

Week 7 Assessment

Step 1: Alternative Tools Research

A new tool for Continuous Integration I picked was Travis CI. I feel as an application is being developed, it is more than likely that the complexity of the CI/CD pipeline may increase. And before the pipeline becomes too difficult to maintain, it's important to minimize the maintenance to increase the stability of the pipelines. I think Travis CI may do this well because it allows the users to break down the complicated scripts into simpler and easier to maintain scripts that can be further stored in the same repository. Plus Travis CI supports REST APIs that also allow the users to read and modify parts of the pipeline. Travis CI also supports parallel testing and has a 'build matrix' feature that allows the users to split up the unit tests and integration tests into 2 different build jobs for optimal utilization of the build capacity.

A new tool for Real Time Error Monitoring I picked was Sentry. Sentry allows users to catch errors in real-time as they deploy and every error includes information about software, environment and the users themselves. If you believe your users are a key point at understanding errors, Sentry allows you to prompt the users for feedback whenever they come across errors. This allows comparing their individual experience to the data they already have. Plus the dashboard allows users to see stack traces with support for source maps, along with detecting each error's URL, parameters and session information. Each trace can be filtered with app, framework or raw error views.

On the Travis CI website, I believe the instructions to use this tool is well documented. For their 'build matrix' feature, there is a step by step explanation along with many examples to guide new users on how to utilize this feature. Travis CI was founded in 2011, offering free open source CI integration with GitHub repositories but recently had a major security flaw that exposed API keys and access tokens that potentially put organizations who use the public source code repositories at risk of attacks. On top of that, this major issue lasted about 8 days before it was patched up. I guess due to the "irresponsible way" Travis CI handled the situation, it was recommended that users immediately transfer away from Travis CI.

Step 2: Runtime Analysis

Each function scales faster in time from `extraLargeArray` to `tinyArray`, from seconds to microseconds. Though from `mediumArray` to `smallArray`, the append time increases in microseconds, while the others arrays decrease in time.