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The list is our process: An analysis of the kernel's email-based development process

Monday, 9 September 2019 12:45 (45 minutes)

Implementing safety-critical systems usually requires adhering to meticulously defined development processes that specify how code is supposed to be developed, integrated and reviewed, driven by the assumption that a disciplined approach leads to reliably high quality. While known to produce code that can satisfy the highest quality standards, Linux kernel development does not follow such strict patterns, although it is certainly far from a random process. But how can we ensure the quality of a mostly informal approach?

Our work aims at identifying core properties, strengths and weaknesses in the development process by tracking the evolution of components from initial submissions on mailing lists to the final merged contributions.

This talk will:

- introduce heuristics to identify the evolution of patches on the mailing list and match patch emails against their included git commit counterparts.
- present our publicly available data set of kernel-related email available, curated large-scale data set from more than 200 kernel-related mailing lists

We discuss observations and insights and we draw, ranging from simpler questions like how long the average time from the first version of a patch submission to its final inclusion is, down to a categorisation and analysis of off-list patches and ignored patches.

We particularly seek interaction with experts from the community to discuss benefits and limitations of our approach. We will show how we would like to make this information available in the patchwork tool, and present prototypes of tools and development process analyses that that we would like to refine so that they are useful to Linux kernel developers and maintainers in their every day work. We hope this work can contribute to a future kernel maintainers handbook.

I agree to abide by the anti-harassment policy

Yes

I confirm that I am already registered for LPC 2019

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