



App Engine Overview

a web608 talk

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What is it...

Why you should try it...

Anatomy of an app...

Show and tell...

Wrap up...



Run your web apps on Google's infrastructure

Automatic load balancing

Automatic scaling

Automatic data replication

Google user authentication



A robust set of platform APIs

Internal Services:

- memcache (distributed)
- task queue
- cron
- datastore
- logging
- images
- blobstore
- user authentication

External Services:

- URL fetcher
- Email (in/outbound)
- XMPP



Locked into Googley Technologies

(It's not Slicehost or EC2)

Python or Java (or Go!?)

Non-relational datastore (BigTable)

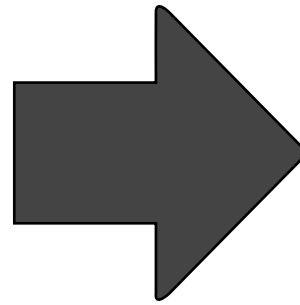
webapp framework (Django is supported)

No native code or file writes

Why you should try it...



Why you should try it...



Why you should try it...



Super practical for experiments

Don't let your ideas rot on the shelf

Eliminate idle capacity, maintenance
cost, software patches, licenses

Uber-analytics

Why you should try it...



Easy

Easy to build

Easy to maintain

Easy to scale

Why you should try it...



FREE!
(to get started)

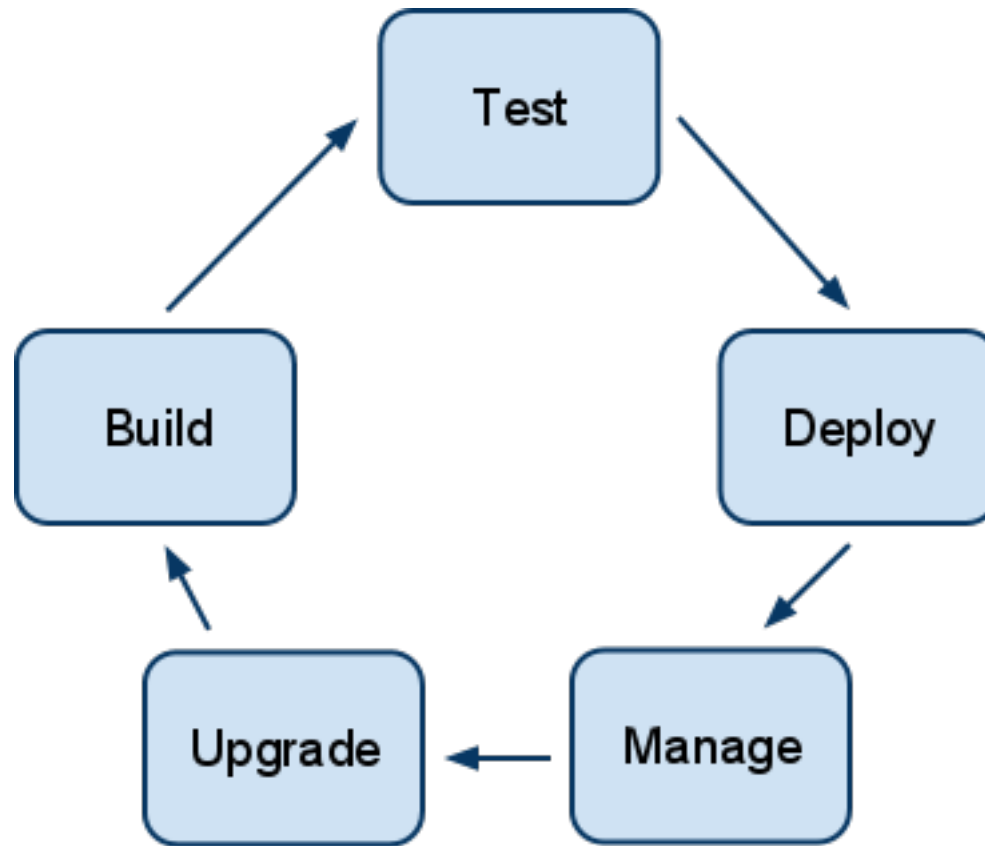
500MB storage

2GB bandwidth/day

5M pageviews/month

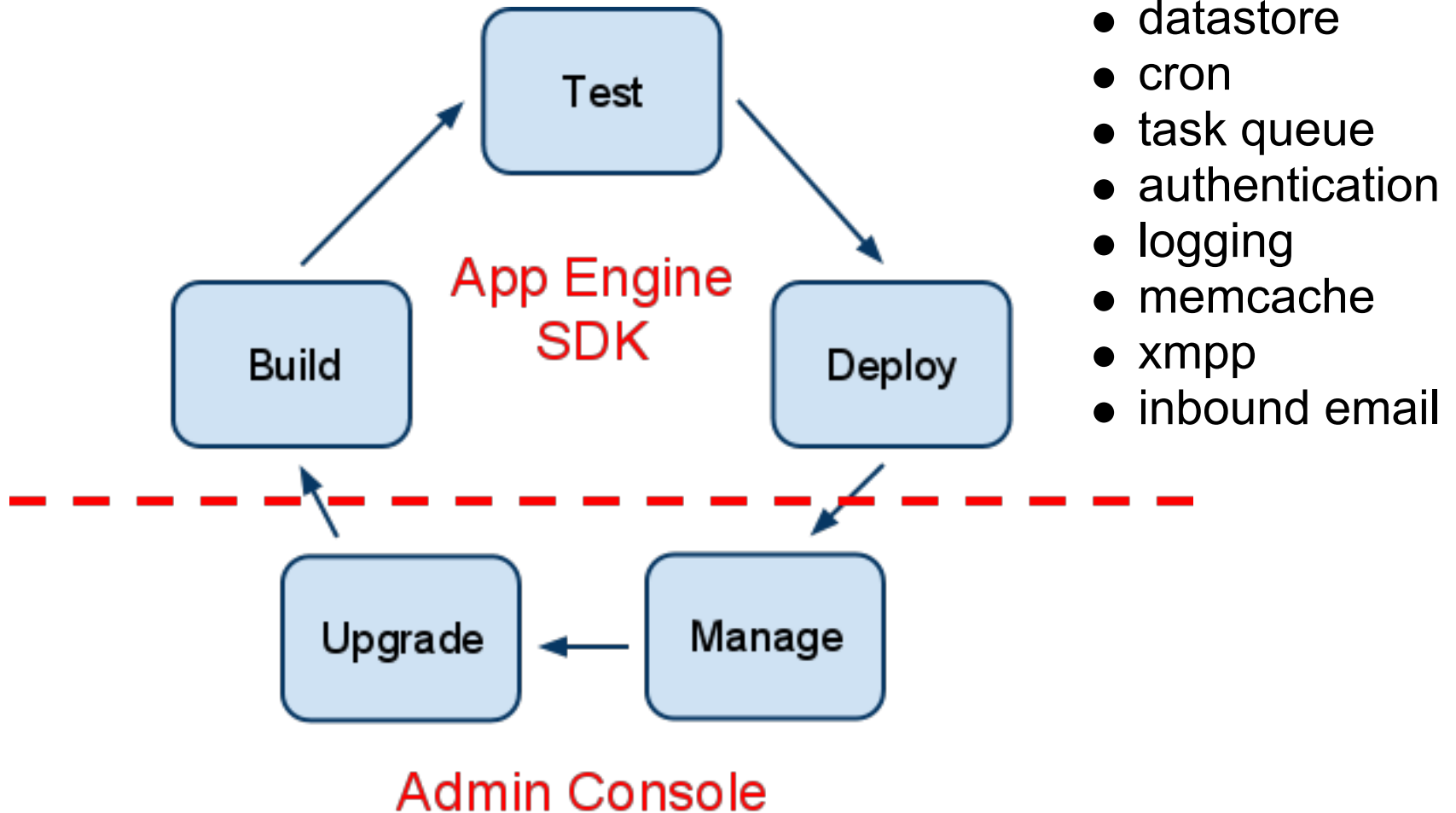


Development lifecycle





Development lifecycle





Rich admin console

Google app engine greg.tracy@att.net | [My Account](#) | [Help](#) | [Sign out](#)

smsmybus 8 [Show All Applications](#)

Main

- Dashboard**
- [Quota Details](#)
- [Logs](#)
- [Cron Jobs](#)
- [Task Queues](#)

Data

- [Datastore Indexes](#)
- [Datastore Viewer](#)
- [Datastore Statistics](#)
- [Blob Viewer](#)

Administration

- [Application Settings](#)
- [Developers](#)
- [Versions](#)
- [Admin Logs](#)

Billing

- [Billing Settings](#)
- [Billing History](#)

Resources

- [Documentation](#)
- [FAQ](#)
- [Developer Forum](#)

Charts

Requests/Second all 24 hr 12 hr 6 hr

Billing Status: Free - [Settings](#) Quotas reset every 24 hours. Next reset: 10 hrs

Resource	Usage
CPU Time	0% 0.00 of 6.50 CPU hours
Outgoing Bandwidth	0% 0.00 of 1.00 GBytes
Incoming Bandwidth	0% 0.00 of 1.00 GBytes
Total Stored Data	1% 0.01 of 1.00 GBytes
Recipients Emailed	0% 0 of 2000

Current Load

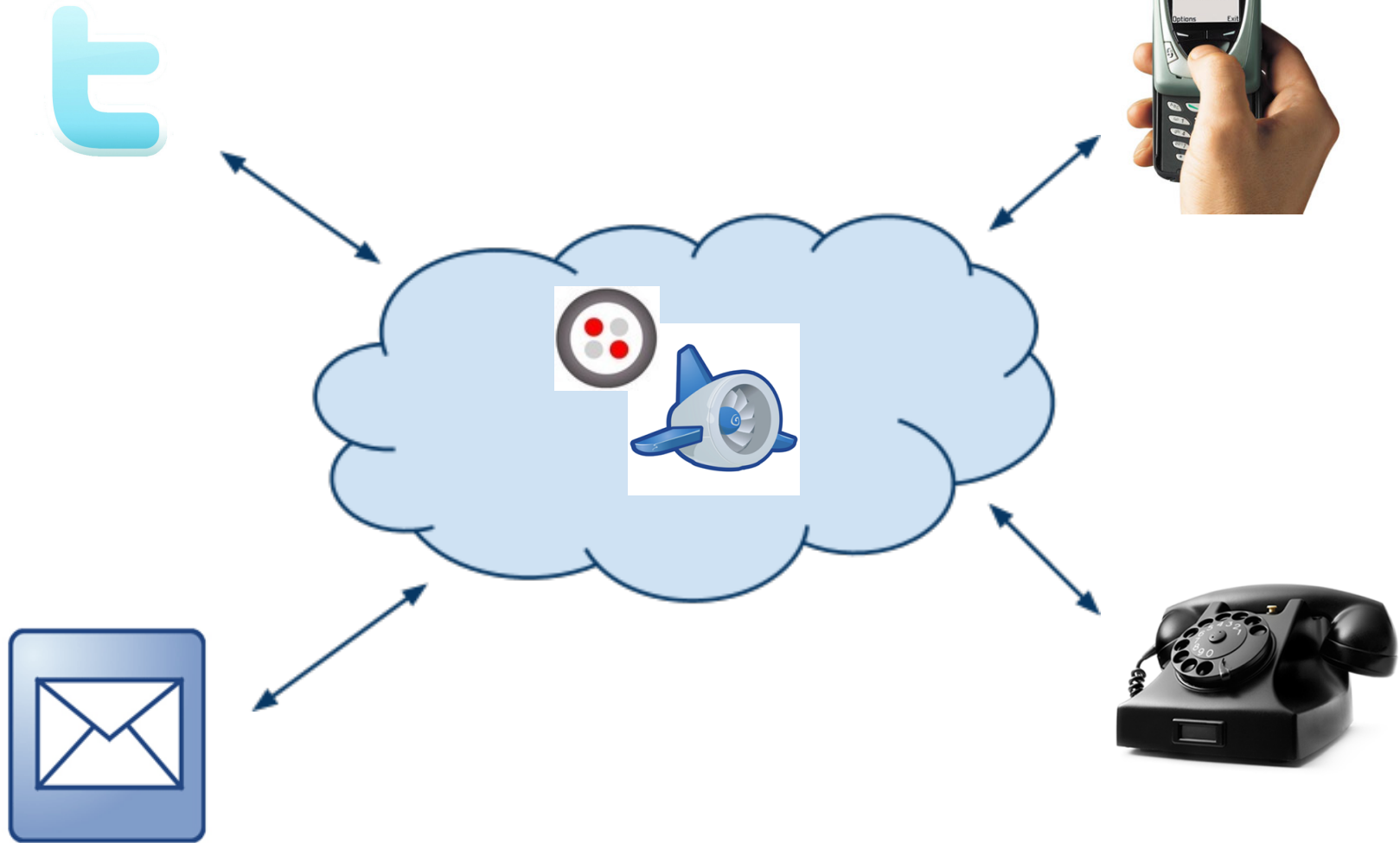
URI	Requests last 14 hrs	Avg CPU (API) last hr	% CPU last 14 hrs
/aggregationtask	5	0 (0)	71%
/twitter/request	4	0 (0)	0%
/style.css	2	0 (0)	0%
/img/twilio-logo.png	2	0 (0)	0%

Errors

URI	Count	% Errors last 14 hrs
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SMS My Bus





the datastore

store data as
entities with
properties

```
class BusStopAggregation(db.Model):  
    dateAdded = db.DateTimeProperty()  
    routeID   = db.StringProperty()  
    stopID    = db.StringProperty()  
    time      = db.IntegerProperty()  
    text      = db.StringProperty(multiline=True)  
    sid       = db.StringProperty()
```

sql-like queries

```
SELECT * FROM BusStopAggregation WHERE sid = :1 ORDER BY time, sid
```



1. app.yaml

```
application: smsmybus
version: 8
runtime: python
api_version: 1

inbound_services:
- mail

handlers:
- url: /
  static_files: index.html
  upload: index.html

- url: /*
  script: main.py
```



2. webapp adapter

```
def main():
    logging.getLogger().setLevel(logging.DEBUG)
    application = webapp.WSGIApplication([('/', MainHandler),
                                         ('/request', RequestHandler),
                                         ('/_ah/mail/.+', EmailRequestHandler),
                                         ('/configure', crawler.CrawlerHandler),
                                         ('/cleandb', CleanAggregatorHandler),
                                         ('/crawlingtask', crawler.CrawlingTaskHandler),
                                         ('/loggingtask', PhoneLogEventHandler),
                                         ('/aggregationtask', AggregationHandler),
                                         ('/aggregationSMStask', AggregationSMSHandler),
                                         ('/sendsmstask', SendSMSHandler)
                                         ],
                                         debug=True)
    wsgiref.handlers.CGIHandler().run(application)
```





3. Handler definition

```
class RequestHandler (webapp.RequestHandler):  
    def get (self):  
        self.get ()  
    def post (self):  
        # logging.info("The request from Twilio %s" % self.request)  
        # validate it is in fact coming from twilio  
        if ACCOUNT_SID != self.request.get('AccountSid'):  
            logging.error("Inbound request was NOT VALID. It might have been spoofed!")  
            self.response.out.write(errorResponse("Illegal caller"))  
            return  
  
        smsBody = self.request.get('Body')  
        # log every inbound request  
        logging.info("New inbound request from %s with message, %s" % (self.request.get('From'), smsBody))  
  
        # first look to see if this is an invite request  
        if smsBody.lower().find('invite') > -1:  
            sendInvite(self.request)  
            return
```



4. Request response

```
# setup the response SMS
r = twilio.Response()
smsBody = "Route %s, Stop %s" % (routeID, stopID) + "\n" + textBody
r.append(twilio.Sms(smsBody))
self.response.out.write(r)
```

webapp has a templating system as well



Twilio magic

(omg, did he just send a text with two lines of code?!)

HTTP-based cloud telephony

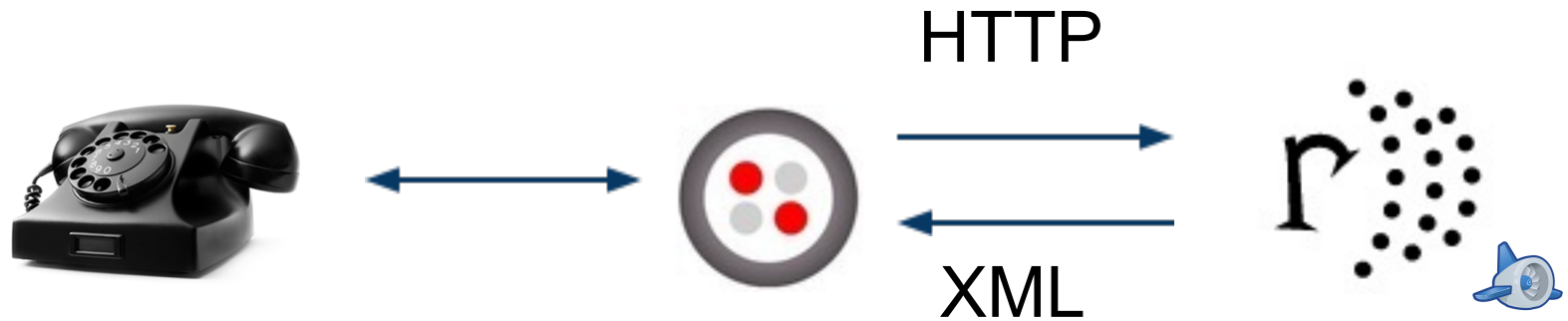
Pay as you go plan

Voice, SMS & Conferencing



Twilio magic

(focus on your app logic)



Twiml Verbs (actions)

<Say> <Play> <Gather> <Record> <Sms> <Dial>



Twiml Example

```
<Response>  
  <Gather method=POST action="{{responseURL}}">  
    <Say>Enter your route number</Say>  
  </Gather>  
</Response>
```

Show and tell...



smsmybus

608-467-1603



APOD - NASA - GREG

Email Signup: Astronomy Picture of the Day (APOD)

Get [APOD](#) in your email inbox each day!

This project was originally started for my father when I was in grad school. He wanted a more efficient way of viewing [NASA's APOD site](#) every day. Since, at the time, RSS had not really taken off, I wrote a little script that scraped the APOD page and packaged it in a nice little email for him.

Now it's been six plus years and there are 686 people on the distribution list. Who knew!?

Erinook



A library for my friends

ringorous



415-367-3142





The Good

Development tools are stellar

Core APIs are stellar

Documentation & community are stellar

Allowed to focus on the biz logic!

Free + Auto-scaling

Wrap up...



The Tricks

Memcache and Task Queue are your best friends



The Bad

Resource constraints can be challenging

Support when things break

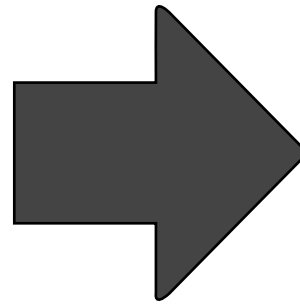
Lock-in concern

I hope you want to program in Python or Java

Wrap up...



The Good





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