Making Modern Code Review Distributed

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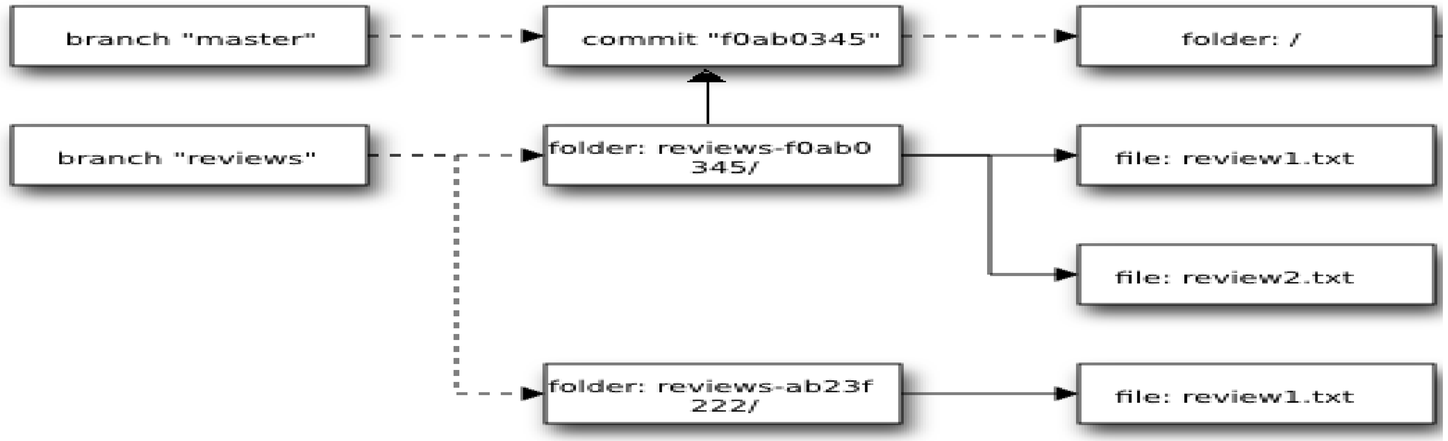
Motivation

All code review systems today are centralized with the reviews and discussions being stored on a central server or mailing list.
But Git is distributed. We are developing a distributed peer review system that minimally modifies Git.
We incorporate reviews seamlessly into the current Git architecture.
git-review is truly distributed (no central review server)



Commands & Format

NAME
`git-review - Creates a review on a commit`

SYNOPSIS
`git-review [<options>] [[--] <path>…]`

DESCRIPTION
Creates a review on a given *commit-hash*

OPTIONS
`<log>`
Shows the log history of the reviews made along with the reviewer details

`<amend>`
Allows recording any change to the last review

`<show-raw>`
Shows the raw contents of the review object created

`<respond>`
Allows a reviewer to respond to a part of the review

`<info>`
Displays the information per review basis like the reviewer's name, email, date, first line of content

`<email>`
Allows the reviewer to create an email from of the review

`<show-comments>`
Displays a list of comments made by the reviewer

`<dgui>`
Displays the review in a way similar to how Gerrit does it

Architecture

We have a branch called the review branch. All the above objects are a part of this branch. The review branch does not share a root node with the master branch and is a free standing branch which points to the last review committed. The review branch does not interfere the developers view of the system history.

Example of a Review

❑ The following is an example review from LKML:

DateWed, 5 Jun 2013 10:07:03 -0400 (EDT)FromNicolas Pitre <>SubjectRe: [RFC PATCH v2 2/2] drivers: mfd: vexpress: add Serial Power Controller (SPC) support
On Wed, 5 Jun 2013, Lorenzo Pieralisi wrote:
> The TC2 versatile express core tile integrates a logic block that provides the
> interface between the dual cluster test-chip and the M3 microcontroller that
> carries out power management. The logic block, called Serial Power Controller
> (SPC), contains several memory mapped registers to control among other
[...]
> + * Lorenzo Pieralisi lorenzo.pieralisi@arm.com
I imagine "author(s)" can be written as "authors" without a doubt. I imagine "author(s)" can be written as "authors" without a doubt. :-)

> +EXPORT_SYMBOL_GPL(vexpress_spc_write_resume_reg);
> +EXPORT_SYMBOL_GPL(vexpress_spc_set_global_wakeup_intr);
> +EXPORT_SYMBOL_GPL(vexpress_spc_set_cpu_wakeup_irq);
> +EXPORT_SYMBOL_GPL(vexpress_spc_powerdown_enable);

I don't think anything that could possibly be made into modules should ever have a need for those particular calls. So I'd suggest not exporting them.

Reviewed-by: Nicolas Pitre <nico@linaro.org>
Nicolas

Conclusion & Future Goals

We model our use cases based on how Linux developers perform reviews. We plan to import reviews from the Linux Kernel Mailing List to encourage adoption of our tool.

The above architecture allows us to:
❖ Maintain a commit-review index.
❖ Add multiple reviewing to commits.
❖ Transmit reviews between repositories and allows merging.

❑ Advantages :
- Eliminates the centralized review server.
- Work practices remain unchanged, but history of review is stored.
- Review history is stored alongside and transmitted with commits.

❑ Disadvantage:
- No central location to see all reviews pertaining to a change and to discuss the effect of the change on the system

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