

Open edX Analytics

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OUTLINE

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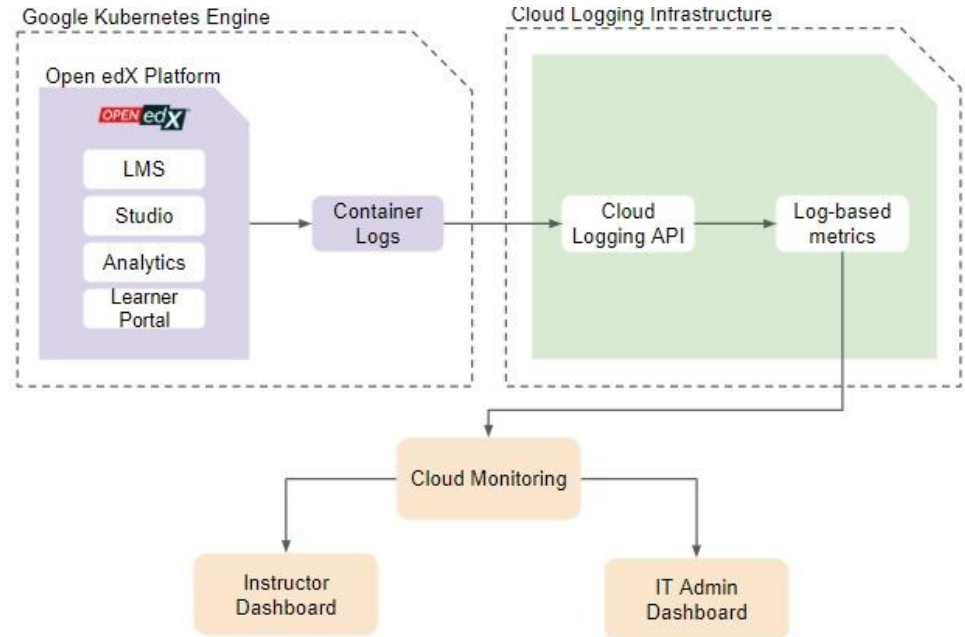
Project Overview

Open edX is an open source Learning Management System(LMS) that enables educators to create and deliver online courses. Boeing has requested an enhanced analytics and observability system to track various metrics related to student behavior so they can understand the learning behaviors of students and get monitoring data for the system.

The challenge is to design and implement a system that collects and processes data in a way that is clear and understandable so stakeholders can make informed decisions. The resulting system should be a dashboard based on the various data points collected.

Open edX Architecture

- The Open edX logs are collected using FluentD and stored in Google Cloud Platform (GCP).
- The logs are filtered in Google Cloud Platform using the log metrics feature.
- The filters are created using RE2 regular expression and the metrics explorer.
- The charts are created in the monitoring view using these metrics and further defined using the monitoring query language.
- We capture data unique to each student to generate charts such as student page completion data, assignment data, navigation data, and general activity.
- Universal filters can be applied to the entire view or filters can be applied to individual dashboards as needed to narrow down the data.



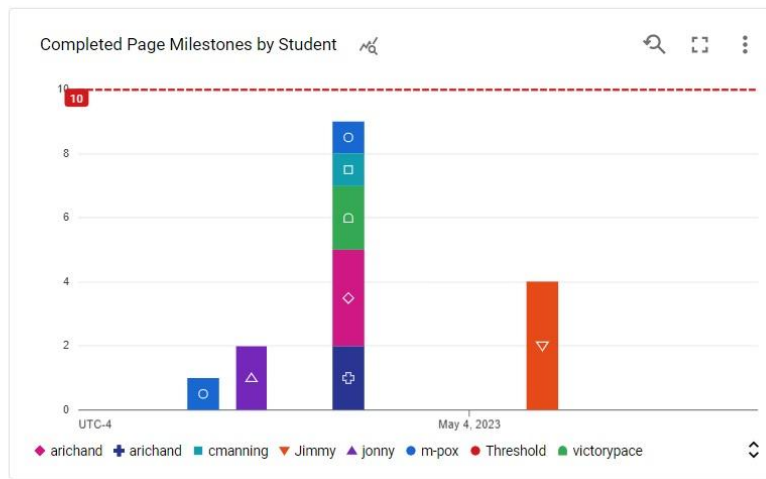
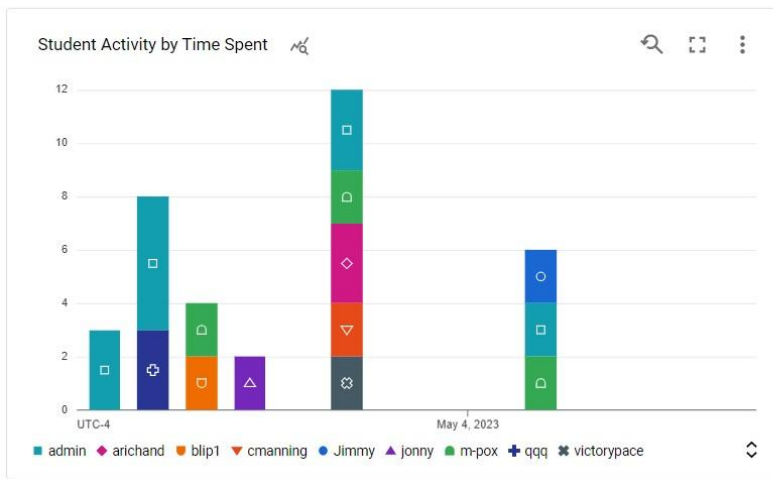
Open edX Instructor Dashboard

The Instructor Dashboard is designed for instructors to gain insights on student behavior and performance in a course.



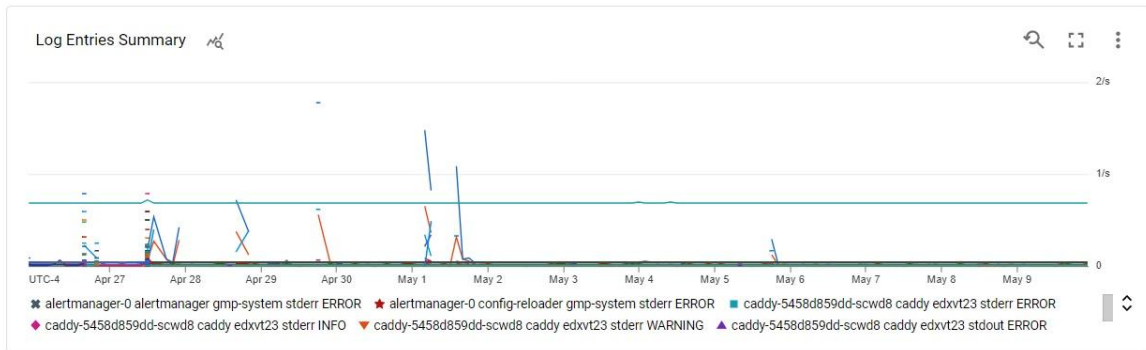
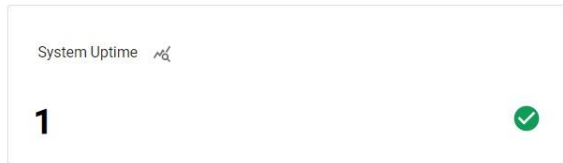
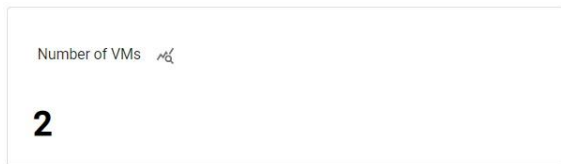
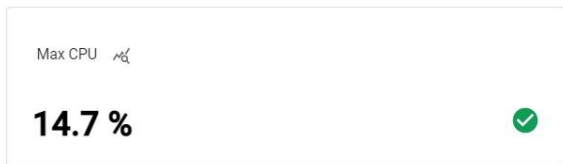
Student Completed Milestone Metrics

There is a limit of 10 areas where a student can mark a course as complete so the maximum number of completion of events per student will be 10.



Open edX IT Admin Dashboard

The IT Admin Dashboard is designed for platform developers and admins to monitor the behavior of the Open edX system and identify any issues.



RISKS/CHALLENGES

- GCP is not an easy platform to work with. There are limitations on what can be accomplished with the platform; it has some odd behavior and can be difficult to debug
- There are limitations on the dashboards available in GCP in terms of customizability. GCP has a limited selection of charts.
- Managing conflicting requirements and project direction between the Advisor and Professor