Twitter Analytics Web App

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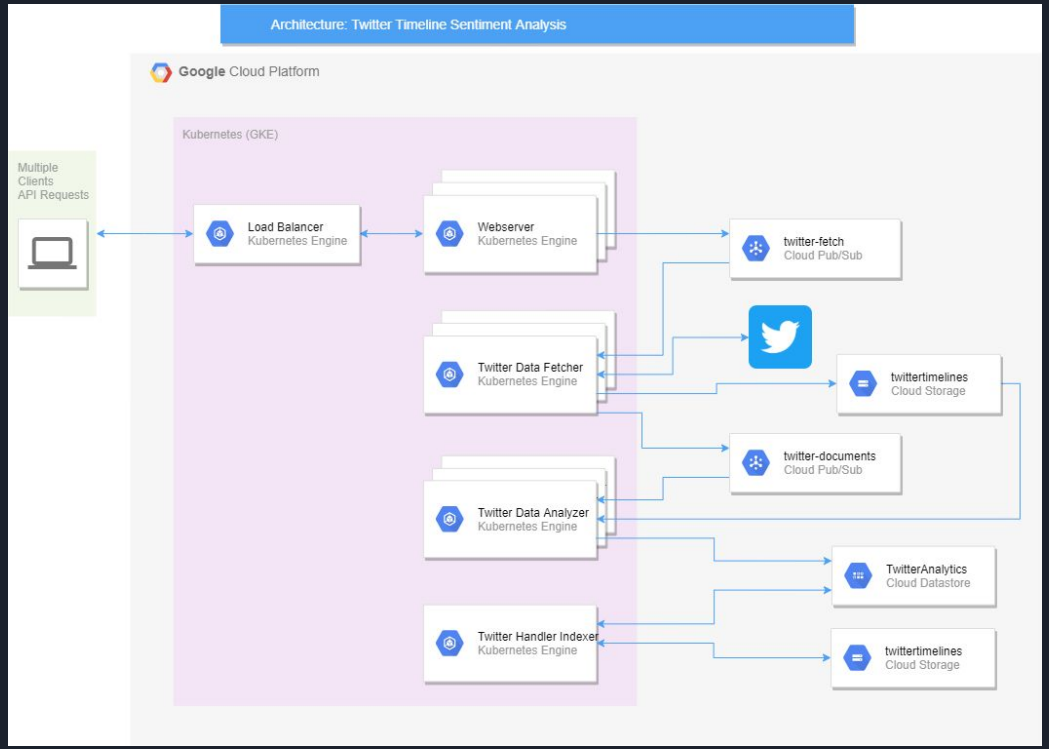
Purpose

We've built a web app that allows users to search for a twitter user and view analysis of their tweets. Our app shows the breakdown of positive and negative tweets, as well as the average sentiment of the tweets. We chose this project for the opportunity to learn new cloud technologies, handle data from an api, and implement cloud based deployment with Docker and Kubernetes.

Technologies

- Go
- Google Cloud Platform
  - Pub/Sub
  - Kubernetes Engine
  - Cluster autoscaler
  - Cloud Storage - Object Storage
  - Datastore - Google's No SQL Database
- Twitter API
- Docker
- Kubernetes
- HTML, CSS, ams
- Bootstraps

Architecture



Demo

Our site here: http://twitter-analytics-cse427.info/static/

Takeaways

- Auto scaling Kubernetes is very useful for minimizing computation time when dealing with multiple requests
- Initial planning of architecture and visualizing data flow helps streamline the development process and keeps the code organized
- It’s important to pay attention to API limits when designing an app as the limits can prevent implementation of some functionality when the app is not generating revenue
- Cloud architecture makes scaling the necessary components of a web app much more feasible by splitting features into multiple Docker images

Next Steps

- Implement more comprehensive text analysis - this was limited by api limits
  - Adding category analysis would be awesome
- Do better sentiment analysis using library that does more than [0, 1] ratings.
- Move static assets to CDN instead of serving them from the cluster
- Auto build Go applications using Github actions instead of running locally
- Only rebuild Docker images that have been changed instead of every push
- Enforce better rate limiting on API requesters
- Send responses to requesters immediately instead of requiring a requery
- Fix issues where special characters in Twitter handle are not accepted
- Batch update users over time so sentiment evolves as users tweet more
- Do actual Horizontal Scaling for the cluster
  - This was tested locally, but fear of not understanding it completely not deployed