



Social Media Apps Programming

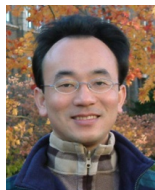
Google Cloud Platform

1031SMAP10

TLMXM1A (8687) (M2143) (Fall 2014)

(MIS MBA) (2 Credits, Elective) [Full English Course]

Thu 8,9 (15:10-17:00) V201



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Tamkang University

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Course Schedule (1/3)

Week Date Subject/Topics

- 1 2014/09/17 Course Orientation and Introduction to Social Media and Mobile Apps Programming
- 2 2014/09/24 Introduction to Android / iOS Apps Programming
- 3 2014/10/01 Developing Android Native Apps with Java (Eclipse) (MIT App Inventor)
- 4 2014/10/08 Developing iPhone / iPad Native Apps with Swift / Objective-C (XCode)
- 5 2014/10/15 Mobile Apps Using HTML5/CSS3/JavaScript
- 6 2014/10/22 jQuery Mobile

Course Schedule (2/3)

Week	Date	Subject/Topics
• 7	2014/10/29	Create Hybrid Apps with Phonegap
• 8	2014/11/05	jQuery Mobile/Phonegap
• 9	2014/11/12	jQuery Mobile/Phonegap
• 10	2014/11/19	Midterm Exam Week (Midterm Project Report)
• 11	2014/11/26	Case Study on Social Media Apps Programming and Marketing in Google Play and App Store
• 12	2014/12/03	Google Cloud Platform

Course Schedule (3/3)

Week	Date	Subject/Topics
• 13	2014/12/10	Invited Talk: Social, Data and Business Model - Let's see PIXNET [Invited Speaker: Dr. Rick Cheng-Yu Lu, Technical Director, PIXNET]
• 14	2014/12/17	Google App Engine and Google Map API
• 15	2014/12/24	Facebook API (Facebook JavaScript SDK) (Integrate Facebook with iOS/Android Apps)
• 16	2014/01/31	Twitter API
• 17	2015/01/07	Final Project Presentation
• 18	2015/01/14	Final Exam Week (Final Project Report)

Outline

- **Google Cloud Platform**

- Google App Engine



- Google Cloud Datastore



- Google Cloud Endpoints



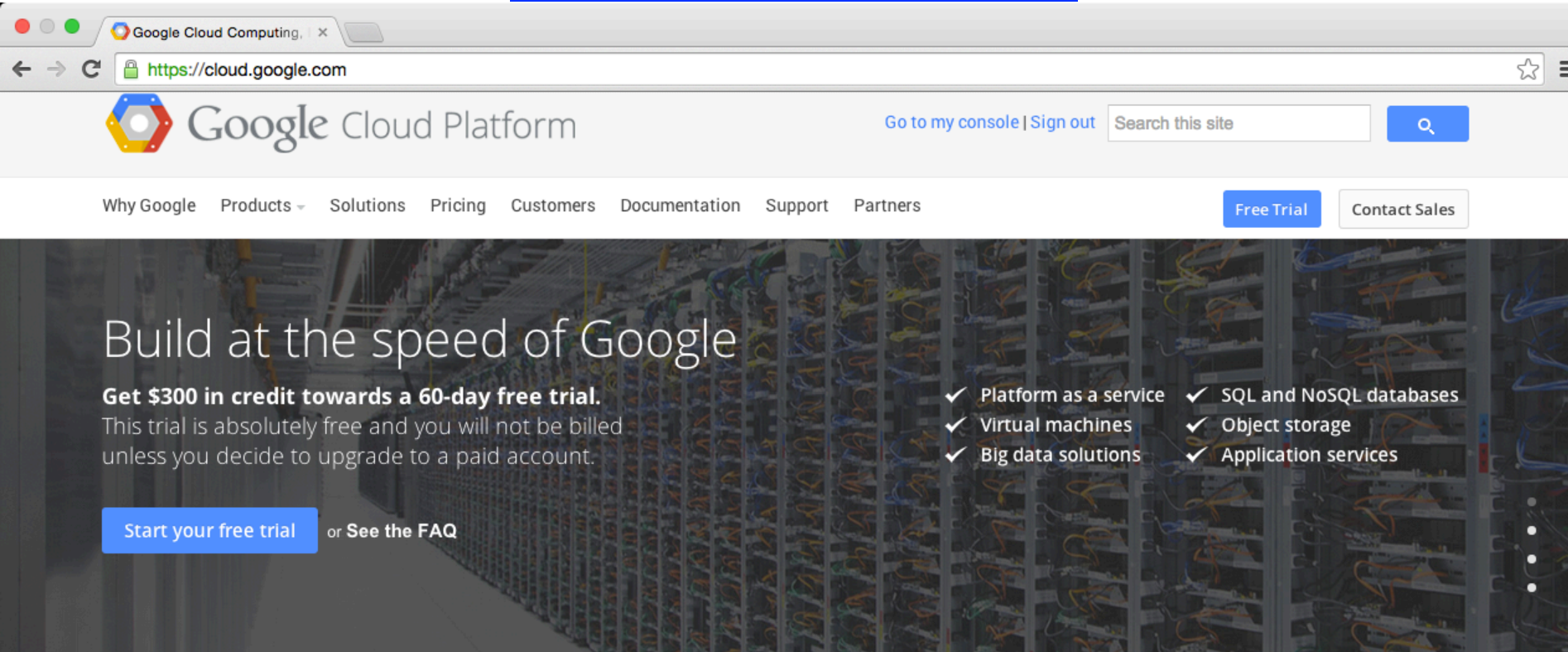
- **Mobile App with Google Cloud Platform**



Google Cloud Platform


Google Cloud Platform

<https://cloud.google.com/>

A screenshot of the Google Cloud Platform homepage as it appeared in the mid-2010s. The browser window shows the URL 'https://cloud.google.com'. The page features the Google Cloud Platform logo, navigation links for 'Why Google', 'Products', 'Solutions', 'Pricing', 'Customers', 'Documentation', 'Support', and 'Partners'. There are buttons for 'Free Trial' and 'Contact Sales'. The main banner area has a background image of server racks and contains the text 'Build at the speed of Google', a promotion for '\$300 in credit towards a 60-day free trial', and a list of services including Platform as a service, Virtual machines, Big data solutions, SQL and NoSQL databases, Object storage, and Application services.

Google Cloud Computing, | x

← → ↻ <https://cloud.google.com> ☆ ☰

 Google Cloud Platform

[Go to my console](#) | [Sign out](#)

[Why Google](#) [Products](#) [Solutions](#) [Pricing](#) [Customers](#) [Documentation](#) [Support](#) [Partners](#) [Free Trial](#) [Contact Sales](#)

Build at the speed of Google

Get \$300 in credit towards a 60-day free trial.
This trial is absolutely free and you will not be billed unless you decide to upgrade to a paid account.

[Start your free trial](#) or [See the FAQ](#)

- ✓ Platform as a service
- ✓ Virtual machines
- ✓ Big data solutions
- ✓ SQL and NoSQL databases
- ✓ Object storage
- ✓ Application services

Watch the keynote address from Google Cloud Platform Live

Learn about our new products, including Google Container Engine and Google Cloud Interconnect, as well as Firebase, a powerful API to store and sync data in realtime.

[Watch the event](#)



Google Cloud Platform Live

Google Cloud Platform

- Google Cloud Platform is a set of modular **cloud-based services** that allow you to create anything from simple websites to complex applications.



Google Cloud Platform



Google Cloud Platform

**Hosting +
Compute**

Storage

Big Data

Services



Google Cloud Platform

Compute



App Engine



Compute Engine



Container Engine

Storage



Cloud Datastore



Cloud SQL



Cloud Storage

Big Data



Big Query

Services



Cloud Endpoints



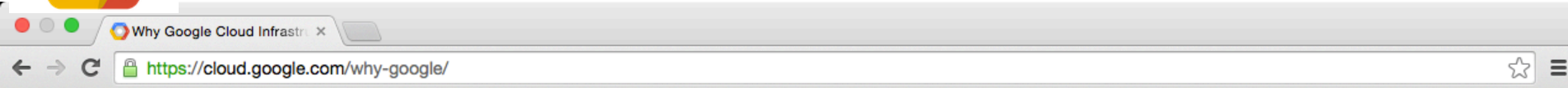
Translate API



Prediction API



Why Google Cloud Platform



Google Cloud Platform

[Go to my console](#) | [Sign out](#)

Search this site



[Why Google](#) [Products](#) [Solutions](#) [Pricing](#) [Customers](#) [Documentation](#) [Support](#) [Partners](#)

[Free Trial](#)

[Contact Sales](#)

Why Google Cloud Platform

Google Cloud Platform enables developers to build, test and deploy applications on Google's highly-scalable and reliable infrastructure. Choose from computing, storage and application services for your web, mobile and backend solutions.

Run on Google's infrastructure

Build on the same [infrastructure](#) that allows Google to return billions of search results in milliseconds, serve 6 billion hours of YouTube video per month and provide storage for 425 million Gmail users.



Global network

Google has one of the largest and most advanced computer networks. Google's backbone network has thousands of miles of fiber optic cable, uses advanced software-defined networking and has edge caching services to deliver fast, consistent and scalable performance. In fact, we even laid our own fiber optic cable under the Pacific Ocean.



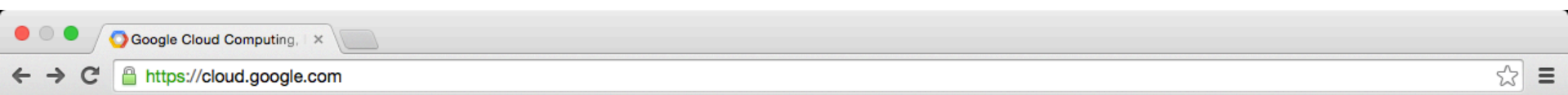
Redundancy



"[Google's] ability to build, organize, and operate a huge network of servers and fiber-optic cables with an efficiency and speed that rocks physics on its heels...This is what makes Google



Why Google Cloud Platform



Why Google



Run on Google's infrastructure

Build on the same [infrastructure](#) that allows Google to return billions of search results in milliseconds, serve 6 billion hours of YouTube video per month and provide storage for 425 million Gmail users.

[Find out more](#)



Mix and match services

Virtual machines. Managed platform. Blob storage. Block storage. NoSQL datastore. MySQL database. Big Data analytics. Google Cloud Platform has all the services your application architecture needs.

[Find out more](#)



Performance you can count on

Every millisecond of latency matters. Google's compute infrastructure gives you consistent CPU, memory and disk performance. Our network and edge cache serve responses rapidly to your users across the world.

[Find out more](#)



Focus on your product

Rapidly develop, deploy and iterate your applications without worrying about system administration. Google manages your application, database and storage servers so you don't have to.

[Find out more](#)



Scale to millions of users

Applications hosted on Cloud Platform can automatically scale up to handle the most demanding Internet-scale workloads and scale down when traffic subsides. You pay only for what you use.

[Find out more](#)



Get the support you need

With our worldwide community of users, partner ecosystem and premium support packages, Google provides a full range of resources to help you get started and grow.

[Find out more](#)

Customers of Google Cloud Platform



Snapchat

"App Engine enabled us to focus on developing the application. We wouldn't have gotten here without the ease of development that App Engine gave us."

Bobby Murphy CTO and co-Founder

[Read Snapchat's story](#)



Webfilings

"Google App Engine has the breadth and the depth to grow with you. Every 6 months, it gets better. The Google App Engine team knows what you need to make a competitive application."

Brett Harper Director of Product Development

[Read Webfilings' story](#)



Khan Academy

"If we didn't have Google App Engine, we'd be spending a lot more time figuring out server setup and working on routers. Our ability to focus on the actual product is the benefit of Google App Engine."

Ben Kamens Lead Developer

[Read Khan Academy's story](#)



Rovio

"Google App Engine allows us to launch games very quickly with teams of one or two developers per game. Because Google manages all the servers, there is little required of us in terms of maintenance."

Stefan Hauk lead server developer for web games

[Read Rovio's story](#)



MAG Interactive

"Our rapid growth to 5M Ruzzle players in less than six months required a highly scalable server solution. Google App Engine transformed this huge challenge into a picnic."

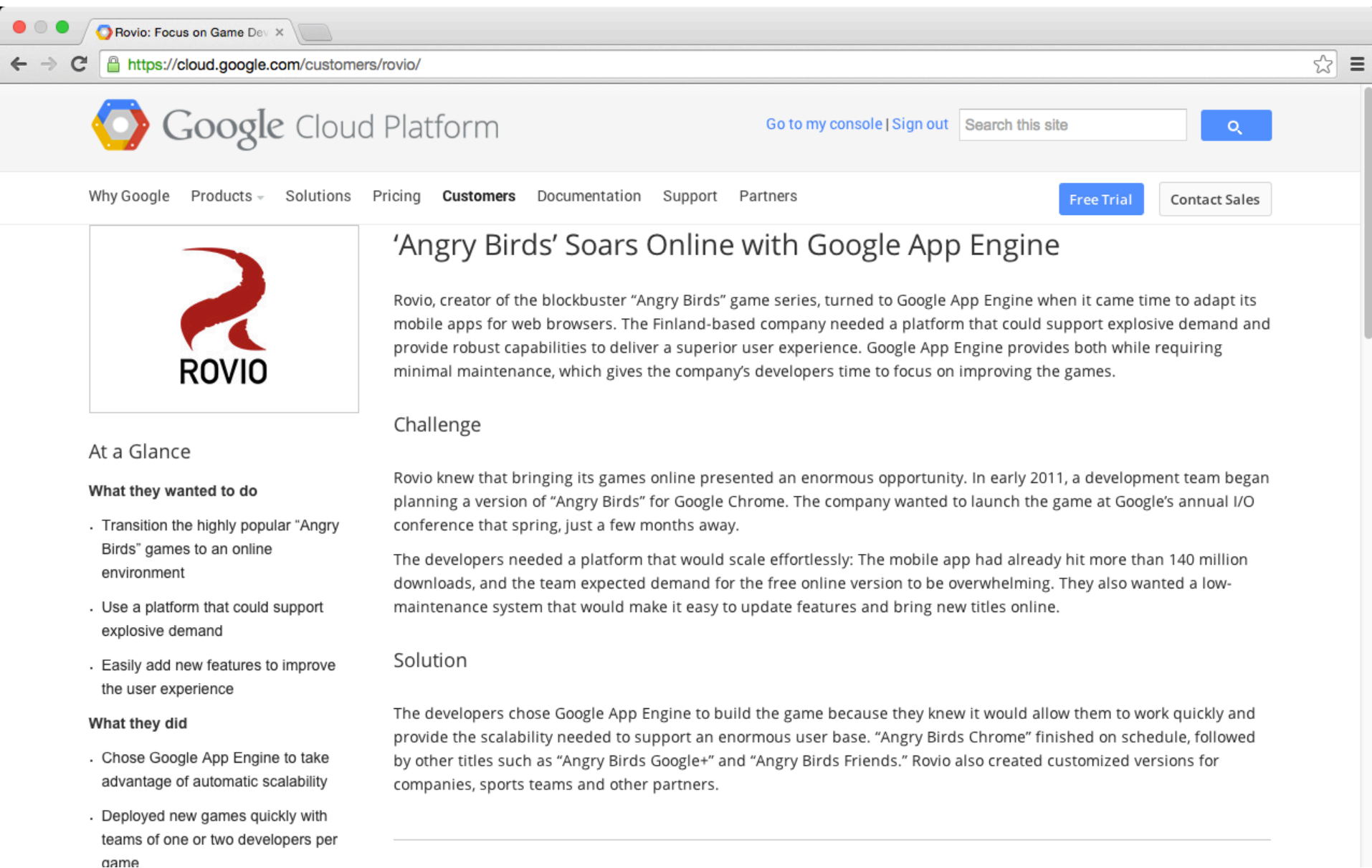


Interactions Marketing

"We are always looking for ways to maximize return and minimize investment. BigQuery is the perfect combination. It's an on-demand, scalable resource."

Source: <https://cloud.google.com/customers/>

Angry Birds



The screenshot shows a web browser window with the URL <https://cloud.google.com/customers/rovio/>. The page header includes the Google Cloud Platform logo, navigation links like 'Go to my console | Sign out', and a search bar. The main navigation bar lists 'Why Google', 'Products', 'Solutions', 'Pricing', 'Customers' (highlighted), 'Documentation', 'Support', and 'Partners'. There are buttons for 'Free Trial' and 'Contact Sales'.

The main content area features the Rovio logo on the left and the article title '‘Angry Birds’ Soars Online with Google App Engine' on the right. The article text describes how Rovio used Google App Engine to adapt its mobile games for web browsers. Below the article text are sections for 'Challenge' and 'Solution'. On the left side of the article, there are two sections: 'At a Glance' and 'What they wanted to do', both followed by bulleted lists of key points.

At a Glance

What they wanted to do

- Transition the highly popular “Angry Birds” games to an online environment
- Use a platform that could support explosive demand
- Easily add new features to improve the user experience

What they did

- Chose Google App Engine to take advantage of automatic scalability
- Deployed new games quickly with teams of one or two developers per game

‘Angry Birds’ Soars Online with Google App Engine

Rovio, creator of the blockbuster “Angry Birds” game series, turned to Google App Engine when it came time to adapt its mobile apps for web browsers. The Finland-based company needed a platform that could support explosive demand and provide robust capabilities to deliver a superior user experience. Google App Engine provides both while requiring minimal maintenance, which gives the company’s developers time to focus on improving the games.

Challenge

Rovio knew that bringing its games online presented an enormous opportunity. In early 2011, a development team began planning a version of “Angry Birds” for Google Chrome. The company wanted to launch the game at Google’s annual I/O conference that spring, just a few months away.

The developers needed a platform that would scale effortlessly: The mobile app had already hit more than 140 million downloads, and the team expected demand for the free online version to be overwhelming. They also wanted a low-maintenance system that would make it easy to update features and bring new titles online.

Solution

The developers chose Google App Engine to build the game because they knew it would allow them to work quickly and provide the scalability needed to support an enormous user base. “Angry Birds Chrome” finished on schedule, followed by other titles such as “Angry Birds Google+” and “Angry Birds Friends.” Rovio also created customized versions for companies, sports teams and other partners.

Source: <https://cloud.google.com/customers/>

Compute



Compute Engine

Compute Engine is Google's Infrastructure-as-a-Service (IaaS). Run large-scale workloads on virtual machines hosted on Google's infrastructure. Choose a VM that fits your needs and gain the performance and consistency of Google's worldwide fiber network. With per-minute billing, you pay only for what you use.



App Engine

App Engine is Google's Platform-as-a-Service (PaaS). Develop your application easily using built-in services that make you more productive. Deploy to a fully-managed platform and let Google carry the pager. Just download the SDK and start building immediately for free with no credit card required.



Container Engine

Container Engine makes it easy to run Docker containers on Google Cloud Platform. Powered by Kubernetes, Container Engine takes care of provisioning and maintaining the underlying virtual machine cluster, scaling your application, and operational logistics like logging, monitoring, and health management.

Storage



Cloud Datastore

Cloud Datastore provides a managed, NoSQL, schemaless database for storing non-relational data. Cloud Datastore automatically scales as you need it and supports transactions as well as robust, SQL-like queries.



Cloud SQL

Store and manage data using a fully-managed, relational MySQL database. Google handles replication, patch management and database management to ensure availability and performance.



Cloud Storage

Use a durable and highly available object storage service. With global edge-caching, your users have fast access to your app's data from any location. Google manages versioning, guarantees a strong SLA and provides a simple API that allows you to manage your data programmatically.



BigQuery

- Analyze Big Data in the cloud with BigQuery.
- Run fast, SQL-like queries against multi-terabyte datasets in seconds.
- Scalable and easy to use, BigQuery gives you real-time insights about your data

Services



Cloud Pub/Sub

Connect your services with reliable, many-to-many, asynchronous messaging hosted on Google's infrastructure. Cloud Pub/Sub automatically scales as you need it and provides a foundation for building your own robust, global services.



Cloud DNS

Reliable, resilient, low-latency DNS serving from Google's worldwide network of Anycast DNS servers. Create DNS records with an easy to use command line interface, or program against a full featured RESTful API to customize the service to your specific needs.



Cloud Endpoints

Create RESTful services from your code and make them accessible to iOS, Android and Javascript clients. Automatically generate client libraries to make wiring up the frontend easy. Built-in critical infrastructure includes denial-of-service protection, OAuth 2.0 support and client key management.



Translate API

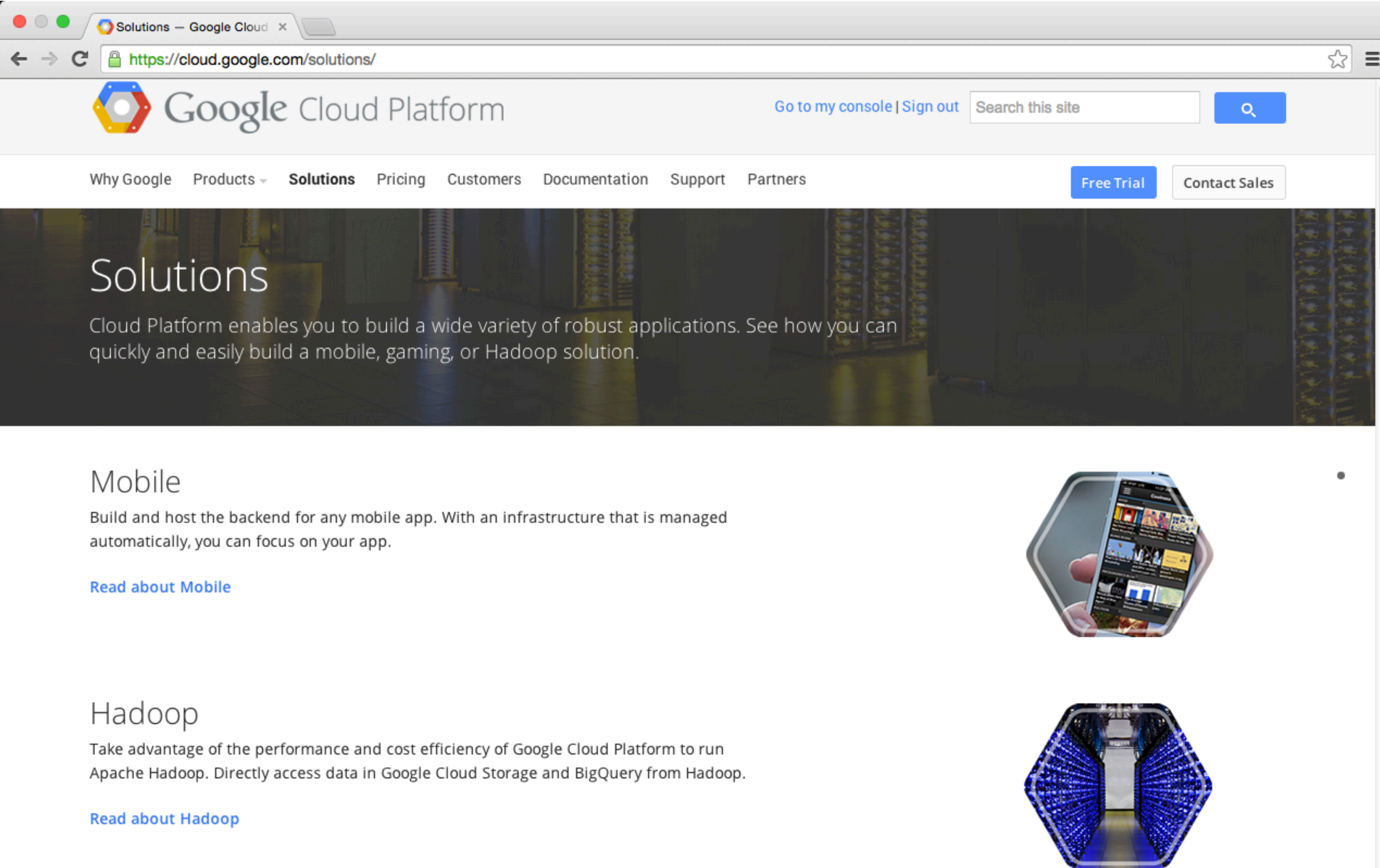
Create multilingual apps and translate text into other languages programmatically. Thousands of language pairs are available.



Prediction API

- Use Google's machine learning algorithms to analyze data and predict future outcomes using a familiar RESTful interface.

Google Cloud Platform Solutions



The image is a screenshot of a web browser displaying the Google Cloud Platform Solutions page. The browser's address bar shows the URL <https://cloud.google.com/solutions/>. The page header features the Google Cloud Platform logo, navigation links for 'Go to my console', 'Sign out', and a search bar. A secondary navigation bar includes links for 'Why Google', 'Products', 'Solutions' (which is highlighted), 'Pricing', 'Customers', 'Documentation', 'Support', and 'Partners'. There are also buttons for 'Free Trial' and 'Contact Sales'. The main content area has a dark background with server racks and the heading 'Solutions'. Below this, there are two sections: 'Mobile' and 'Hadoop'. Each section has a brief description and a 'Read about' link. To the right of the 'Mobile' section is an image of a hand holding a smartphone displaying a news app. To the right of the 'Hadoop' section is an image of a server room with blue lighting.

Solutions

Cloud Platform enables you to build a wide variety of robust applications. See how you can quickly and easily build a mobile, gaming, or Hadoop solution.

Mobile

Build and host the backend for any mobile app. With an infrastructure that is managed automatically, you can focus on your app.

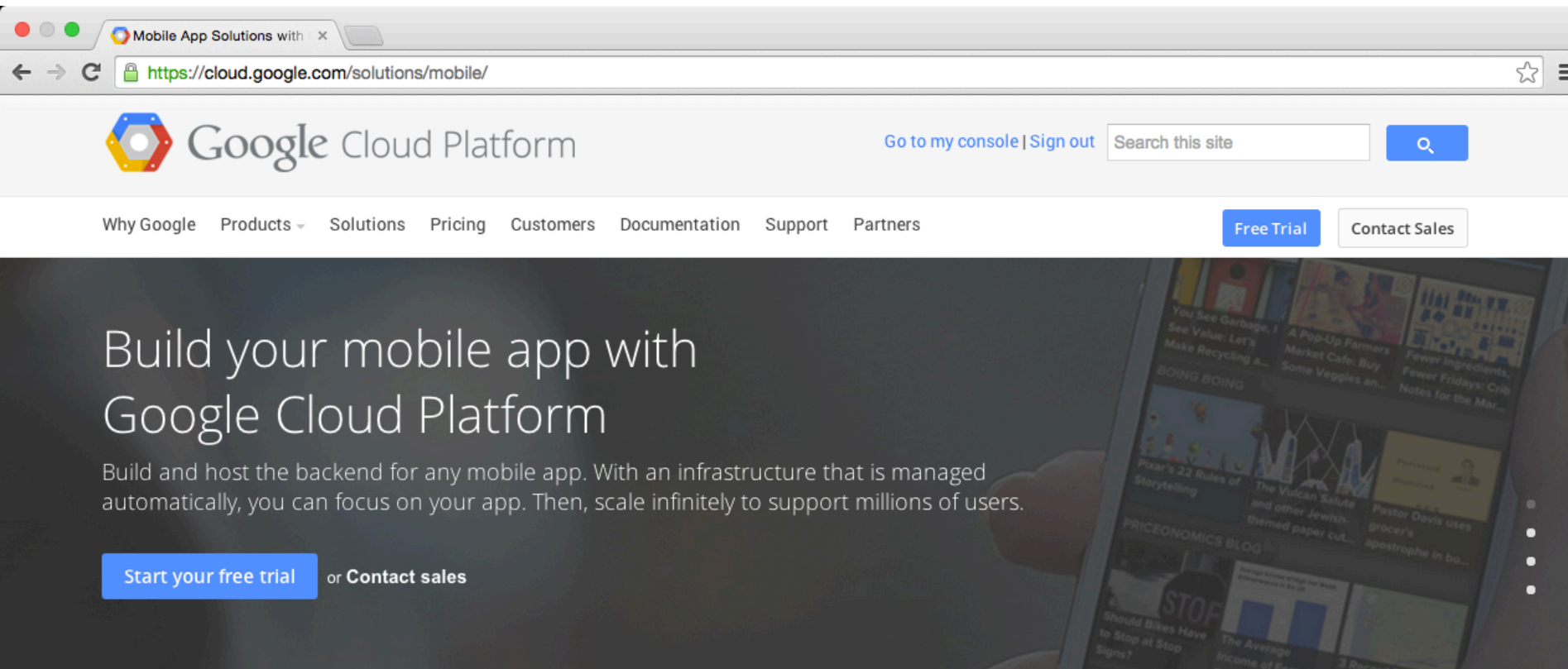
[Read about Mobile](#)

Hadoop

Take advantage of the performance and cost efficiency of Google Cloud Platform to run Apache Hadoop. Directly access data in Google Cloud Storage and BigQuery from Hadoop.

[Read about Hadoop](#)

Mobile App with Google Cloud Platform

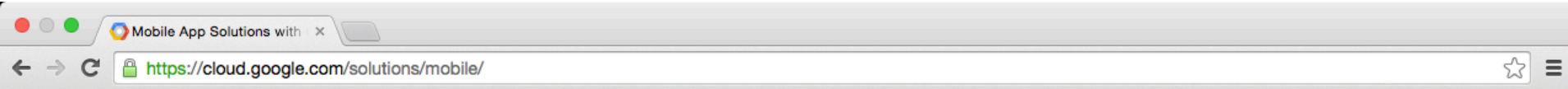


Deploy an app in 300 seconds

See how easy it is to develop a mobile backend using custom code with Google Cloud Endpoints. Automatically generated strongly-typed client libraries for iOS, Android, and Javascript make calling backend APIs simple.

Benefits of building mobile apps on Google Cloud Platform:

Mobile App with Google Cloud Platform



Deploy an app in 300 seconds

See how easy it is to develop a mobile backend using custom code with Google Cloud Endpoints. Automatically generated strongly-typed client libraries for iOS, Android, and Javascript make calling backend APIs simple.

Benefits of building mobile apps on Google Cloud Platform:



Automatic scaling and load balancing

All you have to do is write your application code and we'll handle the rest. No matter how many users you have, App Engine will scale to your needs.



Push notifications

Use Google Cloud Messaging to send data to your Android users and the Sockets API to send push notifications to your iOS users.



Geo-proximity search

Leverage App Engine's Search API for geo-proximity search.



Data processing

Application logs can provide insight into app usage and backend behavior. BigQuery enables you to gather real time ad-hoc analysis of your log files, analyzing terabytes of data in seconds.



Static content serving


App Engine serves static files from dedicated servers and caches that are separate from the application servers.



Data storage

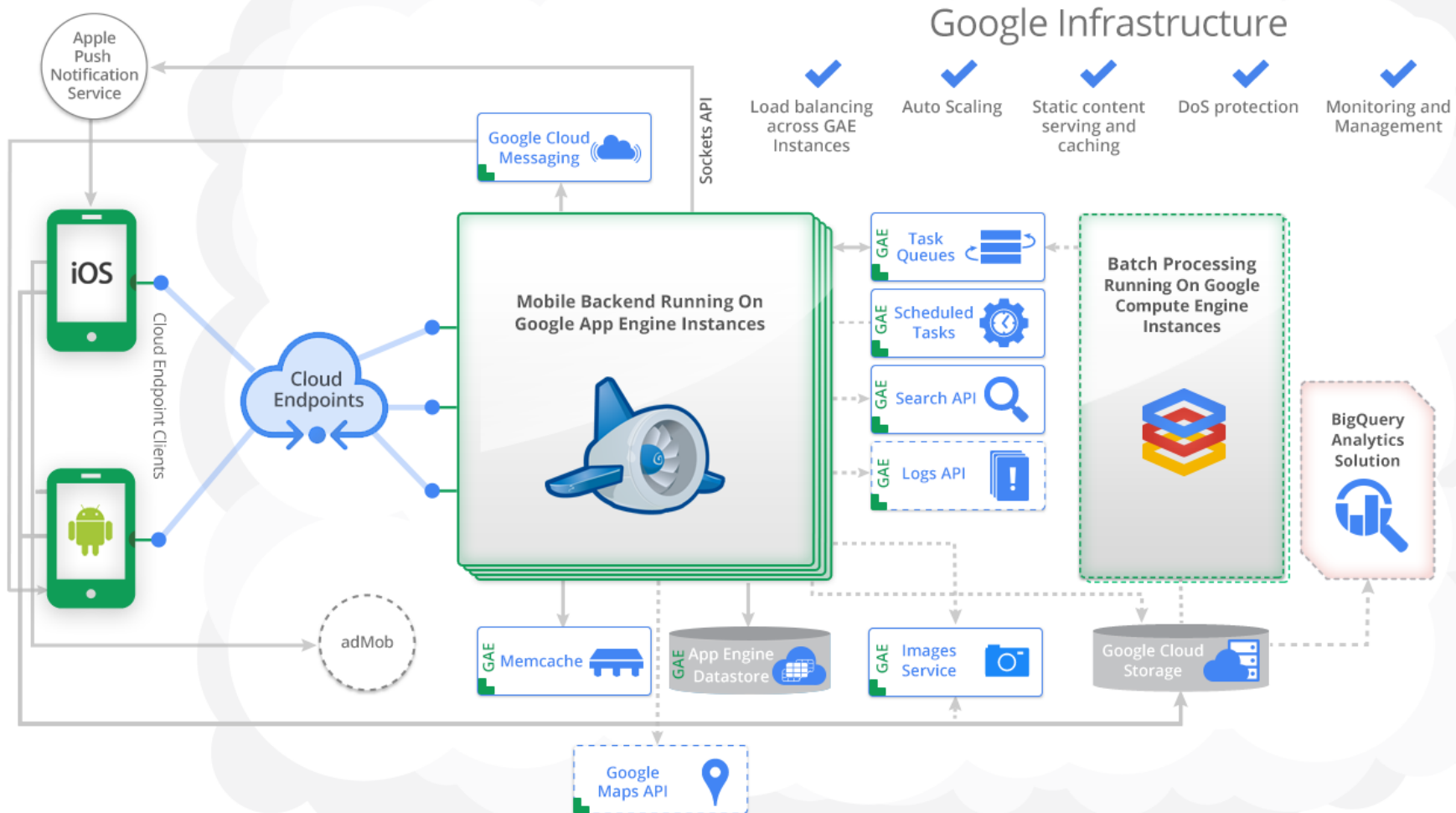
Google Cloud Storage lets you store objects and files up to terabytes in size using a simple REST based interface.

Mobile Solutions on the Google Cloud Platform

 Your Application Code running on Google App Engine (GAE), Google Compute Engine (GCE), and Client Devices

 Google Cloud Platform Services  Optional components

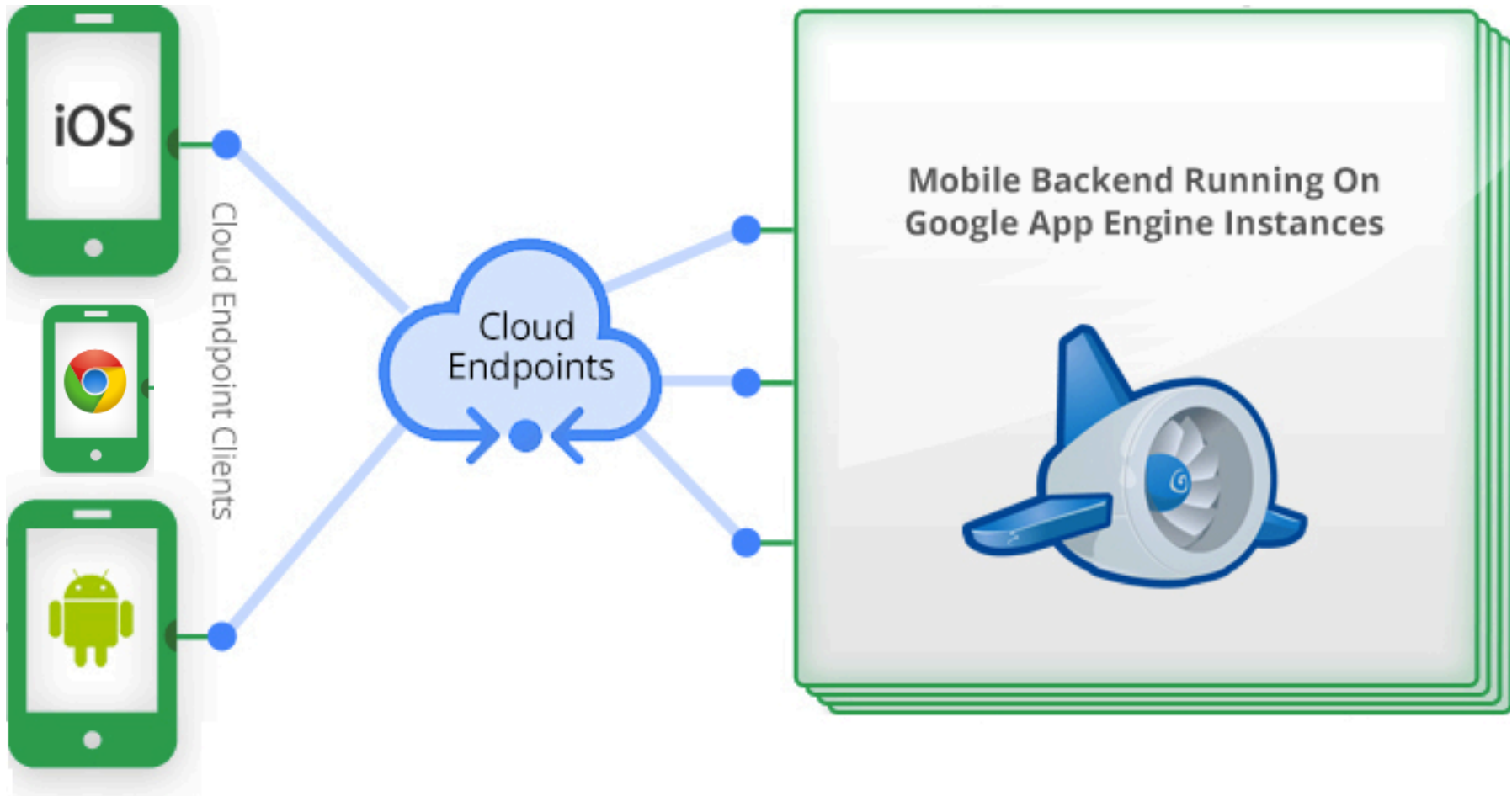
 Capabilities Included



Mobile Solution on Google Cloud Platform

- Support for Android and iOS devices through native applications
- Storage, retrieval, and processing data outside of mobile devices
- Orchestrating push notification to Android and IOS devices
- Geo-location awareness and geo-proximity search
- User authentication
- High scalability

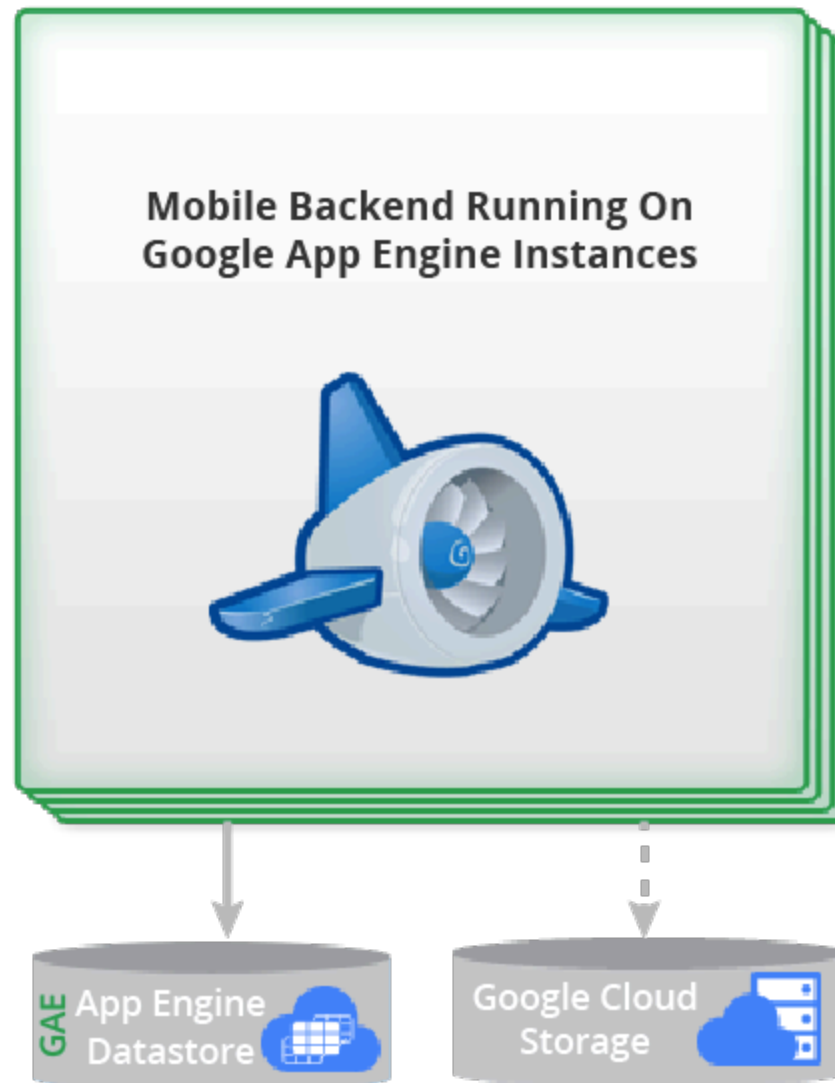
Mobile App Solutions Architecture



Mobile App Solutions Architecture

- Android and/or iOS mobile clients.
- Google Cloud Endpoints used for communications between the clients and the backend over REST API with optional OAuth2 authentication.
- Your mobile backend application code running on Google App Engine and responsible for serving requests from the clients.

Storing data

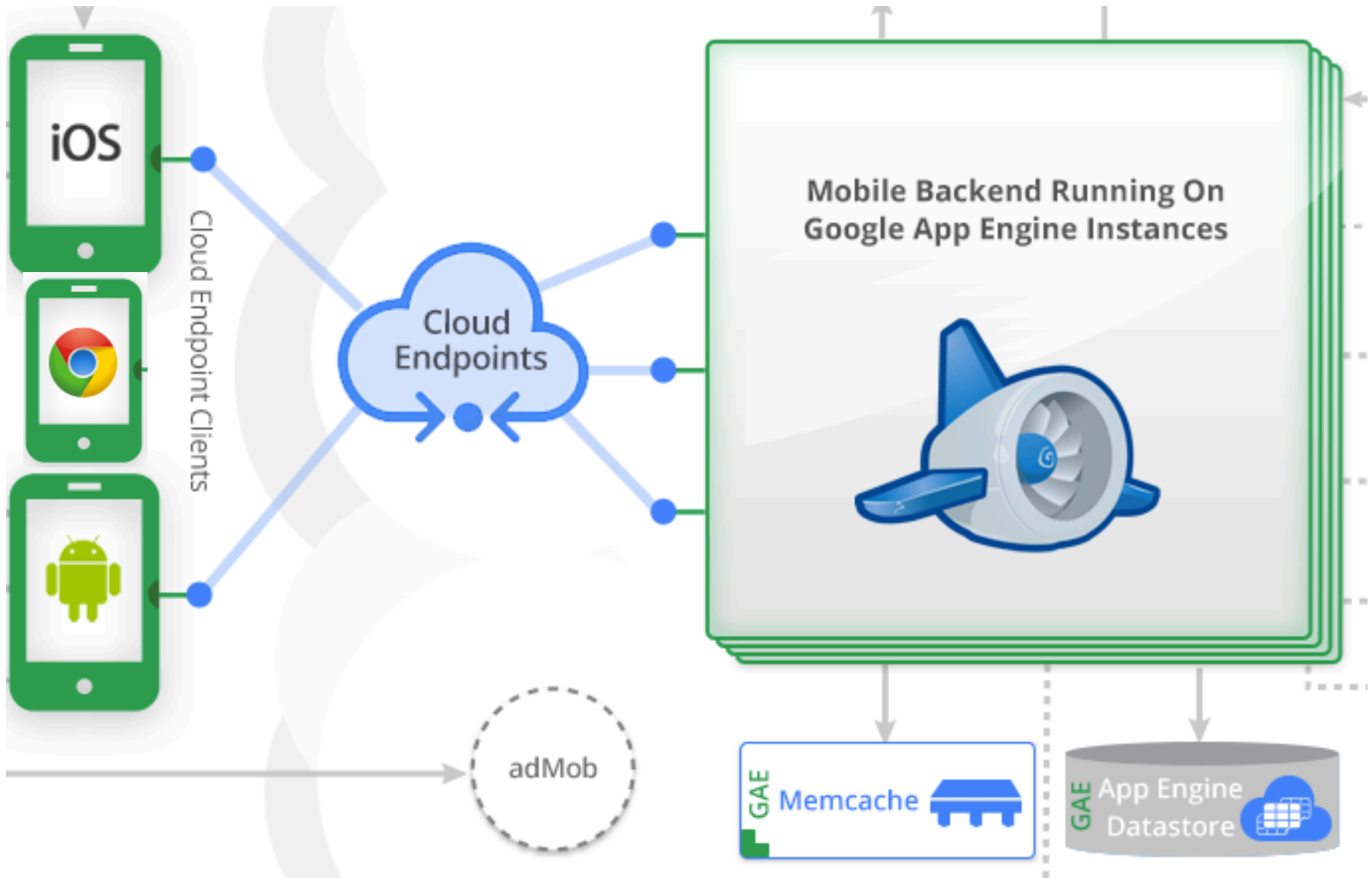


Google App Engine

Datastore Quotas and limits

Limit	Amount
Maximum entity size	1 megabyte
Maximum transaction size	10 megabytes
Maximum number of index entries for an entity	20000
Maximum number of bytes in composite indexes for an entity	2 megabytes

Optimizing data access with Memcache



Google App Engine

Platform as a Service (PaaS)

build and run applications on
Google's infrastructure

Google App Engine

- 1 GB of data storage and traffic for free
 - can be increased by enabling paid applications

Google App Engine

Google App Engine supports apps written in a variety of programming languages: Python, Java, PHP, Go



Python



Java



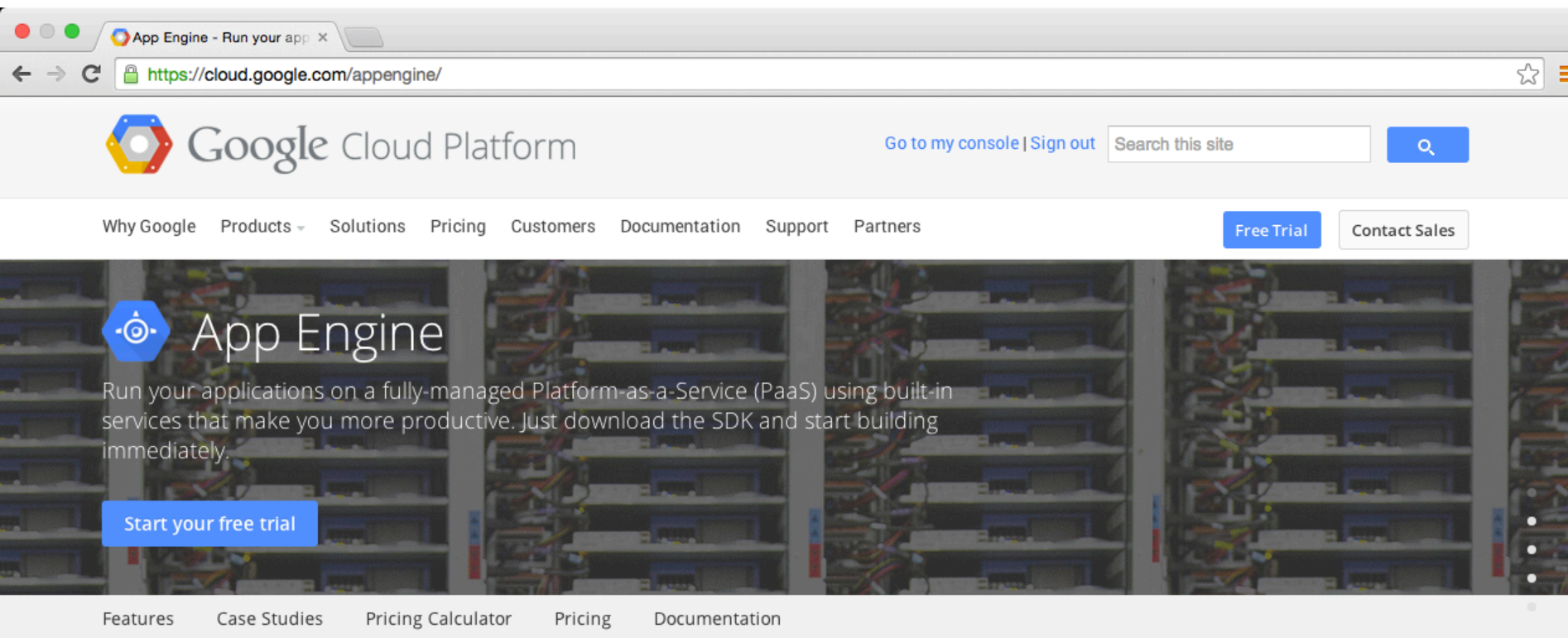
PHP



Go



Google App Engine



The screenshot shows the Google App Engine website in a browser. The browser's address bar displays the URL <https://cloud.google.com/appengine/>. The page header features the Google Cloud Platform logo, navigation links for 'Go to my console' and 'Sign out', a search bar, and buttons for 'Free Trial' and 'Contact Sales'. The main content area has a background image of server racks and includes the App Engine logo, the text 'Run your applications on a fully-managed Platform-as-a-Service (PaaS) using built-in services that make you more productive. Just download the SDK and start building immediately.', and a 'Start your free trial' button. A secondary navigation bar at the bottom of the main section lists 'Features', 'Case Studies', 'Pricing Calculator', 'Pricing', and 'Documentation'.

Features



Popular languages and frameworks

Write applications in some of the most popular programming languages: Python, Java, PHP and Go. Use existing frameworks such as Django, Flask, Spring and webapp2. Develop locally with



Focus on your code

Let Google worry about database administration, server configuration, sharding and load balancing. With Traffic Splitting, you can A/B test different live versions of your app. Multitenancy support lets you compartmentalize your application data.



Multiple storage options

Choose the storage option you need: a traditional MySQL database using Cloud SQL, a schemaless NoSQL datastore, or object storage using Cloud Storage.

<https://cloud.google.com/appengine/>



Google App Engine

Features



Popular languages and frameworks

Write applications in some of the most popular programming languages: Python, Java, PHP and Go. Use existing frameworks such as Django, Flask, Spring and webapp2. Develop locally with language-specific SDKs. Pair your applications with Compute Engine to integrate other familiar technologies such as Node.js, C++, Scala, Hadoop, MongoDB, Redis and more.



Powerful built-in services

App Engine makes you more productive by eliminating the need to write boilerplate code. Managed services, such as Task Queues, Memcache and the Users API, let you build any application.



Focus on your code

Let Google worry about database administration, server configuration, sharding and load balancing. With Traffic Splitting, you can A/B test different live versions of your app. Multitenancy support lets you compartmentalize your application data.



Familiar development tools

Use the tools you know, including Eclipse, IntelliJ, Maven, Git, Jenkins, PyCharm and more. The App Engine SDK allows you to test applications locally in a simulated environment and then deploy your app with simple command-line tools or the desktop launcher.



Multiple storage options

Choose the storage option you need: a traditional MySQL database using Cloud SQL, a schemaless NoSQL datastore, or object storage using Cloud Storage.



Deploy at Google scale

Some of the world's most popular web services are built on our platform. You can scale up to 7 billion requests per day and automatically scale down when traffic subsides.



Google Cloud Datastore

The screenshot shows the Google Cloud Datastore website. At the top, there's a navigation bar with the Google Cloud Platform logo, a search bar, and links to 'Go to my console' and 'Sign out'. Below this is a secondary navigation bar with links for 'Why Google', 'Products', 'Solutions', 'Pricing', 'Customers', 'Documentation', 'Support', and 'Partners'. There are also 'Free Trial' and 'Contact Sales' buttons. The main hero section features the 'Cloud Datastore' title, a brief description: 'Use a managed, NoSQL, schemaless database for storing non-relational data. Cloud Datastore automatically scales as you need it and supports transactions as well as robust, SQL-like queries.', and a 'Start your free trial' button. At the bottom of the hero section, there are links for 'Features', 'Pricing Calculator', 'Pricing', and 'Documentation'.

Features



Schemaless access, with SQL-like querying

No need to worry about data models and migration. Cloud Datastore is a schemaless storage service that allows you to be agile by removing the need to think about the underlying structure of the



Managed database

Cloud Datastore is fully managed. Google automatically handles sharding and replication in order to provide you with a highly available and consistent database.



Autoscale with your users

Cloud Datastore automatically scales depending on your needs. This allows you to focus on building your application and not on worrying about provisioning and load anticipation.

<https://cloud.google.com/datastore/>



Google Cloud Datastore



Schemaless access, with SQL-like querying

No need to worry about data models and migration. Cloud Datastore is a schemaless storage service that allows you to be agile by removing the need to think about the underlying structure of the data. Cloud Datastore provides a [robust query engine](#) that allows you to search for data across multiple properties and sort as needed.



Managed database

Cloud Datastore is fully managed. Google automatically handles sharding and replication in order to provide you with a highly available and consistent database.



Autoscale with your users

Cloud Datastore automatically scales depending on your needs. This allows you to focus on building your application and not on worrying about provisioning and load anticipation.



ACID transactions

Cloud Datastore provides ACID transactions using optimistic concurrency control. Your application can execute multiple datastore operations in a single transaction in which either all succeed or all fail, ensuring the integrity of your data.



Built-in redundancy

With a single API call, data is automatically replicated across multiple data centers. High availability and durability are built in from the very core.



Local development tools

With the [Cloud Datastore Development Kit](#), you can develop, test and iterate your applications locally without doing full deployments.



Access your data from anywhere

Build solutions that span App Engine and Compute Engine, and rely on Cloud Datastore as the integration point. With the [RESTful interface](#) that is exposed by Cloud Datastore, data can easily be accessed by any deployment target.

<https://cloud.google.com/datastore/>



Google Cloud Endpoints

The screenshot shows the Google Cloud Endpoints website. At the top, there's a navigation bar with the Google Cloud Platform logo, a search bar, and links like 'Go to my console' and 'Sign out'. Below this is a secondary navigation bar with links for 'Why Google', 'Products', 'Solutions', 'Pricing', 'Customers', 'Documentation', 'Support', and 'Partners'. The main hero section features the Cloud Endpoints logo and a description: 'Create RESTful services and make them accessible to iOS, Android and Javascript clients. Automatically generate client libraries to make wiring up the frontend easy. Built-in features include denial-of-service protection, OAuth 2.0 support and client key management.' A prominent blue button says 'Start your free trial'. At the bottom of the hero section, there are links for 'Features', 'Pricing Calculator', 'Pricing', and 'Documentation'.

Features



One tool, multiple clients

Build client libraries for Android, iOS and web-based clients from one source. Cloud Endpoints wraps your code to build an [API server](#) in just a few steps. Cloud Endpoint API libraries are available in Java, Python, Go and PHP. [Learn more](#)



Extending App Engine infrastructure

All of the tools and libraries made available in App Engine are now available to your mobile devices. Access Datastore, Cloud Storage and Task Queues using your App Engine backend with no extra



Low maintenance client-server

Because Cloud Endpoints is backed by App Engine, you have no servers to maintain, no load balancing to worry about and the same quick and painless scaling. Like App Engine and our other Cloud services, you only pay for what you use.

Source: <https://cloud.google.com/endpoints/>



Google Cloud Endpoints

Features



One tool, multiple clients

Build client libraries for Android, iOS and web-based clients from one source. Cloud Endpoints wraps your code to build an [API server](#) in just a few steps. Cloud Endpoint API libraries are available in Java, Python, Go and PHP. Learn more about Cloud Endpoints in our [documentation](#) or just dive in and try our sample [Tic Tac Toe](#) web application.



Extending App Engine infrastructure

All of the tools and libraries made available in App Engine are now available to your mobile devices. Access Datastore, Cloud Storage and Task Queues using your App Engine backend with no extra work. Integrate OAuth 2.0 authentication quickly by following our [examples](#).



Low maintenance client-server

Because Cloud Endpoints is backed by App Engine, you have no servers to maintain, no load balancing to worry about and the same quick and painless scaling. Like App Engine and our other Cloud services, you only pay for what you use.

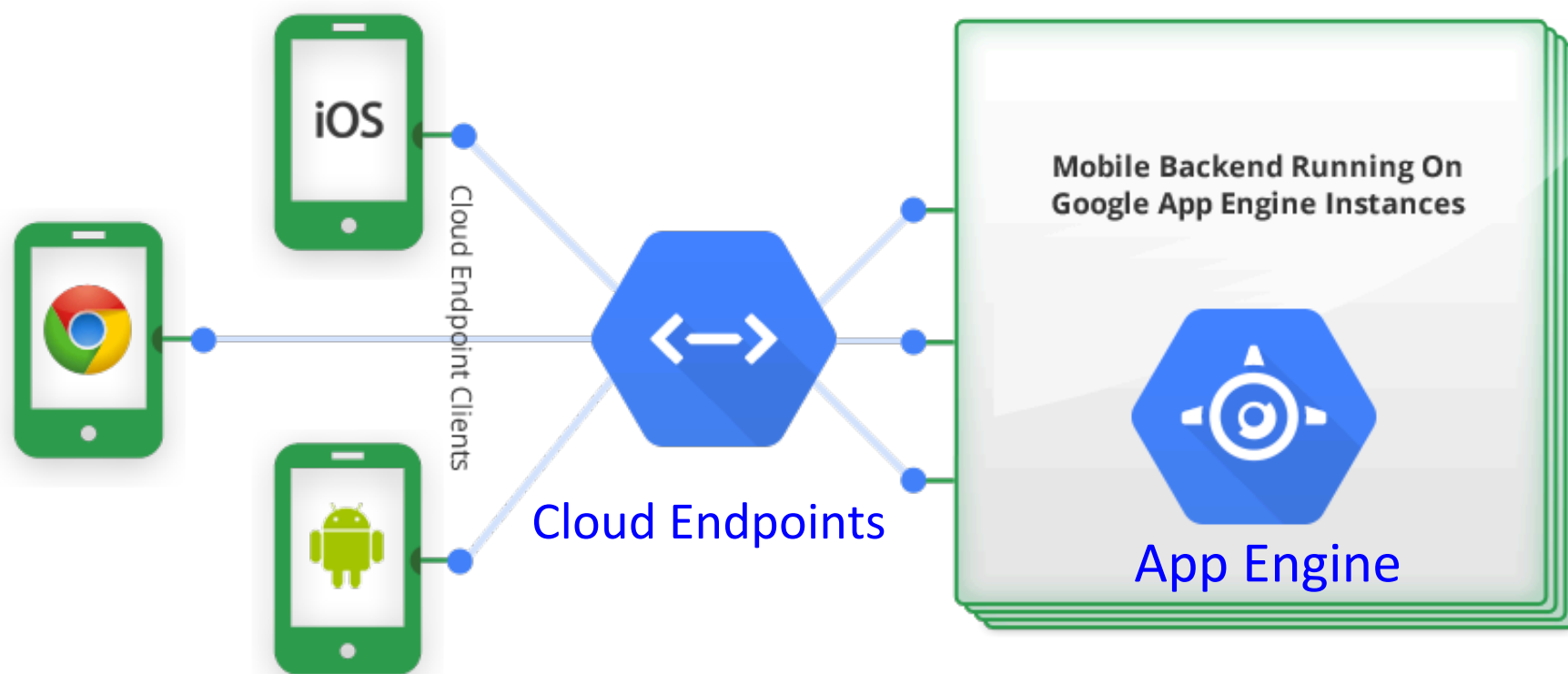


Flexible client-side integration

[Annotate](#) your server-side API and then build your client libraries automatically. Client libraries are built for [Android](#) and [iOS](#). Get standard web clients up and running with a minimal [JavaScript client](#) library. All of your clients use similar APIs and the same backend, which keeps development time down.



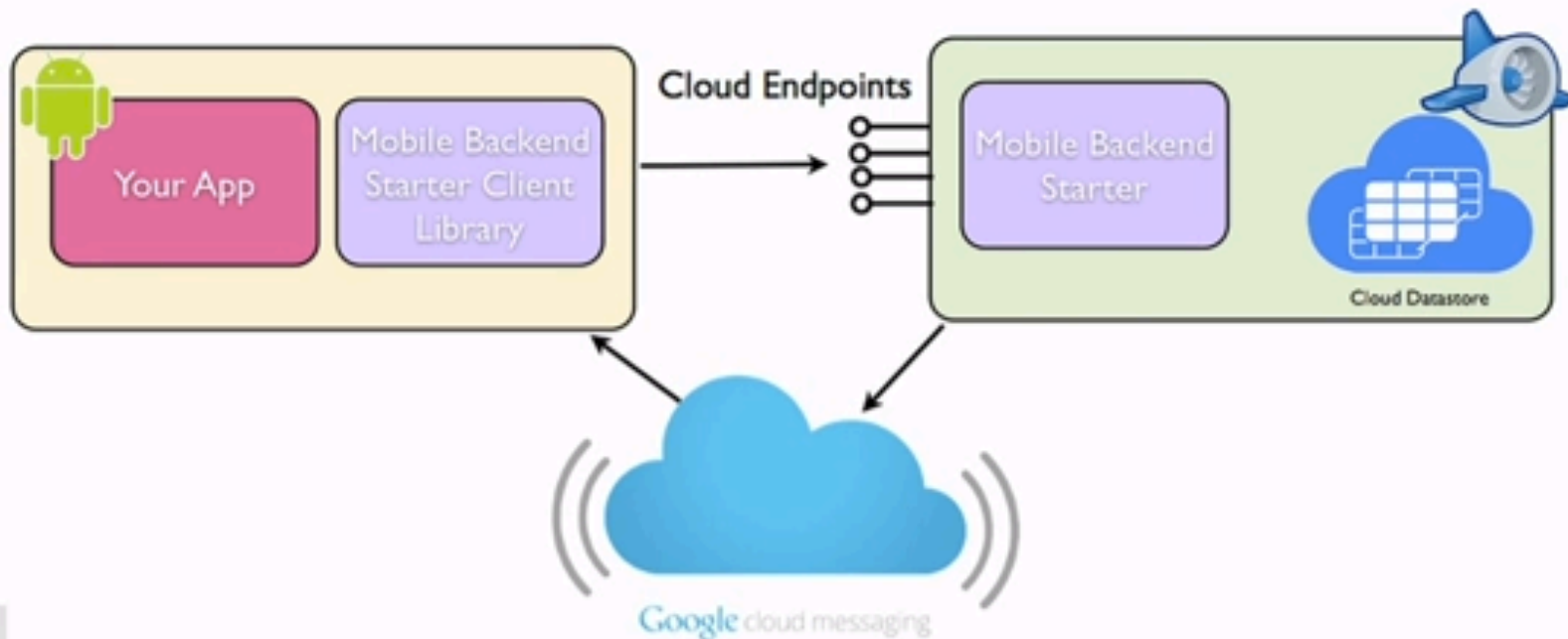
Mobile Apps Backend on Google App Engine



Google Cloud Endpoints Architecture

Mobile App, Google App Engine, Cloud Datastore

Mobile Backend Starter



Mobile, Web and Cloud

Google Cloud by Ivan Hawkes



Mobile, Web, and Cloud

The Triple Crown of Modern Applications

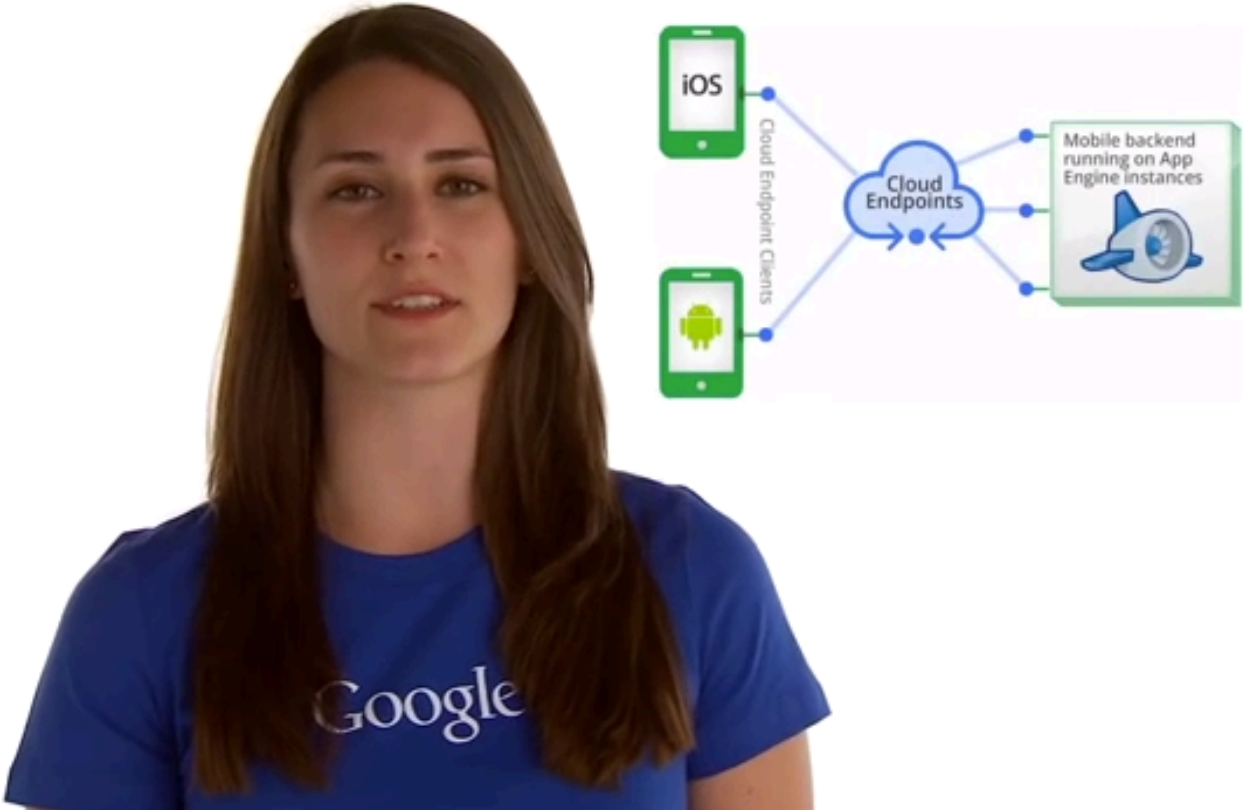
Ido Green - Developer Advocate, Google

Danny Hermes - Developer Programs Engineer, Google

Google I/O 2013 - Mobile, Web and Cloud - The Triple Crown of M...


http://www.youtube.com/watch?v=6_oO9Gwf_do


Build your mobile app with Google Cloud Platform




0:22 / 5:11

Build your mobile app with Google Cloud Platform

 GoogleDevelopers · 2,566 videos

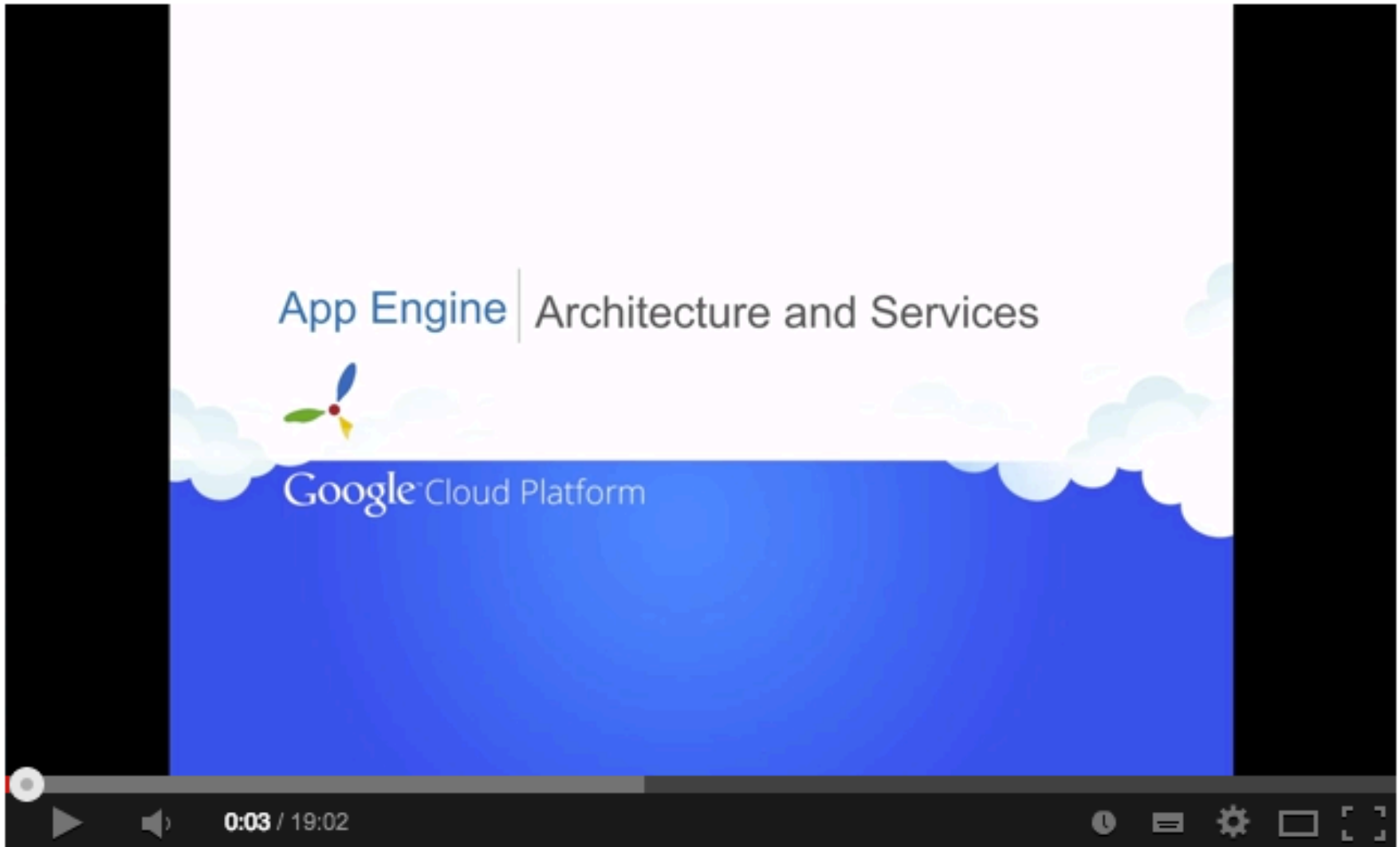
 432,318

10,744

 163  15

<http://www.youtube.com/watch?v=ZZNb1NOPTp8>

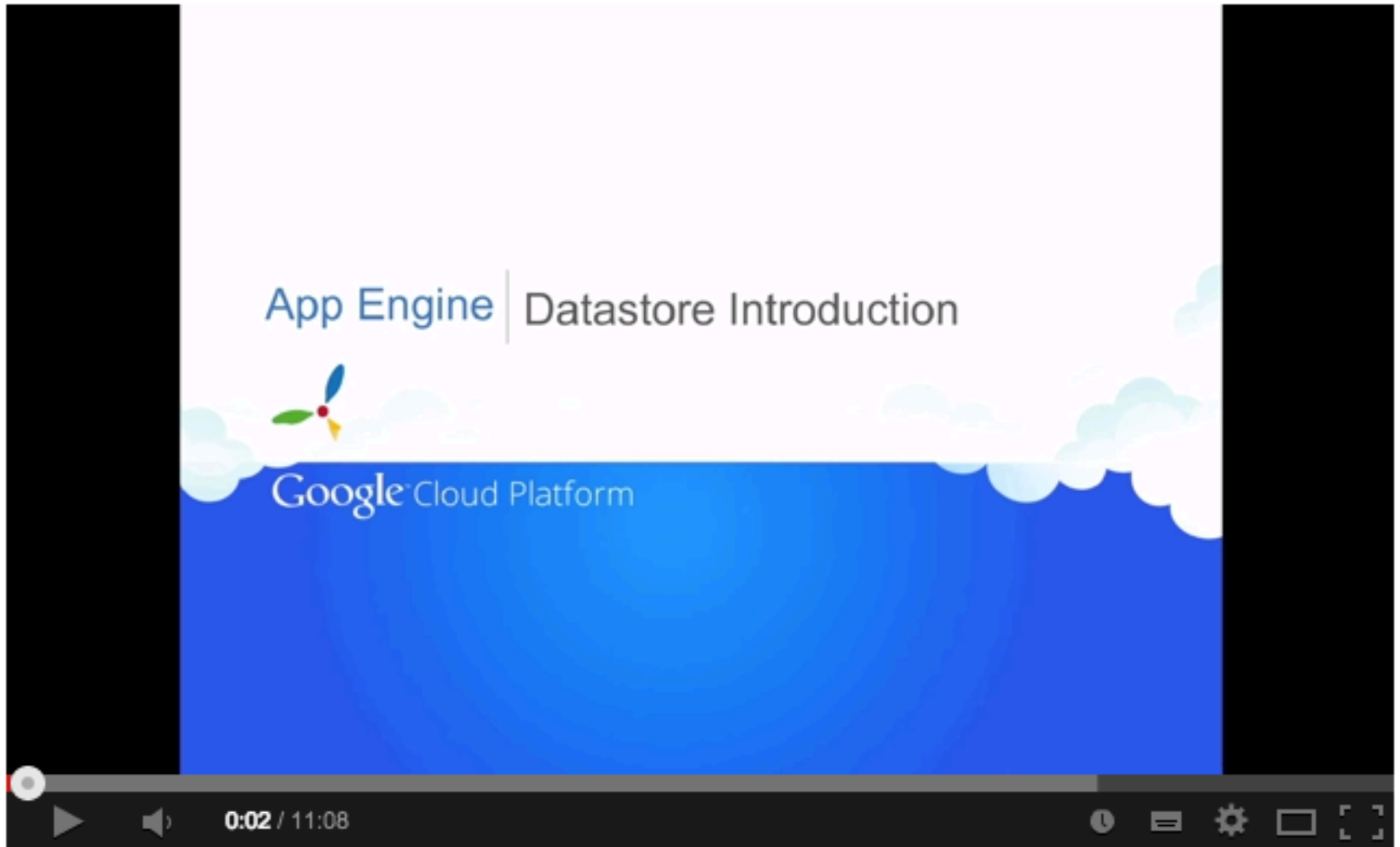
App Engine Architecture and Services



App Engine Architecture and Services

<http://www.youtube.com/watch?v=QJp6hmASstQ>

Datastore Introduction

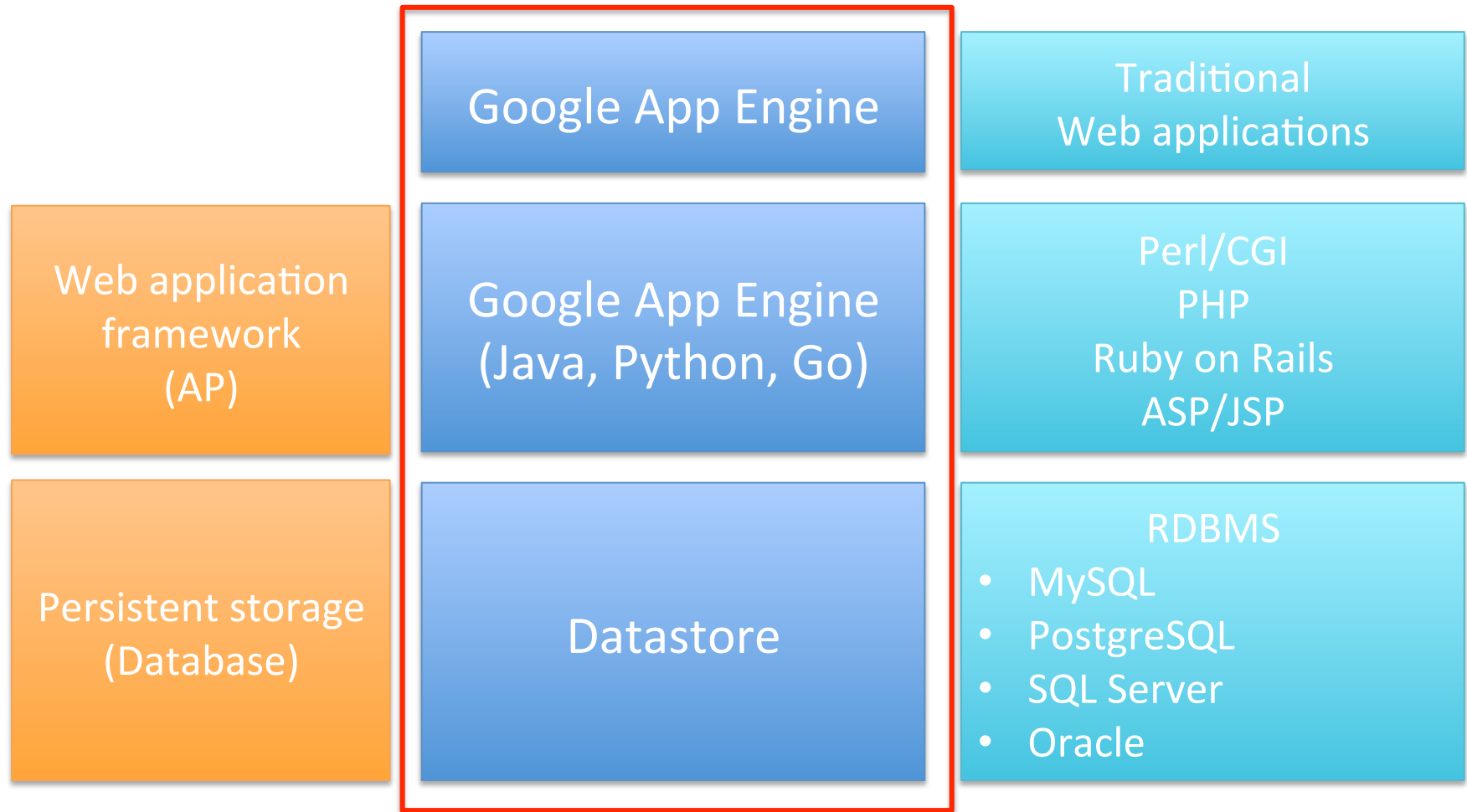


Datastore Introduction

Source: Datastore Introduction,
<http://www.youtube.com/watch?v=fQazhzcC-rg>

Google Cloud Datastore

Datastore is a database (persistent storage) for **App Engine**





Google Cloud Platform

<https://cloud.google.com/docs/>

Google Cloud Platform - Docs

https://cloud.google.com/docs/

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▼ Compute

App Engine

Compute Engine

Container Engine

▼ Storage

Cloud SQL

Cloud Storage

Cloud Datastore

▼ Networking

Cloud DNS

Carrier Interconnect

Direct Peering

HTTP Load Balancing Beta

Network Load Balancing

▼ Big Data

BigQuery

Hadoop on Google

Google Cloud Platform

With Google Cloud Platform, developers can build, test and deploy applications on Google's highly-scalable and reliable infrastructure for your web, mobile and backend solutions.

Focus on writing code, not on infrastructure, and use the same infrastructure that Google uses for your application, computing and big data needs.

Get started quickly

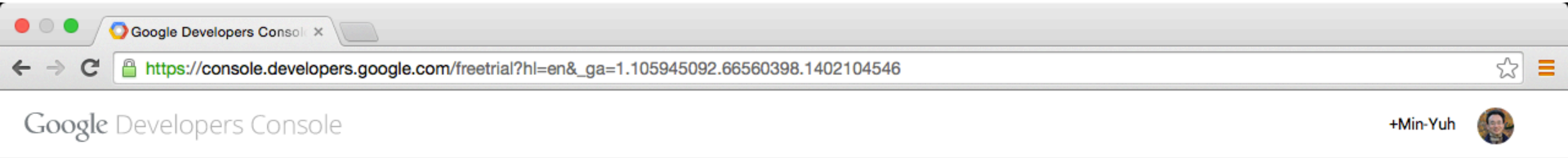
If you're ready to get started, try these solutions for getting software up and running on our platform!

LAMP development stack

Ruby development stack



Try Google Cloud Platform for free



Try Google Cloud Platform for free

Build on top of the infrastructure that powers Google.

Sign up for free and get \$300 to spend over 60 days on all Google Cloud Platform services.

Certain terms and conditions apply. [Learn more](#)

Country

Taiwan

Account type

☒ Business

☐ Individual

Name and address ?

Business name

Name

Street address

士林區



Get \$300 to kick start your app.

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Why do you need my billing information?

We use your billing information to verify that you're a real person. Don't worry, you will not be billed for the free trial.



Do I have to pay when my free trial ends?

No. You're under no obligation to buy anything when the free trial ends. If you want to continue to use Google Cloud Platform, just upgrade before your trial runs out.



Questions?

Check out the [FAQ](#) or [leave us a message](#).



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Google Developers Console

士林區

台北市

Postal code

Primary contact

Name

Phone number

imyday@gmail.com

What you pay with

Credit or debit card

Card number

VISA

AMEX

JCB

MM / YY

CVC

Cardholder name

☒ Credit or debit card address is same as above

Billing communication language

English (United States)

☐ I have read and agree to the Google Cloud Platform Free Trial [Terms of Service](#).

Accept and start free trial

Clear

Check out the [FAQ](#) or [leave us a message](#).

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Google Cloud Platform

<https://cloud.google.com/docs/>

Balancing **Beta**

Network Load

Balancing

▼ **Big Data**

BigQuery

Hadoop on Google Cloud Platform

▼ **Services**

Cloud Endpoints

Cloud Pub/Sub

Cloud Monitoring

Prediction API

Translate API

▼ **Management**

Deployment Manager

▼ **Tools**

Overview

Cloud SDK

▶ Android Studio

Eclipse Plugin

Cloud Repositories

Source Code Tools

Release Pipelines

Cloud Debugger

Cloud Trace


Cloud Playground

▶ Cloud Logging


▼ **Click-to-Deploy**

Get started quickly


If you're ready to get started, try these solutions for getting software up and running on our platform!

 **LAMP development stack**


LAMP (an acronym for Linux, Apache, MySQL, and PHP) is the archetypal open-source web development stack for many developers, and it runs great on Compute Engine!

 **Ruby development stack**

Ruby on Rails is one of the most popular frameworks for developing web applications, powering sites like Github, Basecamp and Shopify. Rapidly create new features, easily maintain code, and take advantage of the many open source contributions to Ruby on Rails, running on Compute Engine.

 **Quickstart for WordPress**

Set up a project, download a zip, change your config file, and deploy -and you'll have a working WordPress project running on Google Cloud Platform, with App Engine as your hosting environment.


 **App Engine "Hello World" starter**


Start editing a working "Hello World" app right now, in the browser. This gives you a good starting point and a feel for what it's like editing a working App Engine application.

Documentation

Use the following section or the left-hand navigation to access the various sets of documentation that cover Google Cloud Platform. Choose from [computing and hosting](#), [storage](#), [big data](#), [management](#), [services](#), and [developer tools](#).

Computing and hosting

 **App Engine**

 **Compute Engine**



Google Cloud Platform

<https://cloud.google.com/docs/>

Google Cloud Platform - Docs

https://cloud.google.com/docs/

Cloud Trace

Cloud Playground

Cloud Logging

Click-to-Deploy

Cassandra

GitLab

LAMP Stack

MEAN Stack

MongoDB

RabbitMQ

Redis

Ruby on Rails

Architecture Diagrams

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Mobile

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MongoDB

RabbitMQ

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Cassandra

Sample Code and Videos


Videos

Sample Applications

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Terms of Service

Computing and hosting



App Engine


App Engine is Google's Platform-as-a-Service (PaaS). Develop your application easily using built-in services that make you more productive. Deploy to a fully-managed platform and let Google carry the pager. Just download the SDK and start building immediately for free with no credit card required.

Overview

Get Started

Tutorials: [Java](#), [PHP](#), [Python](#), [Go](#)

Documentation



Compute Engine

Compute Engine is Google's Infrastructure-as-a-Service (IaaS). Run large-scale workloads on virtual machines hosted on Google's infrastructure. Choose a VM that fits your needs and gain the performance and consistency of Google's worldwide fiber network. With per-minute billing, you pay only for what you use.


Overview

Get Started

Tutorial

Documentation

Storage




Cloud SQL

Store and manage data using a relational MySQL database. Google handles replication, patch management and database management to ensure availability and performance, and you can even have your instance automatically co-locate with your deployed applications.

Overview

Tutorial




Cloud Storage

Use a durable and highly available object storage service. With global edge-caching, your users have fast access to your app's data from any location. Google manages versioning, guarantees a strong SLA and provides a simple API that allows you to manage your data programmatically.

Overview

Tutorial



Cloud Datastore

Cloud Datastore provides a managed, NoSQL, schemaless database for storing non-relational data. Cloud Datastore automatically scales as you need it and supports transactions as well as robust, SQL-like queries.

Overview

Tutorial

Documentation



Google App Engine

App Engine "Hello World" starter

<https://console.developers.google.com/start/appengine>

Deploy your first app in five minutes

- Start editing a working "Hello World" app right now, in the browser.
- This gives you a good starting point and a feel for what it's like editing a working App Engine application.



Try Google App Engine Now

1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
5. RUN YOUR APP LOCALLY
6. CREATE YOUR PROJECT AND DEPLOY



Google App Engine

Google Developers Console

← → ↺ https://console.developers.google.com/start/appengine?_ga=1.26824890.66560398.1402104546 ☆ ☰

Google Developers Console

[Sign up for a free trial.](#)
[Go to my console](#)

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1. NAME YOUR PROJECT

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Try Google App Engine Now

Creating an App Engine app is easy, and it's free to start. Upload your app and share it with users right away, at no charge and with no commitment required.

1 NAME YOUR PROJECT

You use your project to manage all of the Google Cloud Platform resources for your app, including deployment, access control, billing, and services. You can change your project name later.

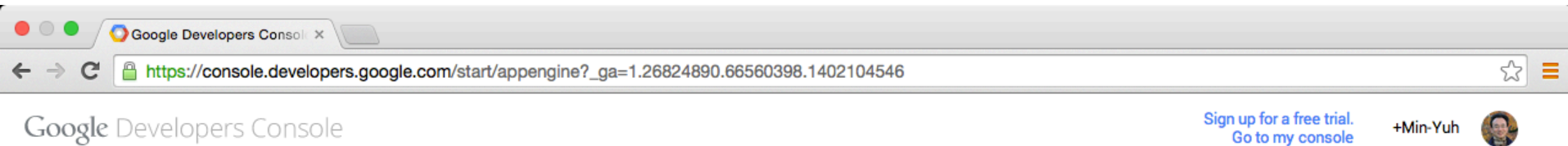
2 SELECT YOUR LANGUAGE

Python

Java



Google App Engine



2 SELECT YOUR LANGUAGE



3 EXPLORE THE STARTER CODE

Browse the starter code and see the app running below.

HELLO WORLD - JAVA

```
build.xml      1 package myapp;
pom.xml        2
src/main/java/myapp/D 3 import java.io.IOException;
src/main/webapp/WEB-INF 4 import javax.servlet.http.*;
src/main/webapp/WEB-INF 5
src/main/webapp/WEB-INF 6 public class DemoServlet extends HttpServlet {
src/main/webapp/WEB-INF 7     @Override
src/main/webapp/WEB-INF 8     public void doGet(HttpServletRequest req, HttpServletResponse resp)
src/main/webapp/WEB-INF 9         throws IOException {
src/main/webapp/WEB-INF 10        resp.setContentType("text/plain");
```



Google App Engine

Google Developers Console

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3 EXPLORE THE STARTER CODE

Browse the starter code and see the app running below.

1. NAME YOUR PROJECT

2. SELECT YOUR LANGUAGE

3. EXPLORE THE STARTER CODE

4. INSTALL GOOGLE CLOUD SDK

5. RUN YOUR APP LOCALLY

6. CREATE YOUR PROJECT AND DEPLOY

HELLO WORLD - JAVA

build.xml

pom.xml

src/main/java/myapp/DemoServlet.java

src/main/webapp/WEB-INF/web.xml

src/main/webapp/WEB-INF/classes

src/main/webapp/index.html

```
1 package myapp;
2
3 import java.io.IOException;
4 import javax.servlet.http.*;
5
6 public class DemoServlet extends HttpServlet {
7     @Override
8     public void doGet(HttpServletRequest req, HttpServletResponse resp)
9         throws IOException {
10         resp.setContentType("text/plain");
11         resp.getWriter().println("{ \"name\": \"World\" }");
12     }
13 }
14
```

▶

Hello, World

54



Google App Engine

HELLO WORLD - JAVA

build.xml

pom.xml

src/main/java/myapp/D

src/main/webapp/WEB-INF

src/main/webapp/WEB-INF

src/main/webapp/WEB-INF

src/main/webapp/index.t

```
1 package myapp;
2
3 import java.io.IOException;
4 import javax.servlet.http.*;
5
6 public class DemoServlet extends HttpServlet {
7     @Override
8     public void doGet(HttpServletRequest req, HttpServletResponse resp)
9         throws IOException {
10         resp.setContentType("text/plain");
11         resp.getWriter().println("{ \"name\": \"World\" }");
12     }
13 }
14
```

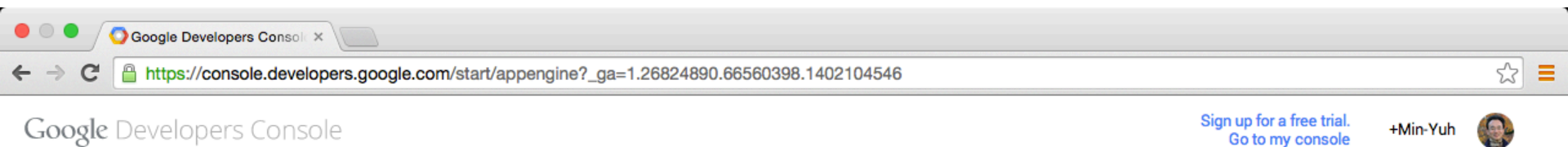


Hello, World

Download this code



Google App Engine



4 INSTALL GOOGLE CLOUD SDK

1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
5. RUN YOUR APP LOCALLY
6. CREATE YOUR PROJECT AND DEPLOY

Mac OS X/Linux ▾

1. Download and install Google Cloud SDK by running the following command in your shell or Terminal:

```
curl https://sdk.cloud.google.com/ | bash
```

Follow the prompts to install the **Java** App Engine package.

2. Restart your shell or Terminal to pick up environment changes.
3. Sign in to Google Cloud Platform using this command:

```
gcloud auth login
```

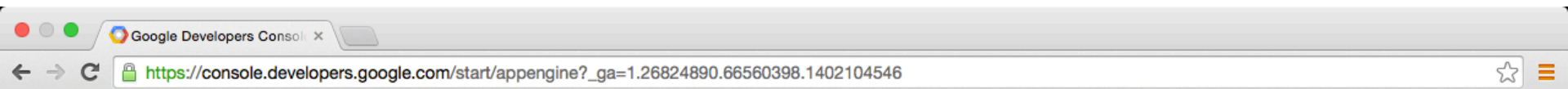
4. Install the App Engine package for Java using this command:

```
gcloud components update gae-java
```

5 RUN YOUR APP LOCALLY



Google App Engine



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5 RUN YOUR APP LOCALLY

1. NAME YOUR PROJECT
2. SELECT YOUR LANGUAGE
3. EXPLORE THE STARTER CODE
4. INSTALL GOOGLE CLOUD SDK
5. RUN YOUR APP LOCALLY
6. CREATE YOUR PROJECT AND DEPLOY

Note: App Engine supports Java 7. Make sure you have the [Java 7 JDK](#) installed.

1. Download [appengine-try-java.zip](#) and unpack it. This creates your project directory, including **src/** and **war/** subdirectories.
2. Download and install [Apache Maven](#) version 3.0 or later. The starter app includes an Apache Maven build file.
3. Build and run the sample locally using the following commands:

```
cd appengine-try-java
mvn package
dev_appserver.sh target/appengine-try-java-1.0
```

You can stop the server by pressing Ctrl-C in the command window.

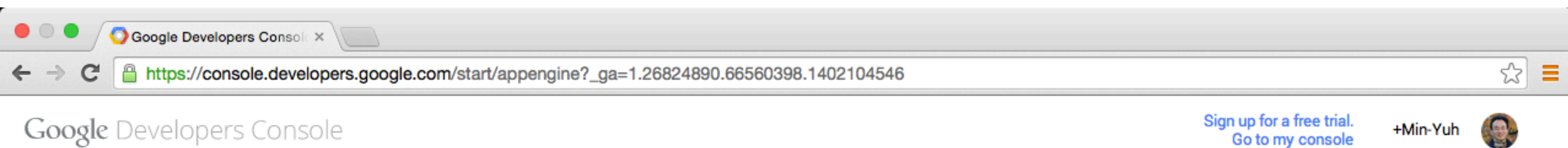
4. Visit the locally running app in your browser: <http://localhost:8080>

6 CREATE YOUR PROJECT AND DEPLOY

Now that you've seen your app running on your local machine, you're ready to create and deploy your project, HelloWorldGoogleAppEngine.



Google App Engine



5 RUN YOUR APP LOCALLY

Note: App Engine supports Java 7. Make sure you have the [Java 7 JDK](#) installed.

1. Download [appengine-try-java.zip](#) and unpack it. This creates your project directory, including **src/** and **war/** subdirectories.
2. Download and install [Apache Maven](#) version 3.0 or later. The starter app includes an Apache Maven build file.
3. Build and run the sample locally using the following commands:

```
cd appengine-try-java
mvn package
dev_appserver.sh target/appengine-try-java-1.0
```

You can stop the server by pressing Ctrl-C in the command window.

4. Visit the locally running app in your browser: <http://localhost:8080>

6 CREATE YOUR PROJECT AND DEPLOY

Now that you've seen your app running on your local machine, you're ready to create and deploy your project, HelloWorldGoogleAppEngine.



Google App Engine

Google Developers Console

https://console.developers.google.com/start/appengine?_ga=1.26824890.66560398.1402104546

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1. NAME YOUR PROJECT

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5. RUN YOUR APP LOCALLY

6. CREATE YOUR PROJECT AND DEPLOY

```
mvn package
dev_appserver.sh target/appengine-try-java-1.0
```

You can stop the server by pressing Ctrl-C in the command window.

4. Visit the locally running app in your browser: <http://localhost:8080>

6 CREATE YOUR PROJECT AND DEPLOY

Congratulations! Your project is ready. Your unique project ID is **psychic-outcome-783**.

Deploy your app from your local dev environment using this command:

```
appcfg.sh -A psychic-outcome-783 update target/appengine-try-java-1.0
```

After deploying your app, you can visit it with your browser at this URL:

psychic-outcome-783.appspot.com

That's it! You're running on Google App Engine. Go to your project dashboard to see how your app is performing.

View your project dashboard

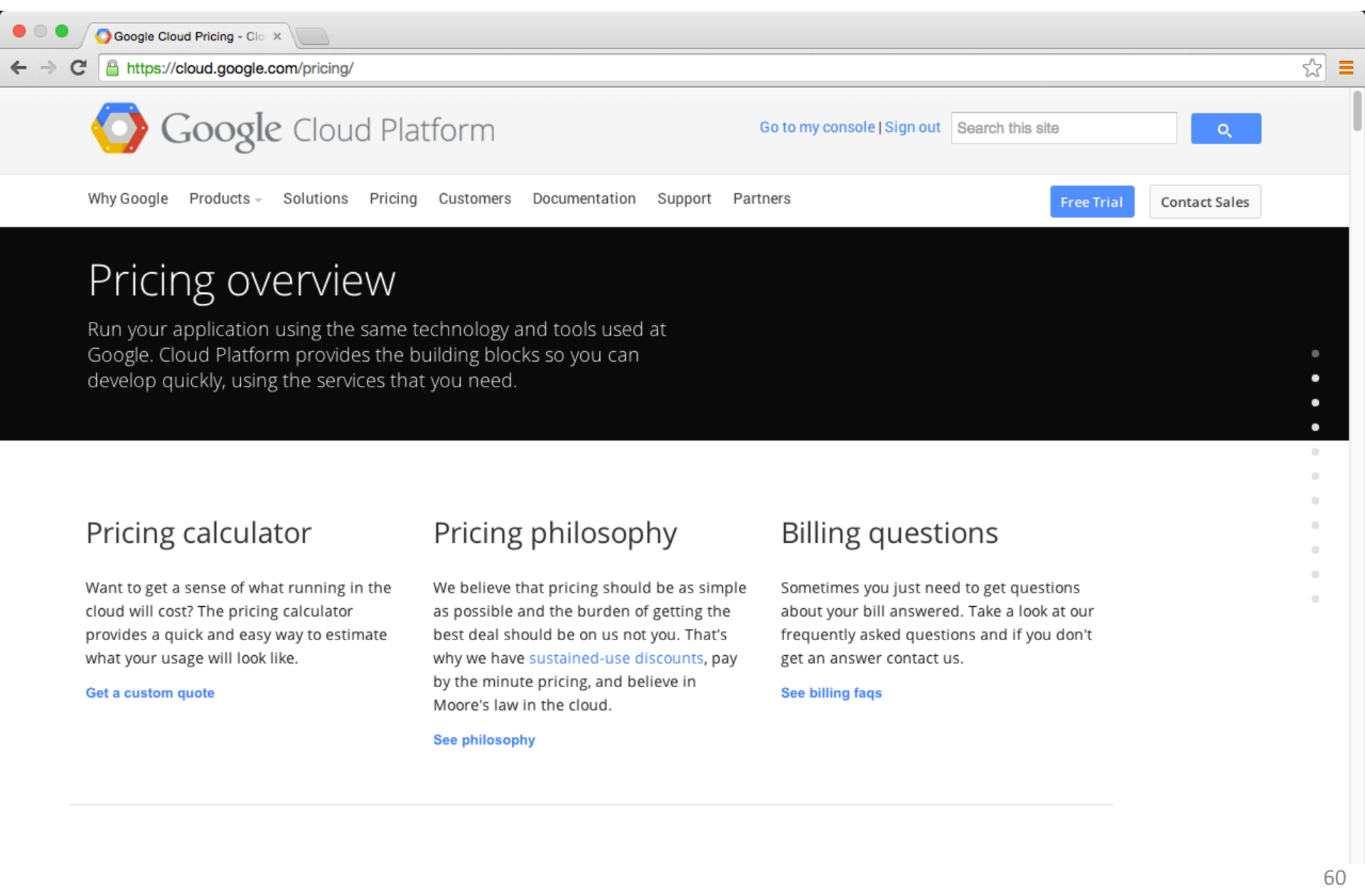
Activities (Idle)

Create Project: HelloWorldGoogleAppEngine

See all activity



Google Cloud Platform



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https://cloud.google.com/pricing/



Google Cloud Platform

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Pricing overview

Run your application using the same technology and tools used at Google. Cloud Platform provides the building blocks so you can develop quickly, using the services that you need.

Pricing calculator

Want to get a sense of what running in the cloud will cost? The pricing calculator provides a quick and easy way to estimate what your usage will look like.

[Get a custom quote](#)

Pricing philosophy

We believe that pricing should be as simple as possible and the burden of getting the best deal should be on us not you. That's why we have [sustained-use discounts](#), pay by the minute pricing, and believe in Moore's law in the cloud.

[See philosophy](#)

Billing questions

Sometimes you just need to get questions about your bill answered. Take a look at our frequently asked questions and if you don't get an answer contact us.

[See billing FAQs](#)

Summary

- **Google Cloud Platform**

- Google App Engine



- Google Cloud Datastore



- Google Cloud Endpoints



- **Mobile App with Google Cloud Platform**



Google Cloud Platform

References

- Google Cloud Platform,
<https://cloud.google.com/>
- Google App Engine,
<https://cloud.google.com/appengine/>
- Google Cloud Datastore,
<https://cloud.google.com/datastore/>
- Google Cloud Endpoints,
<https://cloud.google.com/endpoints/>