

# Drawing SVG in the Cloud

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SVG Tiny for Google App Engine

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# Agenda

- Google App Engine
- TinyLine
- Demos (Basic and SVGArk)
- Future development
- Q&A



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# Google App Engine



# Google App Engine

- Cloud computing technology
- Scalable web applications on Google infrastructure
- Java Runtime
- Standard API to the Google App Engine datastore and services



# Java Runtime Environment



- Common Java web development tools and API standards.
  - Java SE runtime Java 6 VM
  - Java servlets, Java Server Pages (JSP)
  - Java Data Objects (JDO), Java Persistence API (JPA)
  - JavaMail API
-

# Datastore and Services



- User service API
- Memcache uses JCache API (JSR 107)
- The Datastore (JDO and JPA)
- URL Fetch.
- Mail service (JavaMail)
- Images service
- Scheduled Tasks and Task Queues

# Sandbox



Restriction	Alternative
Threads	Modify the thread state
Direct network connections	URLConnection
Direct file system writes	Use memory, memcache, datastore
Java2D	Images API, Software rendering
Native code	Pure Java libraries

# Server side graphics



- Need for the server side graphics (data visualization, copy and paste charts, diagrams or over graphics as still images, static preview or capture of a dynamic presentation)
  - The server side graphics support is very limited. (Images API to manipulate image data, Java2D is not allowed).
  - Software rendering
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**TinyLine**



# TinyLine

- TinyLine 2D
- TinyLine SVG
- TinyLine for GAE

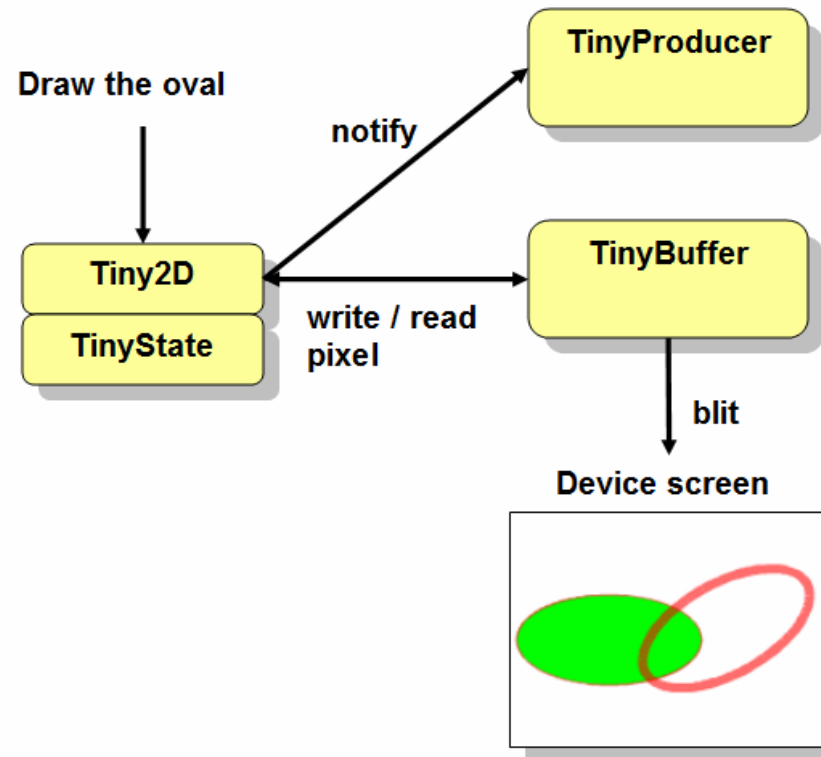


# TinyLine 2D



- Small footprint
- Fast fixed-point numbers mathematics
- Paths, basic shapes and texts drawings
- Hit tests for paths and texts
- Solid color, bitmap, pattern, gradient (radial and linear) paints
- Fill, stroke and dash
- Affine transformations
- Outline fonts
- Left-to-right, right-to-left and vertical text layouts
- Antialiasing
- Opacity

# 2D drawing pipeline



# TinyLine 2D

- The painters model
- Coordinate spaces
- Graphics elements
- Text and fonts
- Colors

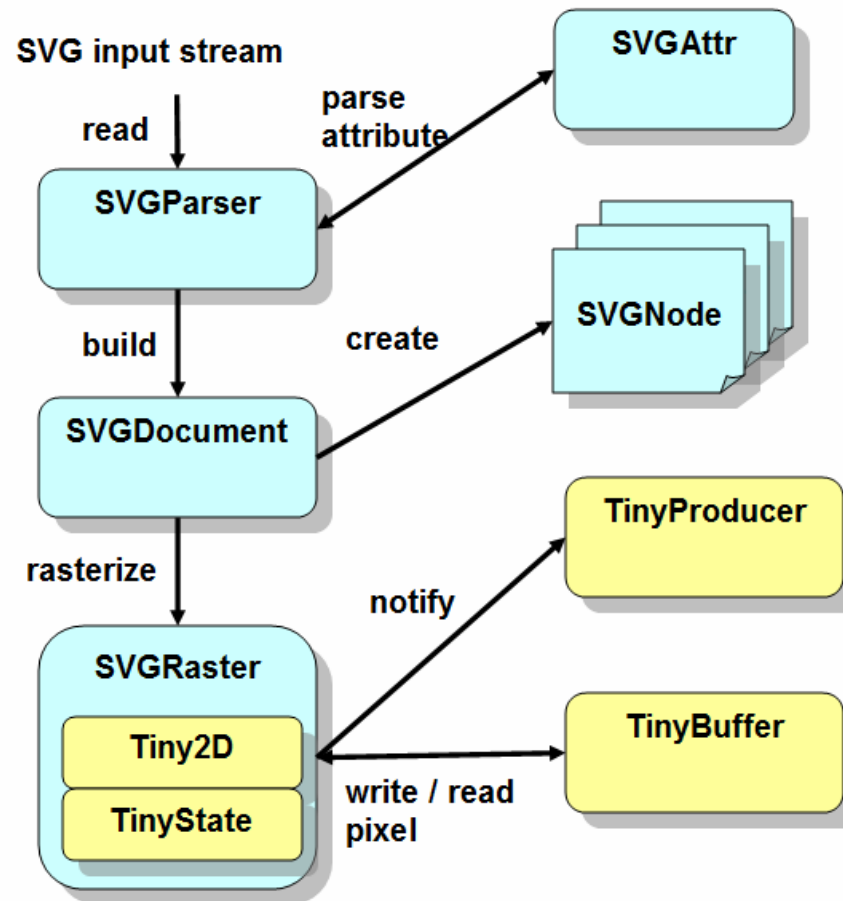


# TinyLine SVG



- SVG Tiny 1.1+ engine
  - SVG fonts, raster image and text elements, paths
  - SMIL animations and events
  - Textual and gzipped SVG streams
  - Compact code
  - Easy to use API
-

# SVG pipeline



# TinyLine for GAE



- TinyLine is extremely portable across Java flavors
- Raster images
- 2D and SVG Canvases

# TinyLine for GAE(2)



`com.tinyline.appengine.ImageWriter`

`com.tinyline.appengine.AppImageLoader`

`com.tinyline.appengine.AppTiny2DProducer`

`com.tinyline.appengine.AppTiny2DCanvas`

`com.tinyline.appengine.AppViewerCanvas`

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# Basic demos



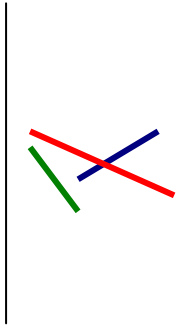
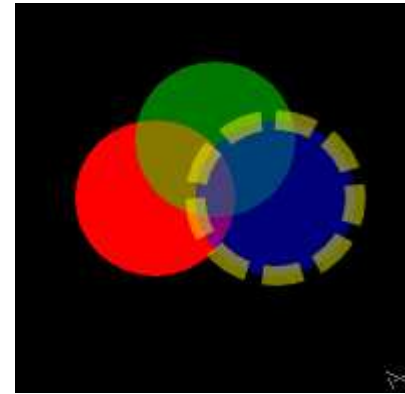
# Basic demos

- TinyLine 2D Examples
- SVG Thumbnail images
- Barcode example



# TinyLine 2D Examples

- Colors
- Patterns
- Gradients
- And others...



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# Demo

<http://tinylinetae.appspot.com/>

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# SVG Thumbnail images



**SVG Tiny drawing service**  
powered by TinyLine GAE

SVG Tiny 1.1 plus document to draw:

**Draw**

Target PNG width (px):

Target PNG height (px):

# SVG Thumbnail images(2)



(c) Edik Mitgartz



(c) Edik Mitgartz



(c) Edik Mitgartz



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# Demo

<http://tinylinetae.appspot.com/>

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# Barcode example

- TinyLine helps porting other Java apps
- Barcode4J port



Barcode example

**Symbology:**

code128 ▾

**Content:**

Code 128 barcode

Generate



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# Demo

<http://tinylinergae.appspot.com/>

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# SVGArk: Store & Search SVG



# SVGArk: Store & Search SVG



- Overview
- Users
- Uploading SVG files
- Storing SVG files
- Searching SVG files
- Limitations

# Overview



- Store and search SVG files
- Use thumbnail images for organizing SVG listings, SVG directories and SVG search result lists.

# Overview(2)

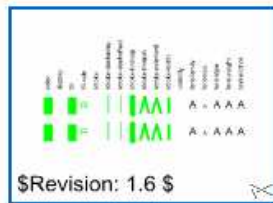


SVGArk 

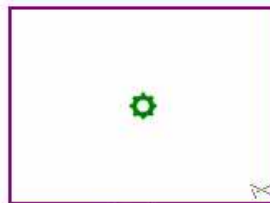
dov [Sign Out](#)

[Home](#) [My Images](#) [Upload](#)

## Recently added Images:



By dov



By dov



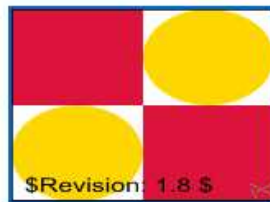
By edik



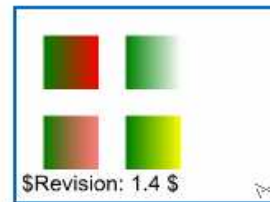
By edik



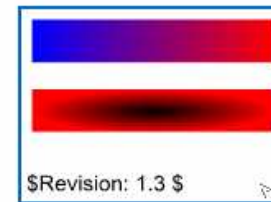
By edik



By test



By test



By test

# Users




- Users service allows SVGArk to integrate with Google user accounts.

```
UserService userService =
    UserServiceFactory.getUserService();
if (userService.isUserLoggedIn())
{
    isAllowedUser = true;
    user = userService.getCurrentUser();
}
```


# Uploading SVG files



SVGArk  dov [Sign Out](#)

[Home](#) [My Images](#) [Upload](#)

SVG Tiny file:


SVGArk  dov [Sign Out](#)

[Home](#) [My Images](#) [Upload](#)

**My Images:**



\$Revision: 1.6 \$



# Storing SVG files



- JDO API to store objects in the datastore

```
com.tinyline.appengine.demos.svgark.
```

```
SVGFile
```

```
com.tinyline.appengine.demos.svgark.PMF
```

```
com.tinyline.appengine.demos.svgark.
```

```
SVGArk
```

# Searching SVG files



- SVG files are search engines friendly
- The lack of full text search support in the Google App Engine datastore
- Apache Lucene project
- Self-merge joins to do some basic full text search

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# Demo

<http://svgark.appspot.com/>

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# Limitations

- SVG file cannot be bigger than 1MB
- The number of search terms is limited (around 5)
- SVG Tiny 1.1 plus



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# Future Development

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# Future development

- SVG Tiny 1.2
- SVG Full 1.1
- Apache Lucene
- Search robot



# Resources



- Google App Engine Java Overview  
<http://code.google.com/appengine/docs/java/overview.html>
- TinyLine <http://www.tinyline.com>
- TinyLine GAE Demos  
<http://tinylinegae.appspot.com/>
- SVGArk <http://svgark.appspot.com/>
- Barcode4J library  
<http://barcode4j.sourceforge.net>

## Resources(2)



- SVG Tiny 1.2 Specification, W3C Candidate Recommendation  
<http://www.w3.org/TR/SVGMobile12/>
- Apache Lucene project  
<http://lucene.apache.org/>
- Guestbook example with full text search  
<http://code.google.com/p/guestbook-example-appengine-full-text-search>

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**Questions?**



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