UC SANTA CRUZ
Baskin Engineering

Capstone Project

OpenTAP Data Visualizer

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KEYSIGHT TECHNOLOGIES

Abstract

Remaking an existing application. The old tool struggled with:

- Storing large timing charts due to limits on memory.
- Comparing multiple timing charts and generating automatic analyses and aggregated statistics.

Approach

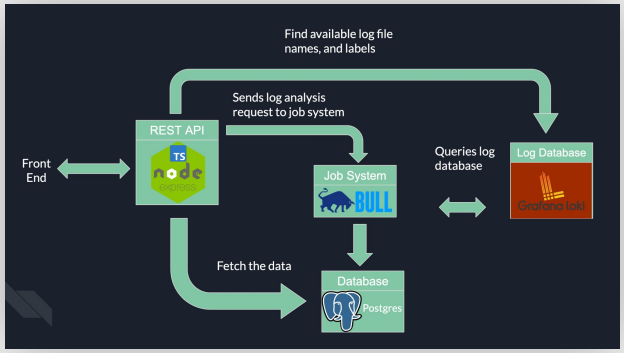
- **Create a web-based tool**
  - Allows the user to view tests from any device, and reducing storage requirements
- **Focus on performance**
  - Minimize the amount of data handled by the app at any given point in time.
  - Stream events to the frontend as the user explores different areas of the timeline
  - Preprocess log files, so requests can be quicker
- **Visualization of the Data**
  - Create a custom timeline chart, for maximum control
  - Show minimum and maximum durations as whisker marks to represent aggregate statistics

Overview

Keysight is a leading provider in test automation for developing, manufacturing, and designing new hardware. OpenTAP is one of their latest projects - an open source test automation framework. Companies utilize OpenTAP to run hundreds of automated tests on their newest hardware, which can produce **gigabytes** of log files. Interpreting such a large amount of data is a problem for these companies, and that's where our project comes in. Our goal is to analyze the output of their automated tests, and visualize the events in an intuitive and digestible way.

OpenTAP Tests → Log Files → Our Visualization Tool

Architecture



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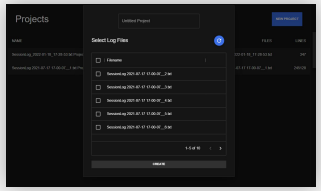
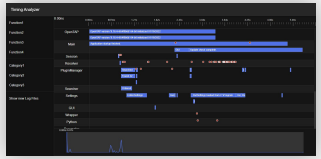
Richard Jullig, Golam Muktadir

Results

Users can visualize, analyze, and compare OpenTAP log files on a web application, thus avoiding the need to download software. We can handle log files containing hundreds of thousands of events.





Conclusion

The data visualizer will provide customers with a data visualization application that requires no downloads and can be accessed through mobile devices, thus allowing them to view tests fast and conveniently.