
sdmay18-09: Tool Support for Continuous Model-Based Verification of the Linux Kernel**Weekly Report 2**

January 27 - February 9, 2018

Client: Suraj Kothari

Faculty Advisor: Suraj Kothari

Team Members:

Srinivas Dhanwada - Team Lead

Collin McIntyre - Tool Integration Lead

Ben Weno - Automation Lead

Matthew Wall - Web Lead

Summary of Progress this Report

Since last report, we have made progress on almost all portions of the project. After meeting with our Advisor, a remote desktop connection has been set up to the machine that runs the L-SAP verifier and this will be used by us to trigger manual builds of the kernel while we are testing our automated pipeline. We received a brief introduction to the tool and will be getting more experience with L-SAP in the coming reporting period. All Individuals have made progress towards their individual goals and we have made progress setting up the testing framework to verify our code works as we develop it further. The Gitlab CI Pipeline has been setup, but it requires a running server instance that can accept jobs and run unit tests. For now this has been setup to run on our local machines in the background, but we are considering reaching out to ETG to see if a dedicated runner server can be setup. The Difference Mapper and RSS Feed portions of the pipeline are nearing completion and both have unit tests to run once the CI pipeline is working. The Patch Generation is also nearing completion, but more testing needs to be done using multiple versions of the kernel. Significant progress has been made to the website, in particular the core components, functionality, and optimization of the website.

Pending Issues

- CI Pipeline needs fixed. Runs but fails (need dedicated server if possible)
 - Advisor will be absent this following week, so unable to use the lab to test pipeline
 - Scalability issues with firebase and the cost that is associate with that (Since we have a large data set, being able to store that cost effectively is a must!)
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Individual Contributions

Team Member	Contribution	Hours This Period	Total Hours
Srinivas Dhanwada	<ul style="list-style-type: none"> Added Unit Test cases for the DiffMapper module, which pass locally. Will be used as initial test of GitLab CI pipeline. There were errors with the GitLab CI process failing -- found a potential fix. More work on the DiffGenerator project -- Progress is limited until we get more local runs of the verifier. 	10	98
Collin McIntyre	<ul style="list-style-type: none"> Made more progress on the Patch Generation Algorithm, but need to figure out a way to track all possible directories in the kernel to apply the patch correctly. 	8	77.5
Ben Weno	<ul style="list-style-type: none"> Added ability to choose to get release candidates or not from the rss feed Added unit testing for the rss feed reader 	5	50
Matthew Wall	<ul style="list-style-type: none"> Made progress on optimization and functionality of the website Finished the structure of the website from pages to service and components Looking at issues of scalability for the firebase RTB and how to solve that Integrated Karma end-to-end testing for later functionality 	7	49.5

Plans for Upcoming Reporting Period

The automation work Ben is working on needs to be tested on a Unix system as the linux kernel has invalid file names in windows. More testing will also be put into place around it to ensure all parts are tested thoroughly. Also, the plan is to mock a few data sets into Firebase to get at least one demo page tested and working. The Gitlab CI pipeline should be up and running during the next reporting period. More unit tests need to be added to the rest of the project.
