Google App Engine Overview

Chris Schalk
Developer Advocate

http://twitter.com/cschalk
What is cloud computing?
Cloud Computing Defined

SaaS

APaaS

IaaS

Source: Gartner AADI Summit Dec 2009
IaaS value proposition...
APaaS value proposition...
Google App Engine

• Easy to build
• Easy to maintain
• Easy to scale
By the numbers

250M+
daily pageviews

260,000+
developers

7 apps
In a word… via Wordle

Some App Engine Partners
Socialwok

The missing Social App for Google Apps
Your own feed based social network in Google Apps to create and share links, Google Calendar, Docs and more...

Login using Google Apps

TechCrunch50 2009 Demo Pit Winner
Social networking at scale

>62M Users
gigya Socialize
"Although we typically host all our services in-house, on our own infrastructure, we felt that GAE would be a better fit for the live chat feature because of its unique traffic pattern, which is characterized by very low traffic most of the time with very high bursts during high profile events."

Raviv Pavel, Gigya VP of Research and Development

http://googleappengine.blogspot.com/2010/02/scalability-means-flexibility.html#links
Why App Engine?
Managing Everything is Hard
DIY Hosting means hidden costs

- Idle capacity
- Software patches & upgrades
- License fees
- Lots of maintenance
- Traffic & utilization forecasting
- Upgrades
Cloud development in a box

SDK & “The Cloud”
Hardware
Networking
Operating system
Application runtime
Java, Python
Static file serving
Services
Fault tolerance
Load balancing
App Engine Details
Specialized Services

- Memcache
- Datastore
- URL Fetch
- Mail
- XMPP
- Task Queue
- Images
- Blobstore
- User Service
Language runtimes

Duke, the Java mascot

Copyright © Sun Microsystems Inc., all rights reserved.
Ensuring Portability

Java standards

- JSR-154: Java Servlet
- JSR-220, JSR-243: JDO / JPA
- Java SE
- JSR-919: java.net.URL
- JSR-107: javax.mail
- javax.cache

Low level App Engine APIs

- Web App Container
- Datastore API
- URL Fetch
- Mail API
- Memcache
Extended Language support through JVM

- Java
- Scala
- JRuby (Ruby)
- Groovy
- Quercus (PHP)
- Rhino (JavaScript)
- Jython (Python)
Always free to get started

- ~5M pageviews/month
- 6.5 CPU hrs/day
- 1 GB storage
- 650K URL Fetch calls/day
- 2,000 recipients emailed
- 1 GB/day bandwidth
- 100,000 tasks enqueued
- 650K XMPP messages/day
Application Platform Management
App Engine Dashboard

Charts

Requests/Second - all 24 hr 12 hr 6 hr

Billing Status: Enabled - Settings

<table>
<thead>
<tr>
<th>Resource (reset every 24 hours. Next reset: 10 hrs)</th>
<th>Usage</th>
<th>Cost / Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor $0.10/CPU hour</td>
<td>94% 48.30 of 51.30 hours</td>
<td>$0.20 / $0.40</td>
</tr>
<tr>
<td>Bandwidth In $0.10/Gbyte</td>
<td>80% 12.00 of 15.00 Gbytes</td>
<td>$0.20 / $0.40</td>
</tr>
<tr>
<td>Bandwidth Out $0.12/Gbyte</td>
<td>99% 14.10 of 14.17 Gbytes</td>
<td>$0.17 / $0.40</td>
</tr>
<tr>
<td>Storage $0.005/Gbyte</td>
<td>25% 25.12 of 100.50 Gbytes</td>
<td>$0.12 / $0.40</td>
</tr>
<tr>
<td>Email $0.0001/Message</td>
<td>20% 500 of 2500 Messages</td>
<td>$0.00 / $0.40</td>
</tr>
</tbody>
</table>

↑ = Free quota

Cost for the last 14 hours: $0.69

Current Load

<table>
<thead>
<tr>
<th>URI</th>
<th>Req/Sec current</th>
<th>Requests last 12 hrs</th>
<th>Avg CPU last hr</th>
<th>% CPU last 12 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>/</td>
<td>450.0</td>
<td>450</td>
<td>2</td>
<td>0%</td>
</tr>
</tbody>
</table>

Errors

<table>
<thead>
<tr>
<th>URI</th>
<th>Count</th>
<th>% Errors last 12 hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>/</td>
<td>39</td>
<td>9%</td>
</tr>
</tbody>
</table>
## App Engine Health History

<table>
<thead>
<tr>
<th>Datastore</th>
<th>Images</th>
<th>Mail</th>
<th>Memcache</th>
<th>Serving</th>
<th>Urfetch</th>
<th>Users</th>
</tr>
</thead>
</table>

The following symbols signify the most severe issue (if any) encountered during that day. Click a symbol in the table above to view a day’s performance graphs.

- ![Symbol] No issues or minor performance issues
- ![Symbol] Investigating
- ![Symbol] Service disruption
- ![Symbol] Unknown
Development Tools for App Engine
Google App Engine Launcher

![Google App Engine Launcher screenshot]

- **Name**: test1, halaka-dict, loermap, helloworld, holaitba, svedka
- **Port**: 8080, 8081, 8082, 8083, 8084, 8085
SDK Console
Google Plugin for Eclipse
20+ months in review

<table>
<thead>
<tr>
<th>Month</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2008</td>
<td>Python launch</td>
</tr>
<tr>
<td>May 2008</td>
<td>Memcache, Images API</td>
</tr>
<tr>
<td>Jul 2008</td>
<td>Logs export</td>
</tr>
<tr>
<td>Aug 2008</td>
<td>Batch write/delete</td>
</tr>
<tr>
<td>Oct 2008</td>
<td>HTTPS support</td>
</tr>
<tr>
<td>Dec 2008</td>
<td>Status dashboard, quota details</td>
</tr>
<tr>
<td>Feb 2009</td>
<td>Billing, larger files</td>
</tr>
<tr>
<td>Apr 2009</td>
<td>Java launch, DB import, cron support, SDC</td>
</tr>
<tr>
<td>May 2009</td>
<td>Key-only queries</td>
</tr>
<tr>
<td>Jun 2009</td>
<td>Task queues</td>
</tr>
<tr>
<td>Aug 2009</td>
<td>Kindless queries</td>
</tr>
<tr>
<td>Sep 2009</td>
<td>XMPP</td>
</tr>
<tr>
<td>Oct 2009</td>
<td>Incoming Email</td>
</tr>
<tr>
<td>Dec 2009</td>
<td>Blobstore</td>
</tr>
<tr>
<td>Feb 2010</td>
<td>Datastore cursors</td>
</tr>
</tbody>
</table>
Happy Birthday App Engine!

- Two years old as of Wed April 7th!
- Vibrant community of over 250k developers
- Over 250 million pageviews
Demos!

- Dashboard
- AppLauncher, Eclipse Plugin
- “Cloud Futures 2010 Wall” Demo App
- Codelab details
  - bit.ly/gcodelabs
    - See: “App Engine”
More Info on App Engine:

• http://code.google.com/appengine

• http://googleappengine.blogspot.com/
• http://gae-java-persistence.blogspot.com/
Questions/Contact info

Twitter
  • twitter.com/cschalk