want to support 100s of analyzers
- Stored in Git refs, a la NoteDb
- Support of analyzers
 - Robot comments
 - Suggested fixes

Future plans



My CI/analyzer system determines the checks on the fly!

→ Sub-checks

- On-the-fly checks → very flexible
- Only one configured check for CI/analyzer system
- Caveats
 - No details directly after patch set upload or after re-run
 - More data to send (e.g. name, description, ... for every patch set)
 - Less configurability in Gerrit

Future plans

Optimizations (e.g. caches, parallel updates, trigger event)

Bypass blocking checks in emergencies

Copy-over check results

Proper support for analyzers → robot comments

- Associate checks ↔ robot comments
- Reconsider some behaviors of robot comments (e.g. unresolved ones on older patch sets)

I would like to know ...

Will labels go away?

Humans → labels
Robots → checks

When can I use this?

For testing → right now
For production → depends on needed features

Which Gerrit version is required?

> 3.0.x

Can I start integrating my CI/analyzer system with the new API?

Absolutely!

Questions?