

Google App Engine

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Google App Engine is:

Web application hosting
"in the cloud"

BUT with a specific
"Googley twist..."

No fixed costs – pay only
for the traffic you use

Free to get started

"Slashdot effect" a thing of
the past

The "Googley twist":

A laser-like focus on making ONE technology stack work well.

Benefits:

- Deep out-of-the-box functionality
- Friendly development cycle

Cost:

- It's DIFFERENT

HTML, CSS, and Python

Static content:

- Any static content is fine
- HTML, CSS, images, Flash -- you name it

Dynamic content:

- Python is the only programming language

Why Python?

- Google uses Python extensively – since Larry & Sergey were at Stanford
- An open-source scripting language – one of the "P's" in "LAMP"
- Powerful and pleasant to work with
- Google employs the "father of Python", Guido van Rossum, now on the App Engine team

This means NO...

- **No** Java
- **No** PHP
- **No** Perl
- **No** ColdFusion
- **No** C# or VisualBasic

ONLY Python code -- for now

Cheer up, Python is fun!

```
Python 2.5.1 (r251:54863, Jan 17 2008, 19:35:17)
```

```
>>> import this
```

```
The Zen of Python, by Tim Peters
```

```
Beautiful is better than ugly.
```

```
Explicit is better than implicit.
```

```
Simple is better than complex.
```

```
Complex is better than complicated.
```

```
Flat is better than nested.
```

```
Sparse is better than dense.
```

```
Readability counts.
```

```
...
```

"Hello world" in Python

```
>>> print "Hello world"
```

```
Hello world
```

```
>>> import datetime
```

```
>>> print "Today is %s" % datetime.date.today()
```

```
Today is 2008-08-12
```

```
>>> from pydoc import help
```

```
>>> help()
```

```
Welcome to Python 2.5!  This is the online help  
utility.
```

```
...
```


More restrictions: Web Server, DB

Remember, Google is making **one technology stack** work well on App Engine

This means:

- Custom Web Server
- Custom Database

This means NO... (part two)

Custom web server:

- **NO** Apache or IIS

Custom Database:

- **NO** MySQL or MSSQL or Postgres
- Not relational: No SQL at all

You can read plain files but NOT write. All writes must go to the custom datastore.

Why so many restrictions?

Because it makes "magic" possible :-)

- Scalability
- Automatically deployed on multiple servers
- Automatic load-balancing

These can be very expensive to roll on your own.
Google App Engine gives you them for free – if you play within the constraints

Let's Start Coding

Download the SDK:

- <http://code.google.com/appengine/>

Make sure you have Python 2.5+ installed:

- Mac: it's preinstalled on OS X 10.5 "Leopard"
- Windows: <http://python.org/download/>

Also need a good programmer's text editor

Start a demo app

```
dev_appserver.py [options] <application root>
```

You need to run this from the command line.

On Windows: it helps to have a decent command shell - the built-in "command prompt" is painful to use.

Cygwin: <http://www.cygwin.com/>

Start a demo app (2)

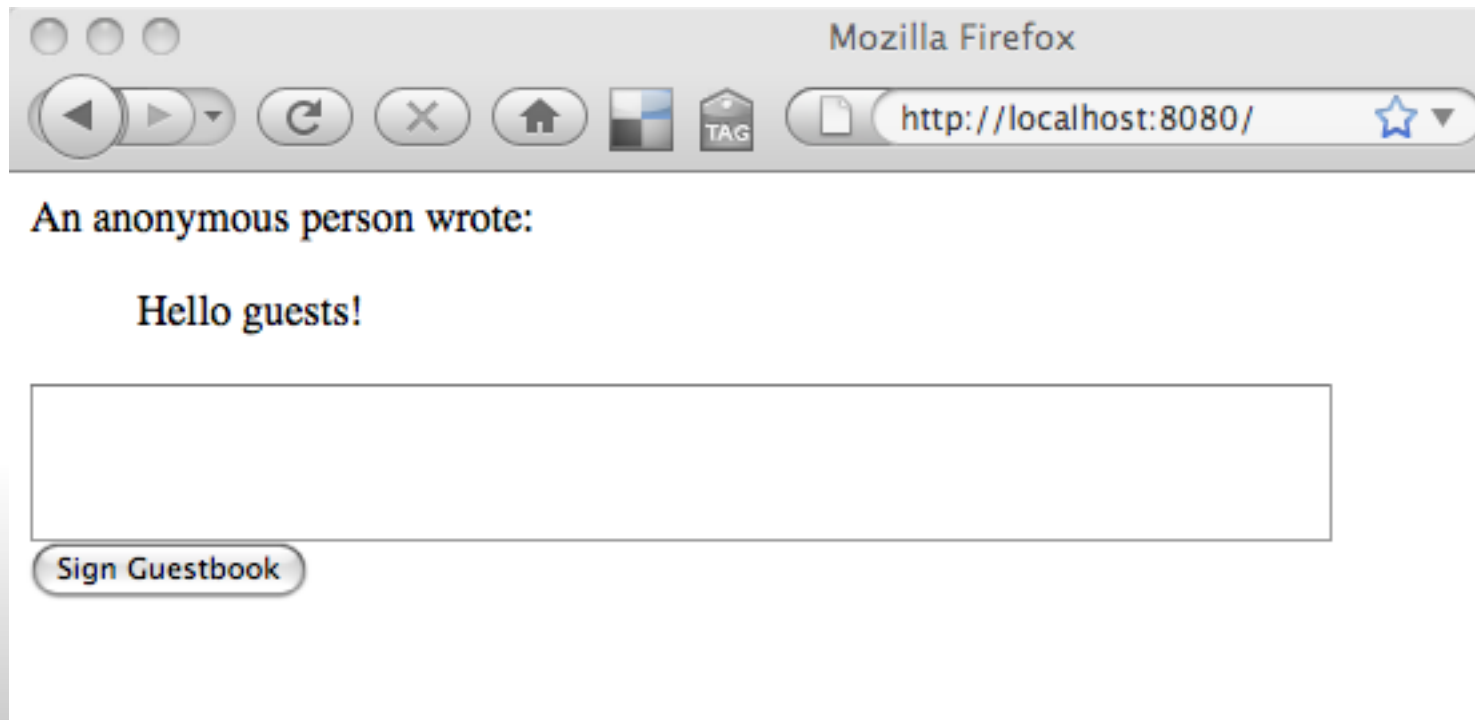
On Mac (open Terminal.app)

```
cd /usr/local/google_appengine  
./dev_appserver.py demos/guestbook
```

```
INFO      2008-08-13 19:13:42,755 appcfg.py]  
Server: appengine.google.com  
INFO      2008-08-13 19:13:43,318  
dev_appserver_main.py] Running application  
guestbook on port 8080: http://localhost:8080
```

Start a demo app (3)

Running application guestbook on port 8080: <http://localhost:8080>



Inside the demo app

This "guestbook" app consists of:

- app.yaml
- guestbook.py

```
$ cat app.yaml
application: guestbook
version: 1
runtime: python
api_version: 1
```

```
handlers:
- url: .*
  script: guestbook.py
```


Inside the demo app (2)

```
# define classes MainPage, Guestbook
# then..
application = webapp.WSGIApplication([
    ('/', MainPage),
    ('/sign', Guestbook)
], debug=True)

def main():
    wsgiref.handlers.CGIHandler().run(application)

if __name__ == '__main__':
    main()
```

Goodies that Google gives us

Very easy integration with Google user accounts!

- User can login to YOUR app with their Gmail (etc) login

Scalable data store

- Supports simple SQL-like queries... but **no "joins"**

Other APIs:

- Image resizing
- URL fetching
- Sending email
- Memcache

What web framework to use?

Almost any (Python) web framework can be used.

Provided with SDK:

- simple "webapp" framework
- examples for Django -- more powerful framework

More interesting demo: "Rietveld"

<http://code.google.com/p/rietveld/>

- Written with Django framework
- Written by Guido himself
- Real app for "collaborative source code review"
- Live demo: <http://codereview.appspot.com/>

"Rietveld" screenshot

A screenshot of a web browser's address bar. The title bar above the address bar reads "Recent Issues - Code Review". The address bar itself contains the URL "http://codereview.appspot.com/". To the left of the address bar are standard navigation buttons: back, forward, reload, home, and a search icon. To the right of the address bar is a search engine selector showing "Google" and a search icon.

Rietveld Code Review Tool

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(24)

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Recent Issues

1 - 10 Older >					
ID	Subject	Owner	Reviewers	Comments	Drafts Last updated
▶ 2917	test_syntax.py: make errtext optional, and fixed illegal delete of function call.	fwierzbicki			1 minute
2914	catch exceptions in our worker threads, small tweak to the toolbar.	ThomasVL	dmaciach	1	18 minutes
2827	[issue3300] urllib.quote and unquote - Unicode issues	GvR	GvR , Antoine Pitrou , mgiuca	61	58 minutes
2907	Test Issue: Changing Group's base class to SkinnableComponent	frishy	egeorgie , hmuller , rfrishbe , evtim	4	2 hours, 23 minutes
2929	[test] Fix for HeadingElement.as() (issue 2621)	igw	jlabanca		2 hours, 45 minutes
2923	remove direct exception throwing for tooling.	fwierzbicki	Leo Soto M.	2	4 hours, 29 minutes
2913	test10	ondrej.certik			7 hours, 29 minutes
2912	test6	ondrej.certik			7 hours, 38 minutes
2911	test5	ondrej.certik			7 hours, 38 minutes
2928	Merging from internal	aviv.goog	appleton		9 hours, 7 minutes
1 - 10 Older >					



This is Rietveld r226

Registering and uploading

Register at <http://appengine.google.com/>

Choose a name for your app -- set in app.yaml.
Deployed at "<your-app-name> .appspot.com"

Example: <http://riyasrags.com/>

"riyasrags.com" is a DNS entry pointing to
<http://riyasrags.appspot.com/>

Getting started with Python

Online Python tutorial:

- <http://www.python.org/doc/tut/>

Books:

- "Learning Python" and "Python Cookbook" – published by O'Reilly
- "Python Essential Reference" – published by New Riders

Links about GAE

Nice review of GAE from a PHP developer's perspective:

<http://funkatron.com/site/comments/google-app-engine-from-a-php-developers-perspective/>

Get the SDK

<http://code.google.com/appengine/downloads.html>

More samples:

<http://code.google.com/p/google-app-engine-samples/>

Articles about GAE:

<http://code.google.com/appengine/articles/>

Questions?

This presentation published at:

http://docs.google.com/Presentation?id=dgfsrdhz_0qt78vnc5

