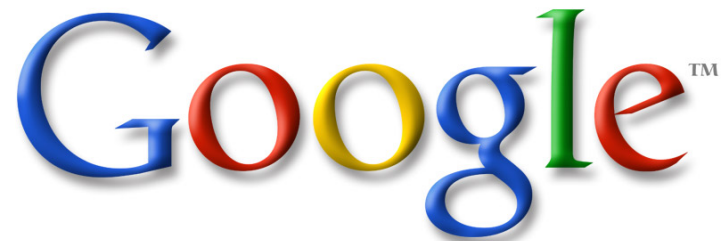


<http://e44.us/rt>

Slides link...

Google Software Development

... with App Engine / Java



Gianni Mariani

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My Background

- Primary role App Engine/Java
- U.S. based start-ups
- Silicon Graphics and Microsoft
- UNSW Alumni ('83)

What to Expect

- Array of API's Tools and Resources at Google
- Open Source Commitment
- Use Google's Infrastructure with App Engine
- App Engine Demo

About You A&Q

What experiences have you had with Google App Engine?

- Developments, deployments
- Installs
- Rumors

Breadth First - Google Developer Tools

Not an exhaustive list.... <http://code.google.com>

App Engine <http://code.google.com/appengine/>

Android <http://developer.android.com/index.html>

Google Web Toolkit - GWT

Google Docs <http://docs.google.com/>

Google Apps <http://sl.im/3axs>

Maps

Gadgets

YouTube

Gears

Wave

Many Open Source Projects <http://code.google.com>

NOW (not vapourware)

Why Cloud Computing?

- Cost, Scalability, Reliability
- Low startup threshold
- Keeping current, evolving

... inevitable

Nick Carr [The Big Switch](#)

<http://sl.im/3adj> http://www.theregister.co.uk/2008/01/18/scc_12_nick_carr/

- Where is my data? Security.

Cloud Efforts At Google

App Engine

Chrome

Google Docs

Google Apps

Maps

Gadgets

YouTube

Gears

Voice

Wave

++ more ...

App Engine

- Infrastructure- Run on Google Servers
- System Console- Administration for your application.
- Developer Tools
- API's (Java and Python)
- ...
- Quick (Develop and Deploy)
- Inexpensive
- Scales

App Engine Examples

- twazzup - www.twazzup.com/
- moderator - www.whitehouse.gov/openforquestions/
- victorian bush fire maps - <http://mapvisage.lakesneedwater.org/fires/FireMap.html>
- ezasset - www.ezasset.com
- Alexa's top 10 GAE sites : <http://sl.im/3adq>

So much more: <http://appgallery.appspot.com/>

Scale, Provisioning, Volume

ANYONE ANYTIME almost ANYWHERE

Infrastructure

BIG

App Engine Console

appengine.google.com

<http://sl.im/3adk>

- Create "appid" -> appid.appspot.com
- Logs, Quotas, Cron Jobs, Tasks, Datastore, Billing
- ACL, Versioning

Developer Tools

- shell & vi
- eclipse (d.l. eclipse here: <http://sl.im/3axr>)
- Google App Engine Eclipse Plugin
- "Dev App Server"
- Linux, Windoze, Mac

TEST LOCALLY DEPLOY OFTEN
(Java plugins.)

<http://dl.google.com/eclipse/plugin/3.4>

<http://dl.google.com/eclipse/plugin/3.5>

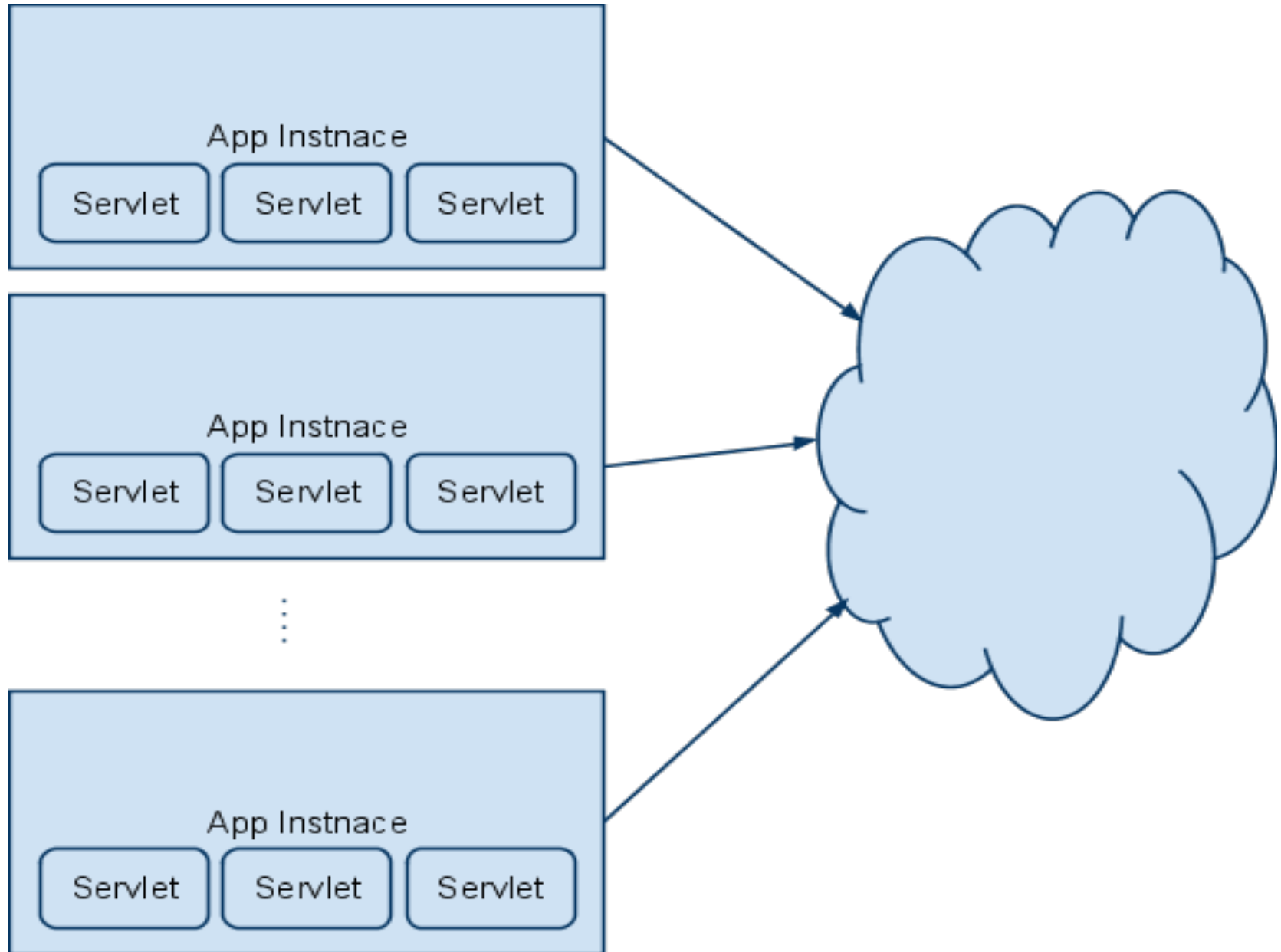
Restricted API

1. No new Thread(), file write, sockets
2. Limited execution time
3. Limited I/O
4. No "System calls"

(No restriction on uploading third party jars.)

STILL MULTI-THREADED - multiple requests will be served from a single JVM instance. No telling which JVM instance requests will be served from.

Execution Model



App Engine Java API's

- JVM based languages (JRuby/Scala/Groovy/Jython ++ etc).
- JSP and or Google Web Toolkit - GWT (client)
- Datastore - NOT SQL, JDO---
- URLFetch, SDC (Secure Data Connector)
- User
- Memcache
- Mail
- Images
- Task Queue
- ++ more to come

Google Web Toolkit

Sometimes pronounced GWT (guit)

Java->Javascript compiler

- Don't think HTML - think Widgets ala Motif, Qt etc
- RPC integration with App Engine
- Native Javascript FFI
- Integrated with Eclipse and Dev Server

Datastore

- Designed to Scale
- JDO/JPA (with limitations)
- Transactions within "Entity Groups"

More on this later in the talk time permitting.

User

- Is logged in
- Redirect for "Login" URL
- Email address
- Special Datastore type

Memcache

- Faster than Datastore
- One copy per key
- Servlet session
- Shared by all instances of an appid
- May expire (will expire.)

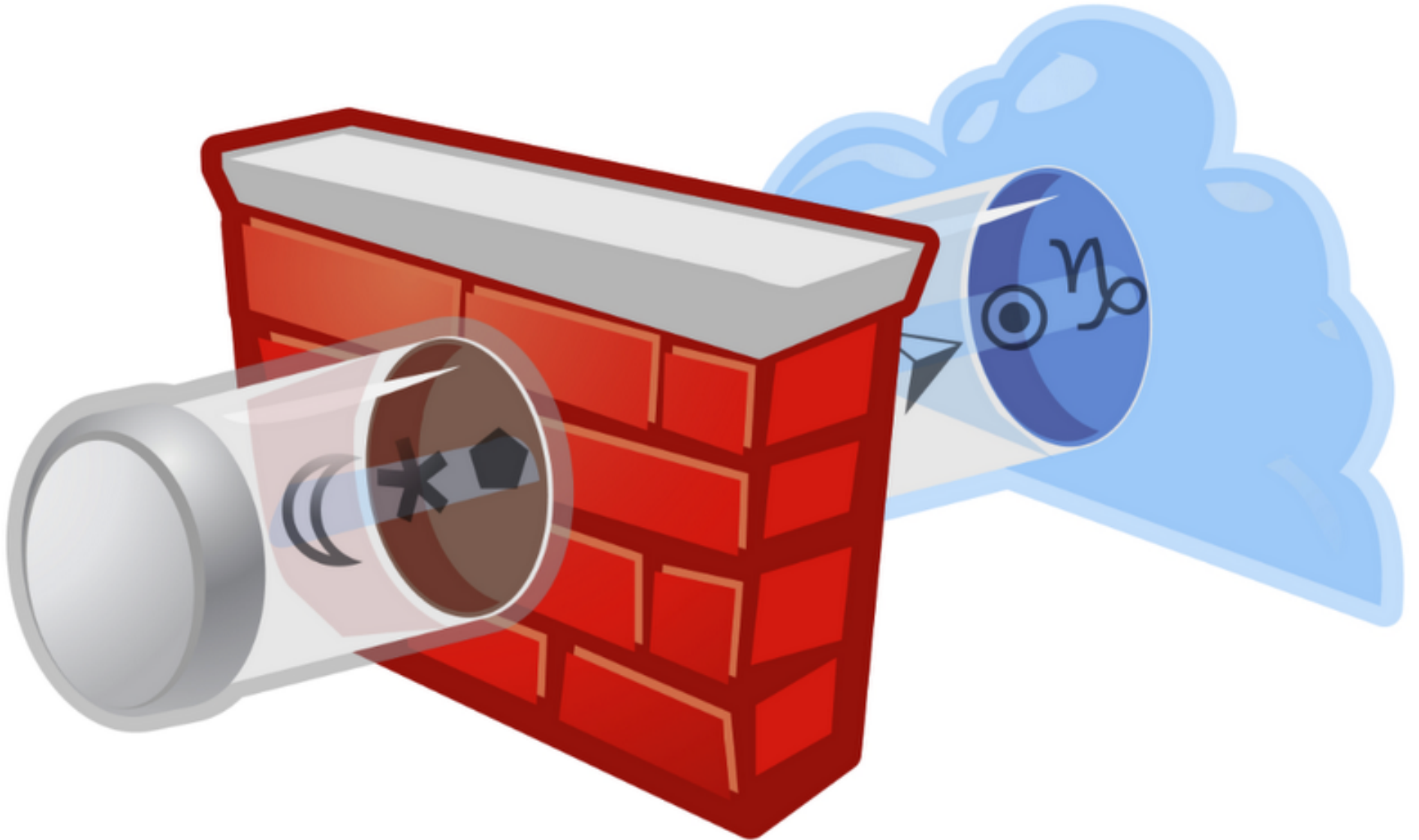
Task Queue and Cron

- Cron jobs run periodically
- Tasks will rerun until they succeed
- Tasks have a small payload (10KB)

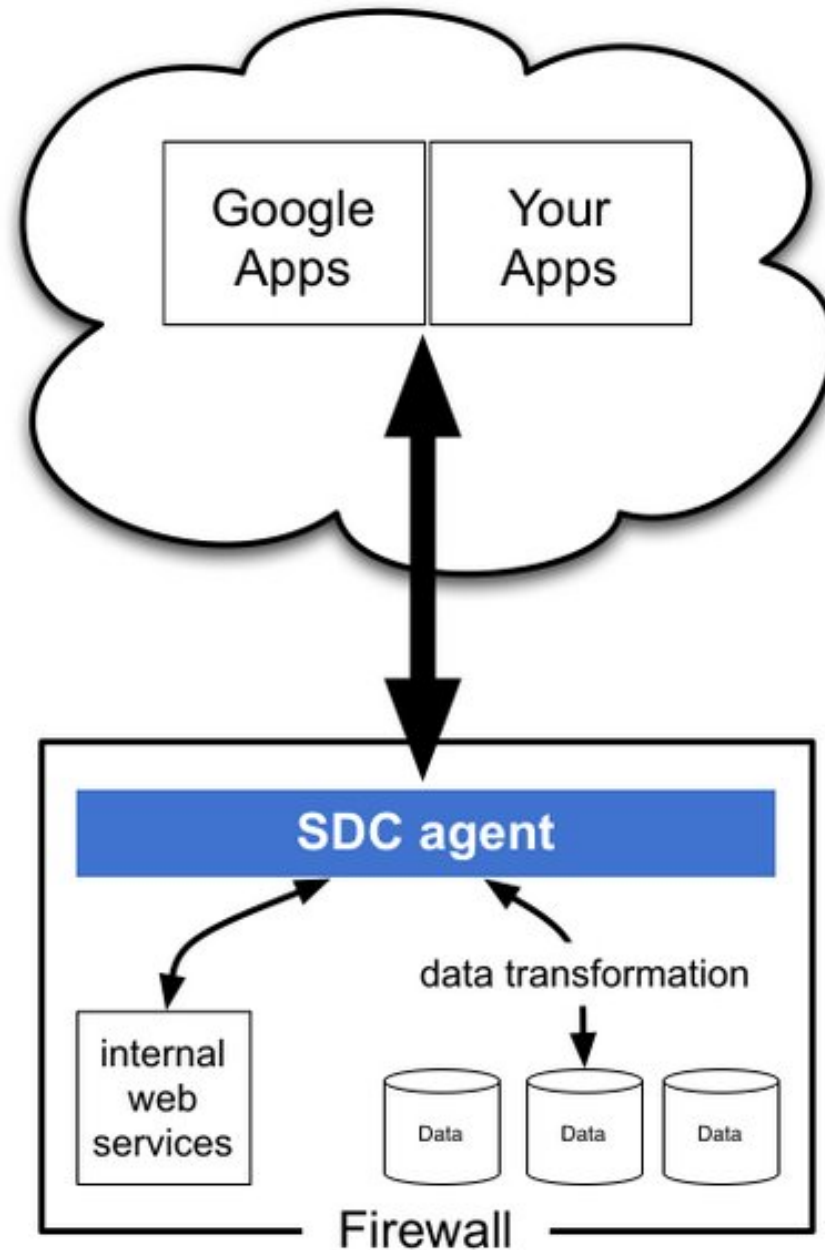
UrlFetch + SDC

- Fetch URL
- Synchronous API
- SDC exposed as UrlFetch with a flag in App Engine

Secure Data Connector (SDC)



SDC Architecture



SDC Prerequisites

1. Google Apps Domain
2. Premier Edition
3. Appid created for Apps Domain
4. Appid "enabled" for Apps Domain.
5. Install and run SDC server

Data Modelling w Datastore

- Limitations on Queries (size of returned set, no joins).
- Entity groups and Transactions
- Indexes on everything by default

Datastore Interfaces

- JDO-- or Low Level Datastore
- Key type "kind" and "int or String" (AppId + Namespace)
- Entity == Record (tuple of name/value pairs)
- Query

Demo - Create and Deploy Simple App

- Eclipse Plugin
- Datastore
- Mapping URL's (web.xml)
- GWT
- UI Basics
- RPC

<http://sl.im/3bac>

The Demo - Short Links

- Just like <http://sl.im> or <http://tinyurl.com>
- web.xml : <error-page> is broken
-

<http://sl.im/3bachhttp://e44.us/1>