



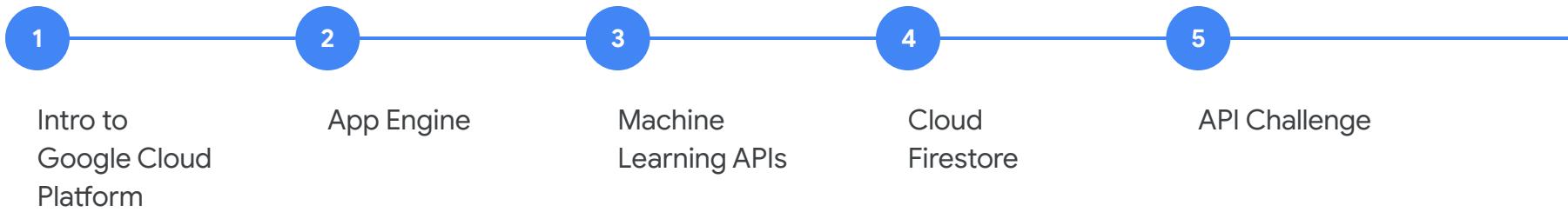
# Three Powerful Google Cloud Products for Your Project

Alison Gale, Software Engineer

YHack 2019

Google Cloud

# Agenda



## Dictionary

cloud



# cloud

/klaʊd/

*noun*

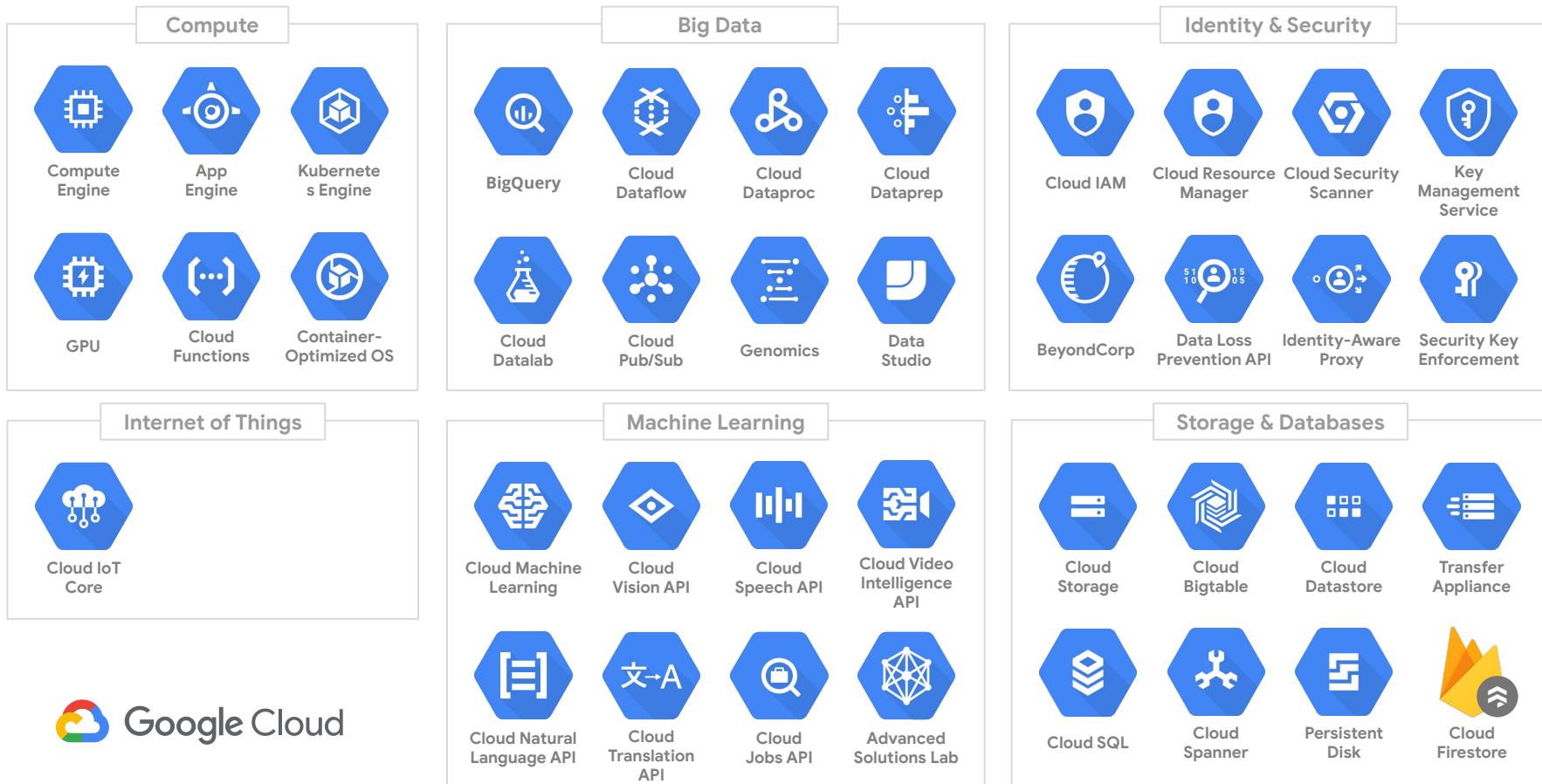
1. **Getting things done using someone else's computers**, especially where someone else worries about maintenance, provisioning, system administration, security, networking, failure recovery, etc.

# What is Google Cloud Platform?

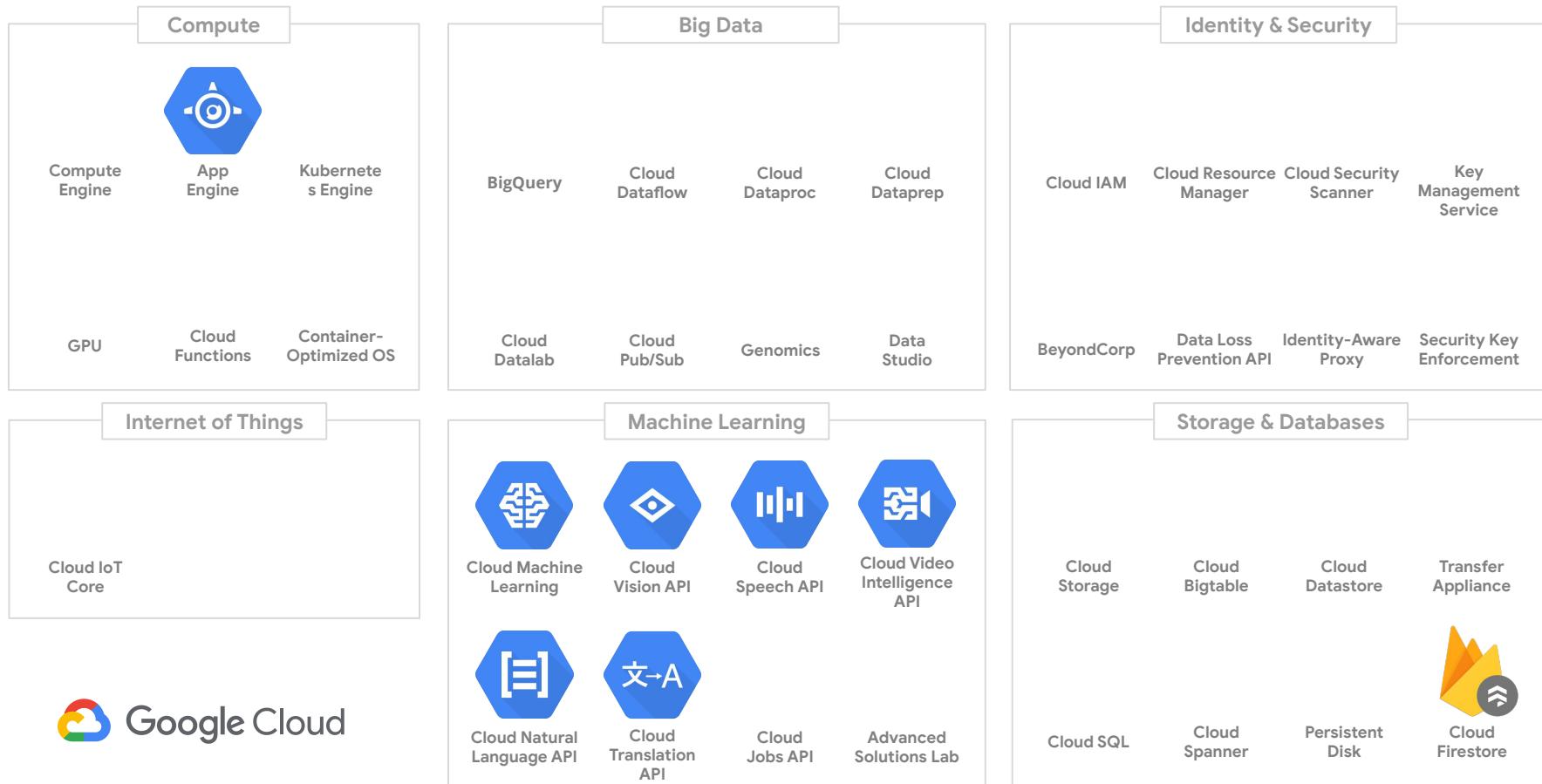
Google Cloud Platform lets you build and host applications and websites, store data, and analyze data, all on Google's highly scalable and reliable computing infrastructure.



# Google Cloud Platform Products



# Google Cloud Platform Products (tl;dr)



# App Engine

- **Deploy web apps** and mobile backends to the Cloud
- “Platform as a service” product
- Managed application platform that lets you focus on your code
- Autoscaling, load balancing, traffic splitting for A/B testing, error reporting, and more!



# App Engine Demo

[Python Flask App Tutorial](#)



# Machine Learning on Google Cloud





Puppy  
or  
Muffin?



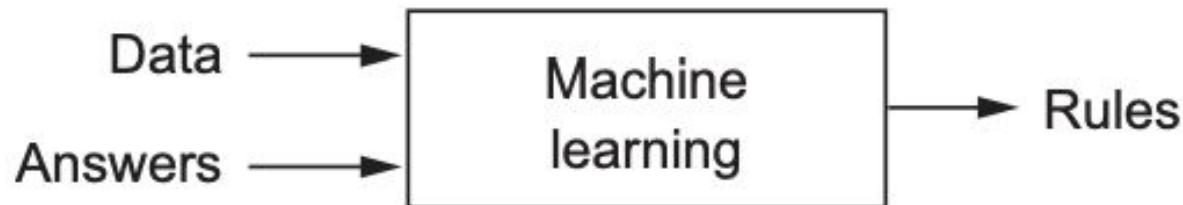
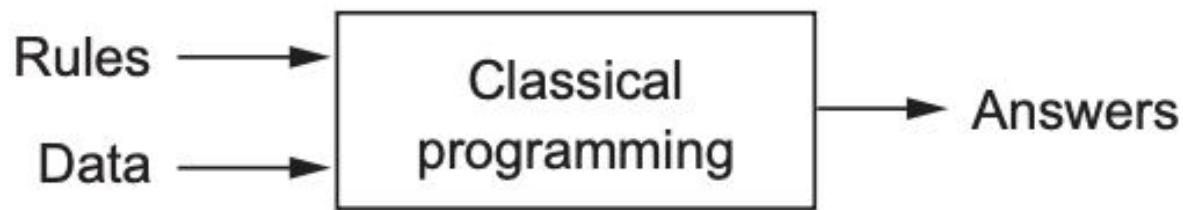


**“The brown quick fox jumps over the lazy dog.”**

# **Syntax rules for adjective order in English:**

- Quantity or number
- Quality or opinion
- Size
- Age
- Shape
- Colour
- Proper adjective (often nationality, place of origin, or material)
- Purpose or qualifier

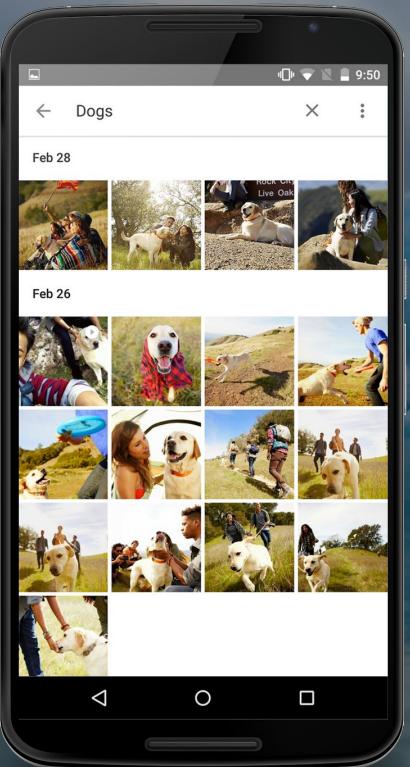
**Machine learning is learning  
from rules plus experience.**



# What is Machine Learning?

- “Machine Learning is the study of computer algorithms that improve automatically through experience.” ~IEEE
- “Machine Learning is using data to answer questions.” ~Yufeng Guo, Developer Advocate at Google
- Data -> Model -> Prediction

# Google Photos





“Ok Google”

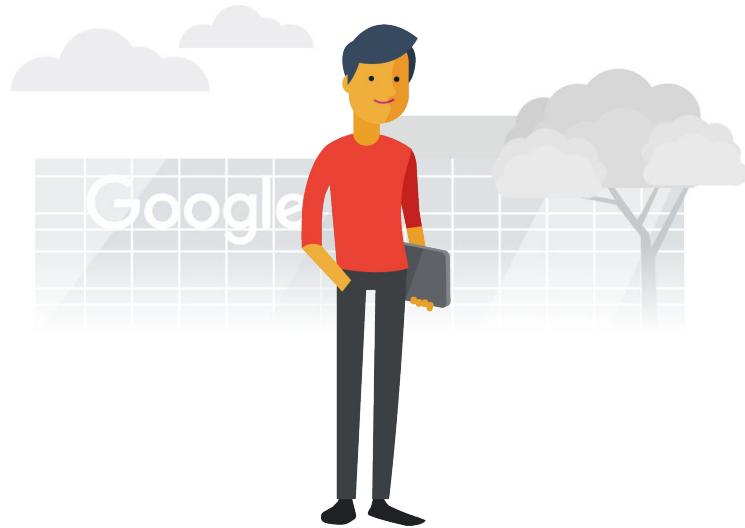


# Google Translate



# Google Cloud Machine Learning APIs

- **Gain insights from data** using Google Cloud's pre-trained machine learning models
- Leverage same technology as Google Photos and Google Assistant
- Require ZERO prior knowledge of ML



# Google Cloud Machine Learning APIs



[Vision](#)



[Video  
Intelligence](#)



[Speech](#)



[Natural  
Language](#)



[Translation](#)

# Firebase



# What is Firebase?



Cloud Firestore

iOS



Hosting



Authentication

iOS C++



ML Kit

iOS



Cloud Storage

iOS C++



Cloud Functions

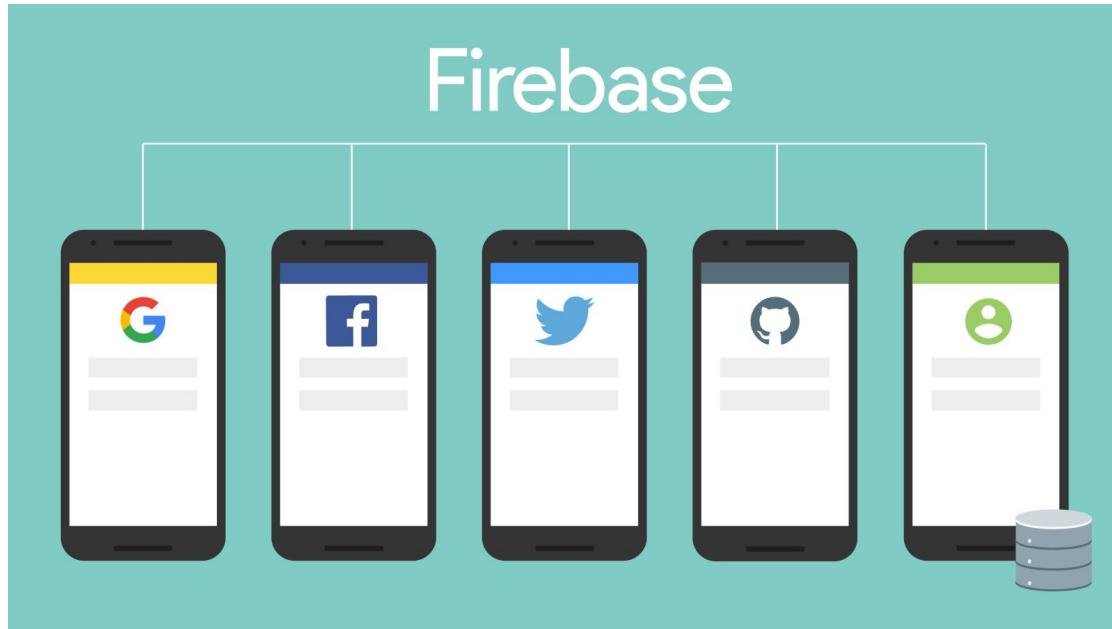
iOS C++



Realtime Database

iOS C++

# Firebase Authentication

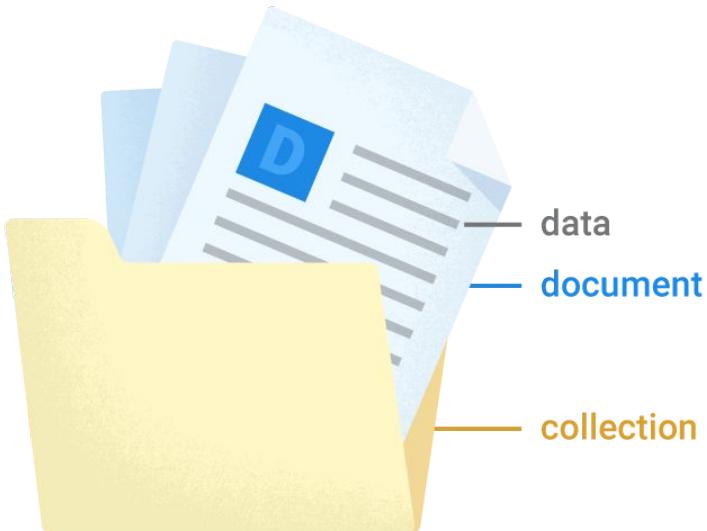


# Cloud Firestore

- Powerful NoSQL realtime database
- Ordinary database - query database for new updates
- Realtime database - automatically receive updates when the database is updated
  - Set up a listener object on the client



# Cloud Firestore - Data Model



 users
 alovelace
first : "Ada"
last : "Lovelace"
born : 1815
 sride
first : "Sally"
last : "Ride"
born : 1951

# Cloud Firebase Demo

[ratesomecats.com](http://ratesomecats.com)



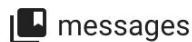
# Cloud Firestore - Subcollections



rooms



roomA  
name : "my chat room"



messages  
message1

from : "alex"  
msg : "Hello World!"

message2

...



roomB

...



Google Cloud

# Cloud Firestore - Easy Querying



```
citiesRef  
.where("state", "==", "California")  
.where("population", ">", 500000)
```

# Cloud Firestore - Key Advantages

- Highly scalable database
- Multi-regional data replication
- Strong consistency
- Robust client libraries (iOS, Android, front-end Javascript, Node.js, Python, Ruby, Java, PHP, Go, and .NET)



# API Challenge

**Best Use of Google Cloud** - use any Google Cloud product (Firebase counts!) to qualify.

**Every member of the winning team receives:**

- Google Home Mini
- Patagonia Backpack
- Cloud Pillow
- Acrylic Trophy
- Water Bottle



# Google Cloud Credit Coupons

Check for an email from Major League Hacking (MLH) to activate \$100 in Google Cloud free credits!



<< Test First Name >>,

We're excited that you've registered or applied for << Test Most Recent Event >> this weekend, and can't wait to see what you build.

To get started, Google Cloud and MLH are sharing \$100 of free Google Cloud credits. This gives you access to use the same tools and infrastructure that power Google products for your own project.

Claim your credits:

1. Login to your preferred [Google Account](#) to use during << Test Most Recent Event >>.
2. Make sure you can access [console.cloud.google.com](https://console.cloud.google.com) while signed in.

Some account domains don't have GCP enabled. If you receive an error message when signing into [console.cloud.google.com](https://console.cloud.google.com), use a different account.

[CLAIM CREDITS](#)



# Resources

- **Cloud Vision API -** <https://cloud.google.com/vision/docs/>
- **ML API Code Samples -**  
<https://github.com/ryanmats/gcp-hackathon-demos>
- **Google Cloud AI Products -**  
<https://cloud.google.com/products/ai/>
- **App Engine -** <https://cloud.google.com/appengine/>

# Questions or Need Help?

