Google
Developers

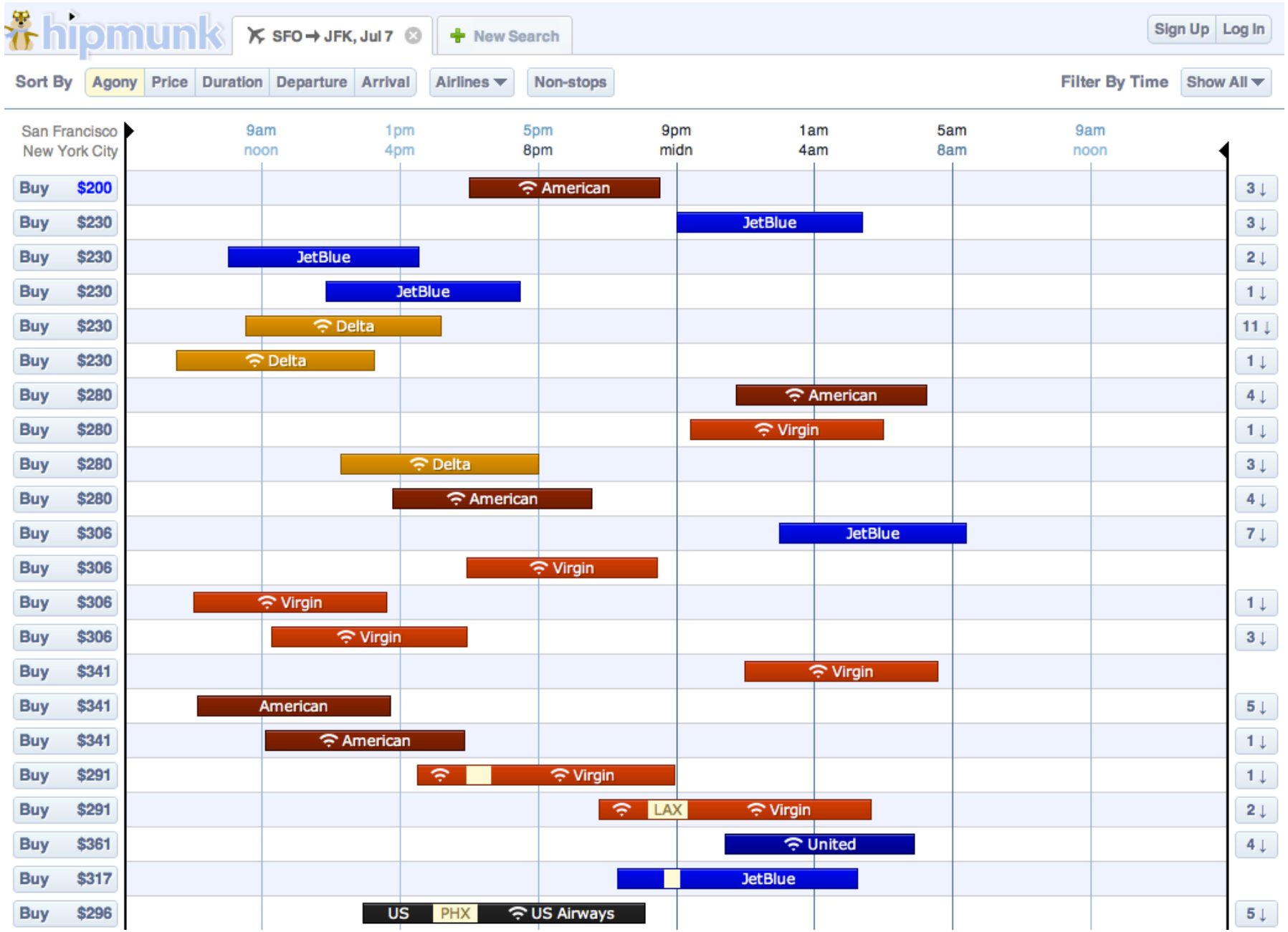
HTML5 and Google App Engine: The Epic Tag Team Take on Modern Web Apps at Scale

Ido Green, Developer Relations, Chrome
Brad Abrams, Product Manager, Google Cloud Platform

Modern Web Applications

Modern Web Applications

- Self Contained & Functional
- "Offline First"
- Client Side Architecture & MVC Frameworks
- Device Aware / 60fps



http://goo.gl/5cJwH

#io12

My Chrome Theme

chrome | 1. Import your image | 2. Add some color | 3. Install & share

Create your own Chrome theme

Add a personal touch to your browser. Build and share custom Google Chrome themes with your own photos and designs in just three simple steps.

START MAKING THEME >

FIND MORE THEMES IN THE CHROME WEB STORE

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Share: +1 8k

http://goo.gl/Y6AG1

Client Side Frameworks

- Ember.js - Don't waste time making trivial choices
- Backbone.js - Gives structure to web applications by providing models with binding, collections and views
- Angular.js - AngularJS lets you extend HTML vocabulary for your application

More: addyosmani.github.com/todomvc/

Offline - Why?

- Airplane, road trip, deserted island
- Flaky connections (e.g. cafes, car)
- Better performance
- Consolidates the concept of permanent app you will have always available

* We will use: Lawnchair for our demo.

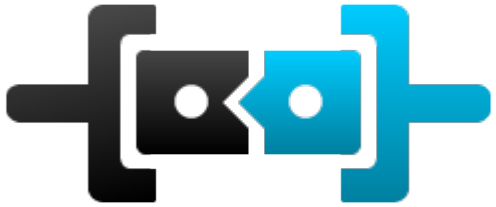
Offline - How?

- Storing assets: AppCache
- Storing data: localStorage, IndexedDB, File API.
- Offline first:
  - Pretend that there's no internet connection
  - Implement a sync layer that works only when online.

```
navigator.onLine & window.(ononline|onoffline)
```

Do More For Your Users

Web Intents is a framework for client-side service discovery and inter-application communication



Google Chrome Frame

Chrome Frame is an open source plug-in that seamlessly brings Google Chrome's open web technologies and speedy JavaScript engine to IE

```
<meta http-equiv="X-UA-Compatible"
content="chrome=1">
```

```
X-UA-Compatible: chrome=1
```

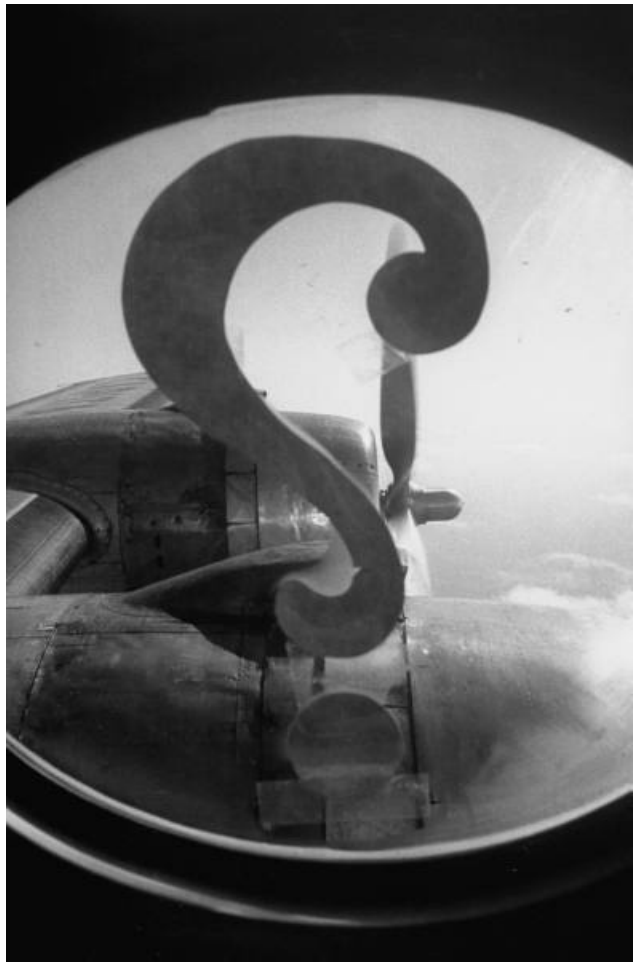
Modern Web Apps and The Server Conundrum

All modern web apps have to deal with a "home" server

- Offload Computation
- Sharing and Collaboration

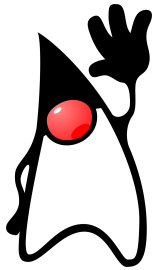
But who wants to run a server

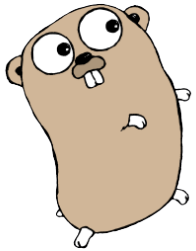
- Spikey traffic
- Client Server communication
- Serialization
- OAuth Dance



App engine to the rescue

- Make it easy to build
- Easy to run and manage
- Easy to scale
- Free to get started, pay for what you use
- Not just for web serving, but also data persistence





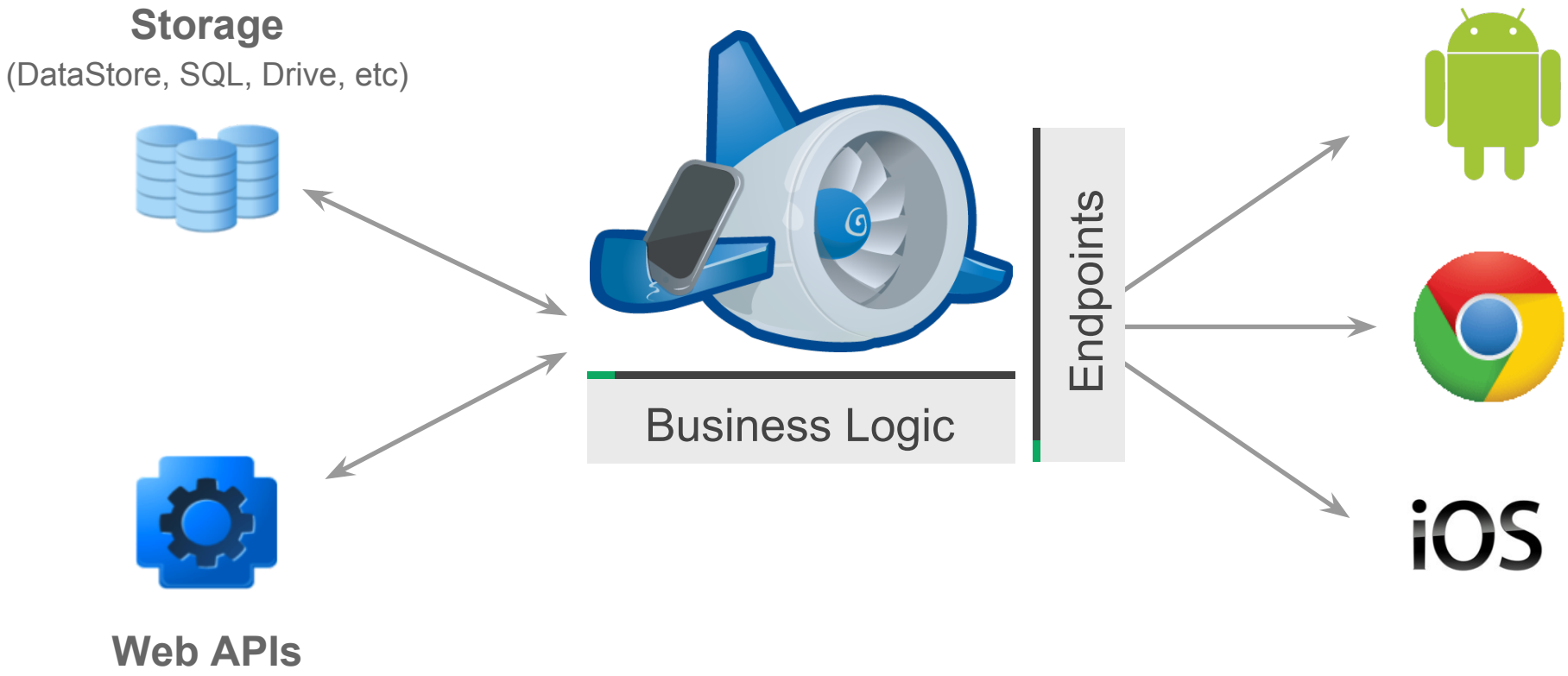
python™

Google Confidential and Proprietary

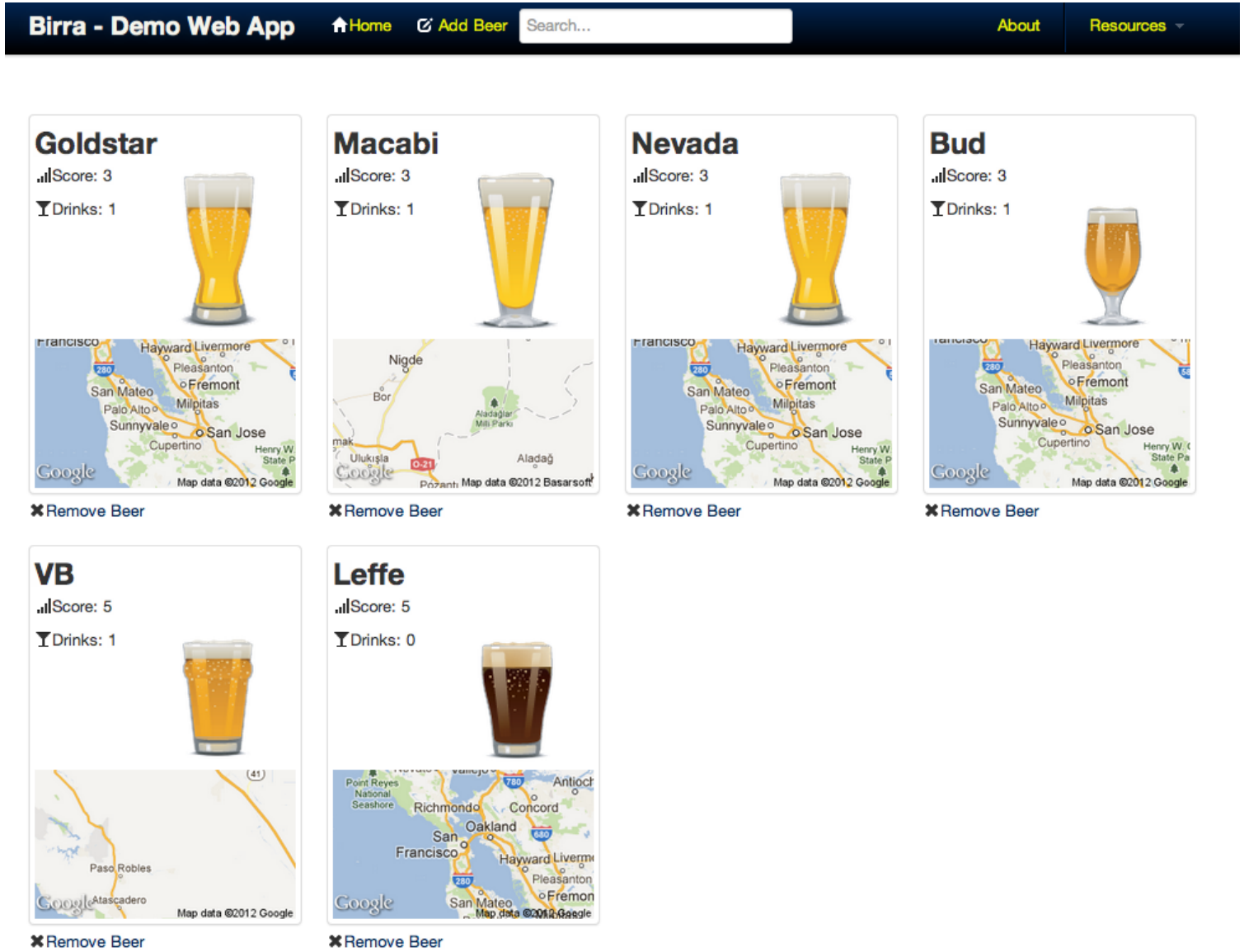
Google Cloud Endpoints:

APIs for Mobile and Web Backends Made Easy!

Trusted Tester

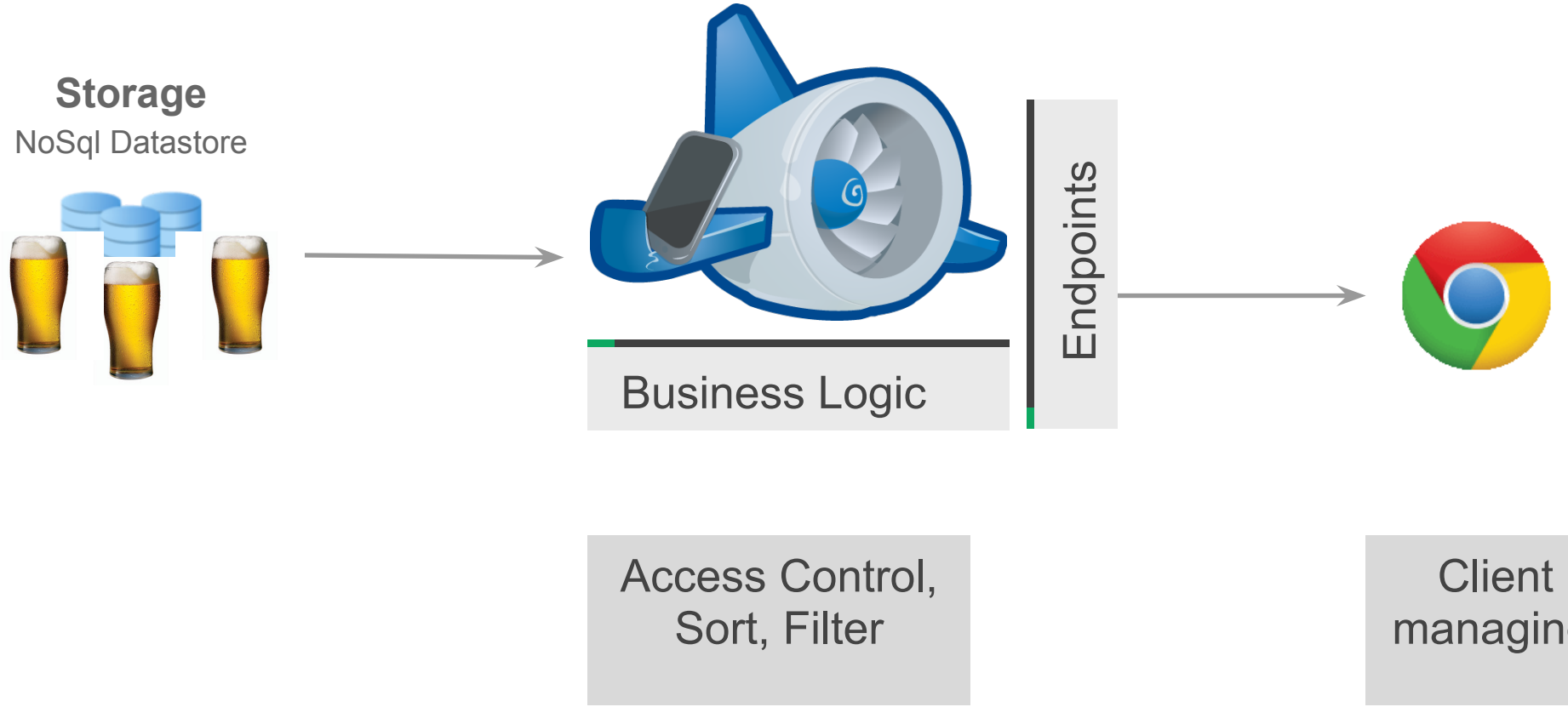


Demo


Birra - Demo Web App
Home
Add Beer
Search...
About
Resources
Goldstar
Score: 3
Drinks: 1
Remove Beer
Macabi
Score: 3
Drinks: 1
Remove Beer
Nevada
Score: 3
Drinks: 1
Remove Beer
Bud
Score: 3
Drinks: 1
Remove Beer
VB
Score: 5
Drinks: 1
Remove Beer
Leffe
Score: 5
Drinks: 0
Remove Beer

Google Cloud Endpoints for Beer!

Beer Rating and Review Application



Demo!

Beers On!

Load Test Results - From laptop wifi

```
% ab -n9000 -c100 http://birra-io2012.appspot.com/
```

```
Percentage of the requests served within a certain time
(ms)
  50%    263
  66%    321
  75%    370
  80%    390
  90%    449
  95%    536
  98%    649
  99%    715
 100%   3858 (longest request)
```

> 90% of requests below 1/2 a sec

Load Test Results - From Compute Engine

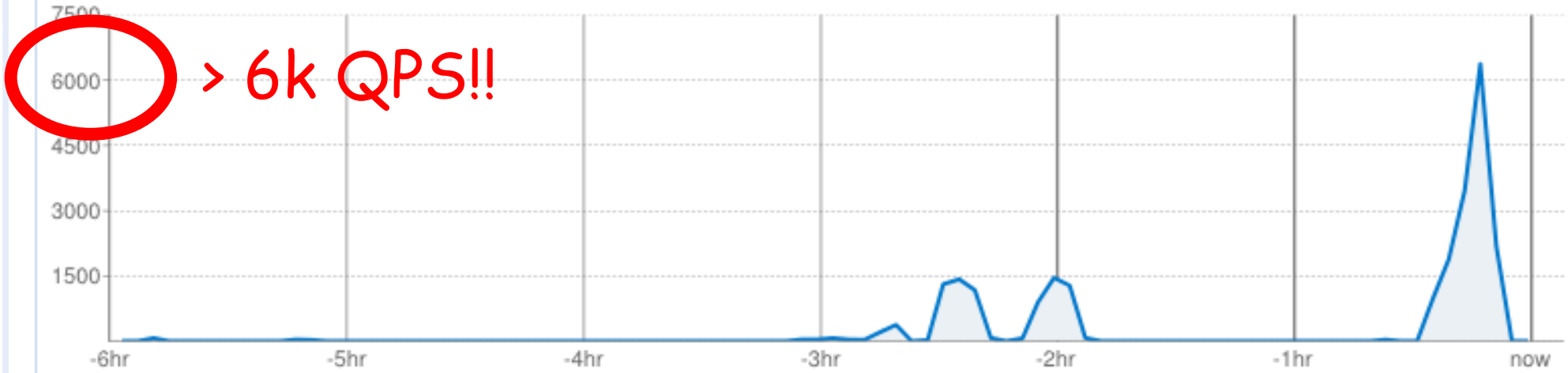
```
% ab -n1000000 -c10 http://birra-io2012.appspot.com/
```

```
Percentage of the requests served within a certain time
(ms)
  50%      6
  66%      6
  75%      6
  80%      6
  90%      7
  95%      7
  98%     11
  99%     17
 100%   3019 (longest request)
```

> 95% less than 7ms

Charts

Requests/Second | 6 hrs | 12 hrs | 24 hrs | 2 days | 4 days | 7 days | 14 days | 30 days



> 6k QPS!!

Instances

Number of Instances - Details	Average QPS	Average Latency	Average
2 total	0.000	Unknown ms	69.3 MBy

Billing Status: Enabled (Daily budget: $100.00) - Settings

Quotas res

Resource	Usage	Billable	Price	Co
Frontend Instance Hours	5.30 Instance Hours	0.00	$0.08/ Hour	$0
Backend Instance Hours	0.00 Instance Hours	0.00	$0.08/ Hour	$0
Datastore Stored Data	0.00 GBytes	0.00	$0.008/ GByte-day	$0
Logs Stored Data	0.01 GBytes	0.00	$0.008/ GByte-day	$0
Task Queue Stored Task Bytes	0.00 GBytes	0.00	$0.008/ GByte-day	$0

Key Take Aways

Building modern applications with HTML5 and App Engine

AppEngine makes for easy deployment at scale

Build interactivity by leveraging Cloud Endpoints

Use JavaScript Client Library

Exploit Modern Browser Features:

- Offline
- Geo
- Web Intents

Questions?

Ido Green
Developer Relations
Google Chrome Platform
plus.ly/greenido

Brad Abrams
Product Manager
Google Cloud Platform
http://bradabrams.com/+

Access: http://endpoints-trusted-tester.appspot.com

App:: **http://birra-io2012.appspot.com/**

Code: https://github.com/greenido/

Slides: ido-green.appspot.com

Related Sessions

Building Mobile App Engine Backends for Android, iOS and the Web

Catch it on YouTube later...

Building Android Applications that Use Web APIs

@ 5:15 in Room 9

Codelab: Building REST APIs for Mobile with App Engine

Friday @ 11am

Thank you!

Credits

- Offline - http://www.flickr.com/photos/11384441@N06/5102925749/
- Road - http://www.flickr.com/photos/95572727@N00/4848088053/