Developing on Google Cloud Platform

Prototyping on App Engine: A case study

DBBUG Bristol - 15th November 2018

What is Google Cloud Platform?

- A suite of cloud computing services offered on a IaaS and PaaS basis
- Released in April 2008
- Initially just AppEngine and then expanded to include other services
- Designed to scale and handle large amounts of traffic efficiently
- Services now cover and include computing, storage, big data, machine learning and Artificial Intelligence.

So how can I use Google Cloud Platform to build a prototype?

Let's use a case study!

95% of this prototype was built during a hackathon weekend. It is open source and is available on GitHub. Google Cloud Platform is great for prototyping!

YouJudge

https://youjudge.com
https://github.com/robcharlwood/you-judge

What is YouJudge?

YouJudge is an app designed to carry out sentiment analysis on YouTube content.

- Create projects in areas of interest e.g 'Brexit' or 'Trump wins presidency'.
- Import videos to your projects from YouTube that match your subject matter.
- YouJudge then analyses the content of the video as well as the content of the top 50 most relevant comments and provides statistics and reports based on the processed results.
- See analysis statistics at comment, transcript and project level .
- This enables you to gauge how events are being reported on and perceived.

Enough jabber!
Show me the stack!

- App Engine Standard
  - Deferred Task Queues
- Cloud Datastore
- Cloud Natural Language API
- YouTube V3 Data API

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App Engine Standard - The Good

- Fully managed.
- No worrying about resource management and load balancing.
- No server management.
- Focus on building cool stuff.
- Inbuilt versioning system with A/B Splitting.
- Scales beautifully.
- Pay for what you use.
- Supports a wide range of languages including Python, Ruby and Java.

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App Engine Standard - The Bad

- Support for Python 3.7 is still in Beta.
- Can't run Python libraries built from C unless App Engine supports them directly. Examples of some supported libraries include:
  - matplotlib
  - lxml
  - numpy
- You are also restricted to specific versions that App Engine supports.
- Billing can be confusing and costs can spiral very quickly.

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App Engine Standard - The Quirky

- 30 second request limit.
- 15 second limit for a task in the task queue to start.
- 10 minute limit for cron jobs and map reduce tasks.
- Restricted to Google's ``urlfetch`` module as ``requests`` doesn't work.
- ``urlfetch`` has a 60 second limit and only handles up to a 32MB response.
- Instances take a little while to spin up - ``warmup`` doesn't help much.

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Cloud Datastore - The Good

- Fully managed with no planned downtime.
- It scales like a beast.
- Great for ACID style transactions.
- Automatically encrypts all data before it's written to disk and decrypts. the data when read by an authorized program.
- Supports namespacing out of the box.

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Cloud Datastore - The Bad & Quirky

- Eventual consistency.
- 1MB size limit on data entities.
- Maximum of 200 composite indexes for a project.
- You can only write to an entity once per second.
- Doesn't support Full text or Geo searching.
- Does not include support for join operations, inequality filtering on multiple properties, or filtering on data based on results of a subquery.

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The completed prototype

DASHBOARD

Reaction - Brexit

Rob Charlwood
7 Aug 2018, 10:12 p.m.

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Reaction - Brexit

Add videos from YouTube...   🔍

Remoaners have a thing about Brexit Sandwiches!

BREAKING - Brexit CHAOS: Fury as Theresa May's no-deal planning 'not based on logic'

BREAKING - Brexit boost: Theresa May to sign off LANDMARK funding boost for Scotland in Edinburgh

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YouTube Search Results

Please select the video you would like to add to your project: Reaction - Brexit

☑   Brexit: Calls for new referendum but can it happen?

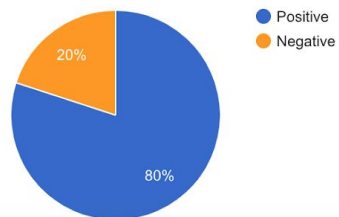☑   Arron Banks: Did the Brexit campaigner use offshore money? - BBC Newsnight

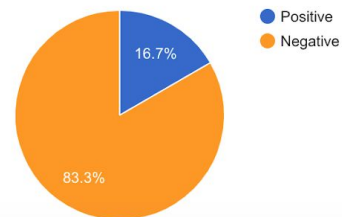☐   Brexit fallout: Jo Johnson and DUP deliver hammer blow to May's Brexit plan

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Statistics

Content sentiment

- Positive
- Negative

20%

80%

Sentiment - Top 50 Most relevant comments

- Positive
- Negative

16.7%

83.3%

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OVERVIEW   TRANSCRIPT ANALYSIS   COMMENT ANALYSIS

Analysed Transcript CC

This video is generally Positive in content

Teresa may Nicola Sturgeon is set to sign off on a 1.2 billion pounds city deal for Scotland on Tuesday image Getty the Prime Minister is visiting the Scottish capital at the start of the city's annual Fringe Festival and will outline her commitment to Scotland's development has concerns surrounding post Breck's at prosperity mount among mrs.

Sentiment: 0.4
Magnitude: 0.4

Mays key initiatives will be a 1.2 billion pounds city deal for edinburgh and southeast scotland which will be officially signed off by the Prime Minister and Scottish First Minister Nicola Sturgeon on Tuesday the initiative will support cutting-edge research at Edinburgh 3 universities improve housing and transport links help build a new concert hall speaking ahead of her visit to Scotland mrs.

May said I am pleased to be an Edinburgh for the city's annual celebration of the arts and culture these city deals build on existing strengths to open up new possibilities for the future in Scotland to resume from the fringe to the international festival festivals dedicated to science books and storytelling the city is truly a cultural inspiration for the rest of the UK and the world she noted that alongside the Scottish Parliament and local partners the UK government will commit 300 million pounds as part of the project commenting on the goals of the investment she added these city deals build on existing strengths to open up new possibilities for the future in Scotland and the whole of the UK as part of our modern industrial strategy they will create jobs and open up new economic opportunities throughout the nation

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OVERVIEW   TRANSCRIPT ANALYSIS   COMMENT ANALYSIS

Comment Analysis 💬

Don McCarron
Last modified: 5 Aug 2018, 12:17 p.m. | Published: 5 Aug 2018, 12:17 p.m.

Yeah. We've heard all the lies from selfish people with vested interests, thank you lads. It's called Project Fear and we're all a bit wise to it now. Rather than trying to adjust the country to suit yourselves why not adjust to the new opportunities available in a newly independent Britain? Too much effort?

🙂

Ray B
Last modified: 4 Aug 2018, 8:37 p.m. | Published: 4 Aug 2018, 8:37 p.m.

Soo...you're afraid of a bit of uncertainty following getting your country's sovereignty back? The guy in the middle said it already: The UK had bilateral agreements with the entire world BEFORE the UE. So it stands to reason that they cou... do it again. Simple as.

😀

Sentiment: 0.1
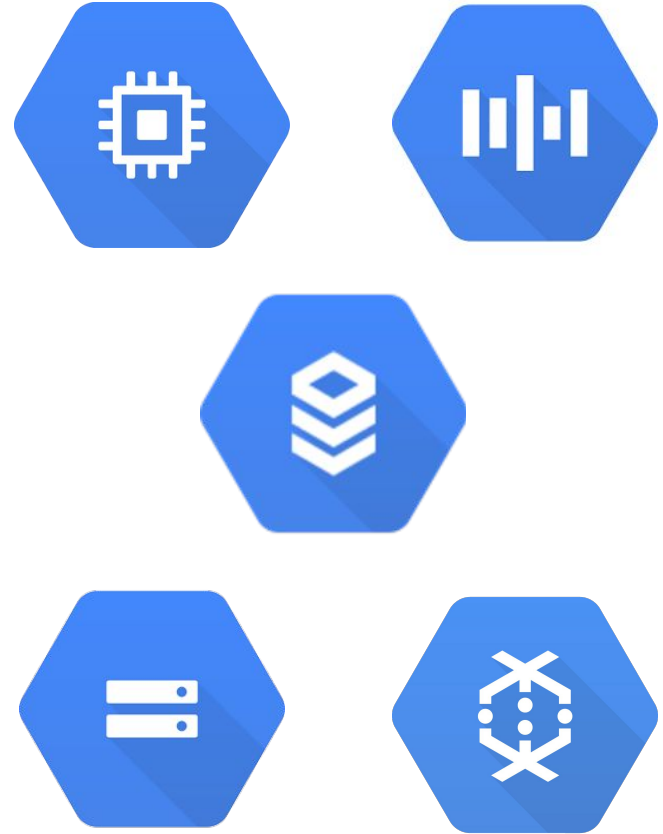Magnitude: 1.1

Sentient Meatbag

How could this prototype be improved?

- Allow analysis to be carried out on videos without a transcript available.
- Allow all comments to be analysed, not just the most relevant top 50.
- Improve data processing speed and efficiency.
- Move important analysis data to Postgres to allow for better querying.

Possible solution

- Compute Engine
- Cloud Storage
- Cloud Speech to Text API
- Cloud PubSub

- Cloud SQL (Postgres)
- Cloud Dataflow

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Thanks for listening!

Please feel free to ask me questions over a beer!