

Web Dashboard - UX Analysis

Request for Proposals

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Summary

The KernelCI project runs thousands of tests on dozens of Linux kernel trees everyday generating a huge amount of data to help the community identify issues and trends. One way to analyze all this data is through a bespoke Web application that truly embodies the kernel community's use cases. This Request For Proposals aims to be an initial investigation to understand how the UX of the Web Dashboard could look like based on the initial set of user stories compiled by the KernelCI team.



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The KernelCI Project

KernelCI was created several years ago by Linux kernel maintainers in order to provide an automated test system for the upstream kernel. It then became a Linux Foundation project in 2019 and the founding members are still part of the project. More information can be found about it on the kernelci.org website. An annual budget is collected from the members' contributions which makes it possible to fund work packages, web dashboard mockups being one of them.

The Web Dashboard

The KernelCI project runs thousands of tests every hour. Our pipeline builds, boots and tests a myriad of kernel trees, configs and platforms. Once the tests are finalized, KernelCI sends email reports with a summary of the test results. The email works for learning about specific test results, but doesn't help watch trends and patterns, setup specific filters, etc. Those are the kind of needs that can be covered by a well designed Web Dashboard.

Before starting the implementation for the new Web Dashboard, the KernelCI project wants to do an initial UX analysis based on collected user stories and produce some mockups to visualize the UX flows for the main use cases. The mockups will give the KernelCI team and the kernel community the opportunity to give early feedback to the new Web Dashboard, making it easier to propose changes, compare with the current dashboard or other existing solutions, etc.

After the UX analysis step, the system architecture phase will begin. If the work with the vendor selected for this project goes well, KernelCI might select them for the continuation of the Web Dashboard work.

User stories

Here are some of the main user stories we've collected:

As someone who cares about the kernel...

1. I want to be notified (through bisection reports) of regressions caused by patches I wrote or was involved in so *that* I can see the logs in the KernelCI web interface, investigate and reproduce the issue.
 - Note: Today we only show KernelCI regressions and it is not integrated with KCIDB yet.
2. I want to be notified of resolved regressions caused by patches I wrote or was involved in so *that* I know when I can stop worrying about it and which patch caused the regression.

As a kernel/subsystem maintainer...

1. I want to check for regressions in my branch for specific commit heads tested by KernelCI so *that* I can fix the issues or remove the culprit patches before sending a pull request
 - a. In the case of stable trees I want to check if a new stable release candidate has any regression compared to the previous stable release
 - b. If it is a performance regression, I want to see a comparison between the current and previous data for the test cases. Additionally, historical trends can be created to help understand the impact of deviations.
 - c. Boot time and measuring the kernel binary size are two basic test cases we want to see, including historical trends for different .config files.
2. I want to check if a failure/regression doesn't happen in any other branches we have results for so *that* I can investigate the source of the issue.
3. I want to know if my code/subsystem is being tested, including a coverage report detailing tests and percentage of coverage per platform so *that* I can look into increasing the coverage where needed. ([github comment](#))
4. I want to see, for large test batches, a separation between tests that flake and tests that are showing new failures (i.e., they start to fail consistently) so *that* I can be notified without the noise of flake tests all the time. ([github comment](#))
 - a. This could probably be generalized to some sort of statistical operation. Generally, any deviation from the normal result pattern could be reported.

For context on the broad set of User Stories KerneCI is tracking refer to our general [User Stories document](#).

Deliverables

The KernelCI Board expects the deliverables to:

1. show the UX flows for the selected use cases through static designs of the web pages;
2. at minimum, it will contain web pages with made-up data and link references for basic navigation;
3. presentation deck detailing the UX flows and the choices that were made;
4. high level specifications for a web development team to start implementing a real solution.

The deliverable process needs to be iterative, gathering extensive feedback multiple times from the Web Dashboard working group and the community at large.

Vendor Considerations

Proposed Timeline

The deadline for responding to this RFP is six weeks after it has been made public. Then the KernelCI Advisory Board of Members will vote and respond within two weeks, so a decision should have been reached within eight weeks. By starting this timeline on Monday 29th of May 2023, the deadline to respond is 10th July with a board vote on the 24th July. Exact dates might be subject to change in case of a major practical issue or unavailability of voting members.

It is expected that the work in this work package will last two to three months. The envisioned dates are from 1st August 2023 to 31st October 2023. Alternative dates may be used in proposals and any improvements should be completed within their own defined timeframe.

Vendor Selection Criteria

Each proposal will be examined by the KernelCI Technical Steering Committee and the Advisory Board members. There is a fair amount of flexibility in this RFP which means there could be significant differences between proposals. Therefore, having a clear and unambiguous description of what is being proposed is a key factor in the decision making process. We need to be able to gain enough confidence that a proposal is a viable one before it can be chosen.

Typical areas of expertise:

- UX, Web Development
- Data-driven applications
- Community relations

Budget

The KernelCI Project expects vendors to submit a fixed-price proposal showing the total costs for the different phases they plan for the project. Optional or extra phases can be included as well. The vendors have autonomy to propose a process for the iterative feedback roadmap.

Payments would be made by the Linux Foundation using the project's own budget.

Contact information

Please send inquiries, clarification questions and responses to this RFP via email to the KernelCI governing board: kernelci-members@groups.io