#### The Internet

José M Vidal

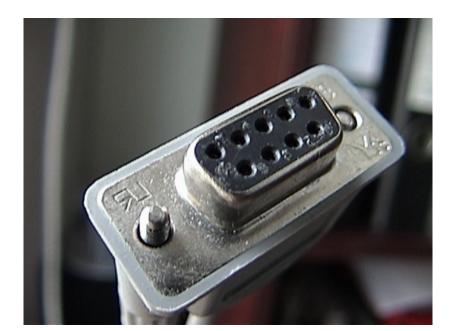
Department of Computer Science and Engineering University of South Carolina

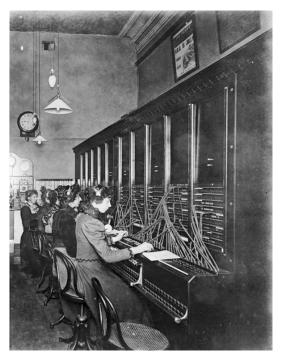
September 25, 2009





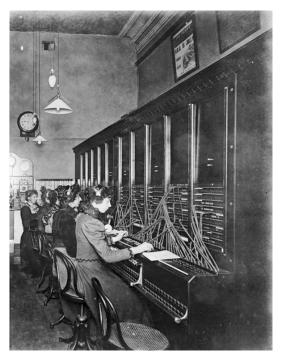












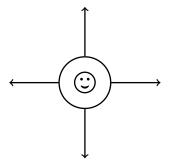
## Switching

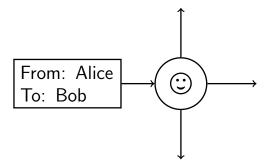
Circuit

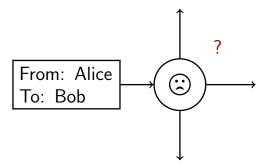


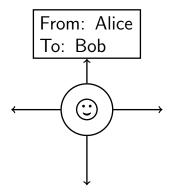
### Switching

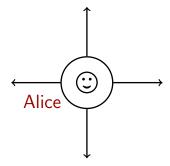
**Packet** 

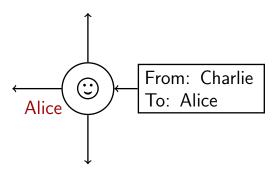


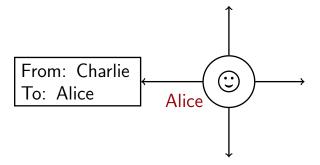


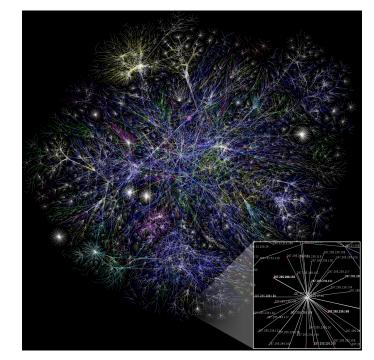








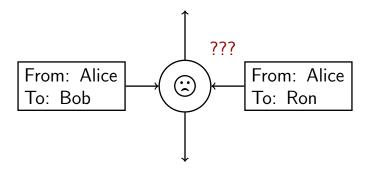




## Protocol

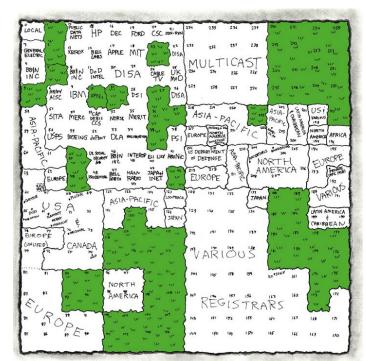
Internet

#### Name Conflict

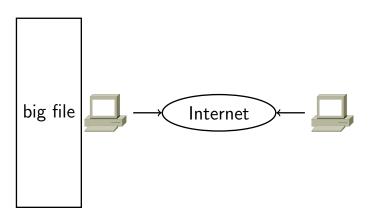


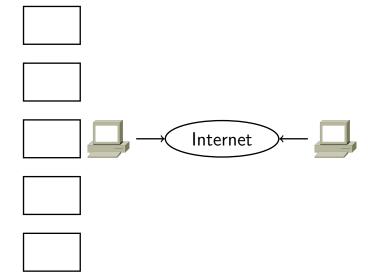
# Unique IP Numbers!

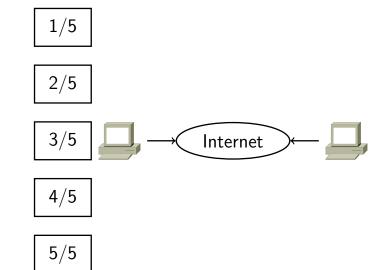
129.252.189.62

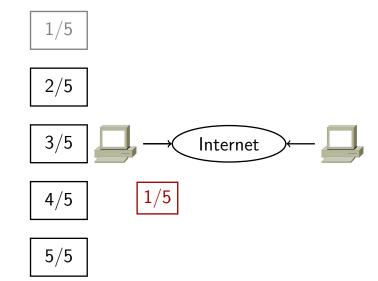


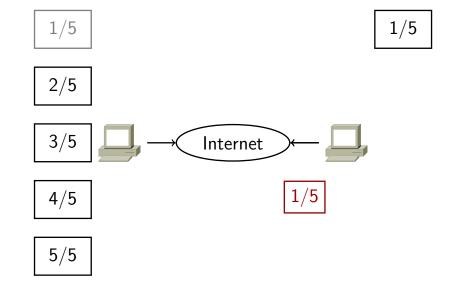
## Oops, I dropped it!

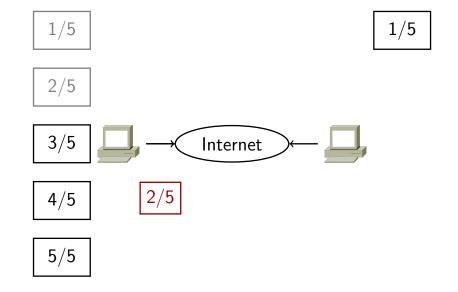


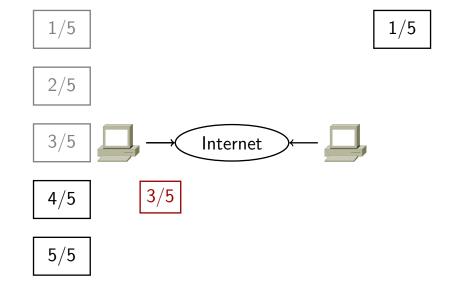


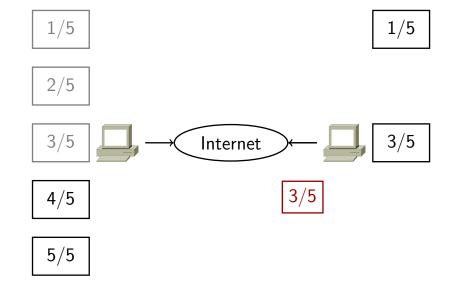


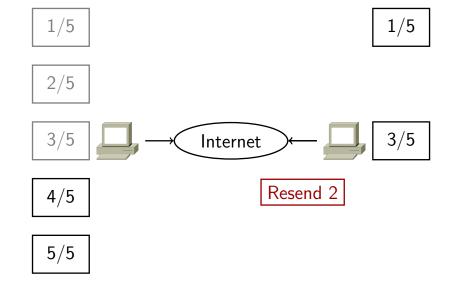


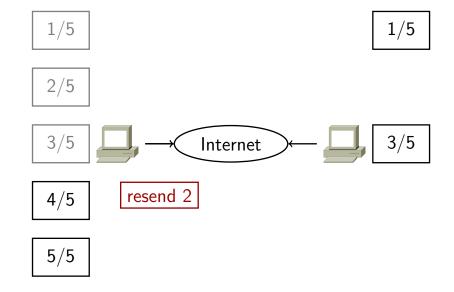


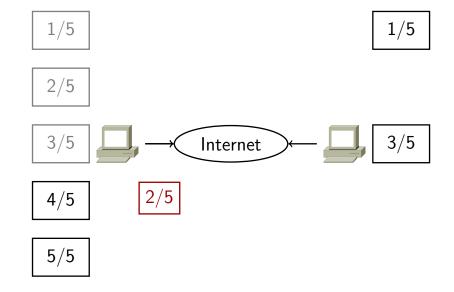












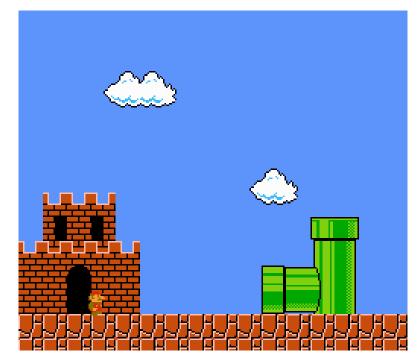
## Transmission Control

Protocol

# TCP/IP



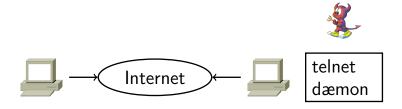


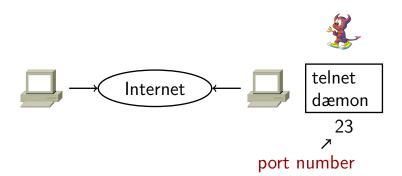


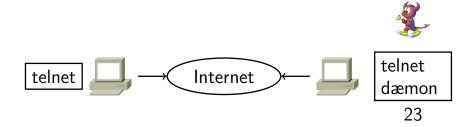
Socket Abstraction

# telnet

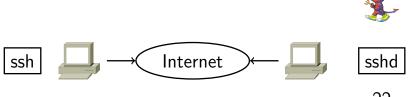






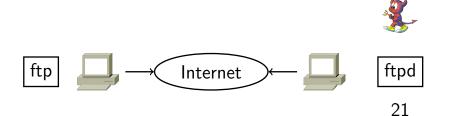


# SSH

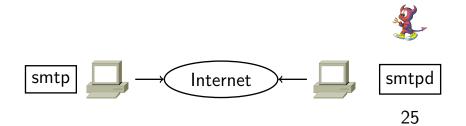


22

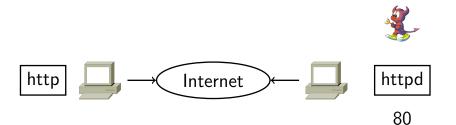
### File Transfer Protocol



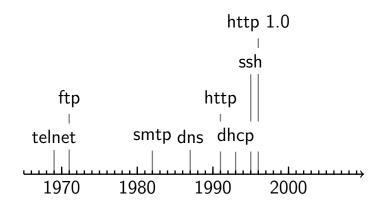
# Simple Mail Transfer Protocol



# Hyper Text Transfer Protocol



# **Application Layer Protocols**





#### HTTP

```
>telnet www.cse.sc.edu 80
Trying 129.252.138.9...
Connected to www.cse.sc.edu.
Escape character is '^]'.
GET / HTTP1.0
HTTP/1.1 200 OK
Date: Tue, 06 Nov 2007 14:19:18 GMT
Server: Apache/2.0.52 (Red Hat)
Accept-Ranges: bytes
Connection: close
Content-Type: text/html; charset=ISO-8859-1
```

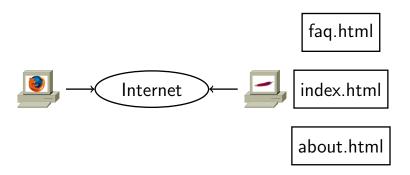
#### HTML

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0</pre>
<html xmlns="http://www.w3.org/1999/xhtml"</pre>
<head>
<meta name="Keywords" content="...</pre>
<title>University of South Carolina</title>
<body>
<div id="boxcase">
<h3>Table of Contents</h3>
. . . .
</body>
</html>
```

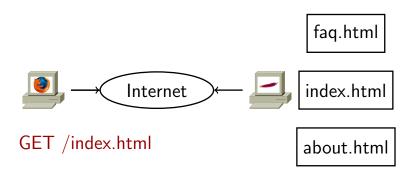
#### Webolution

- 1. Stateless and Static
- 2. State
- 3. Dynamic
- 4. Programming Platform

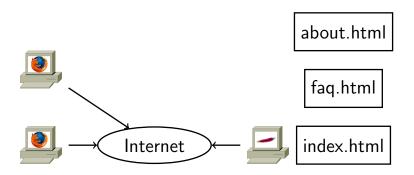
#### Stateless Static Web

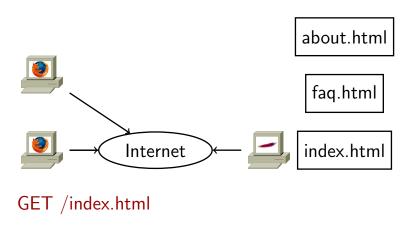


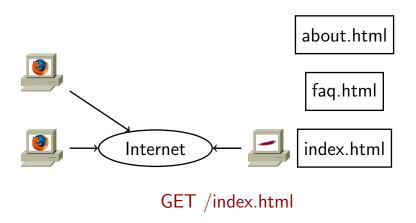
#### Stateless Static Web

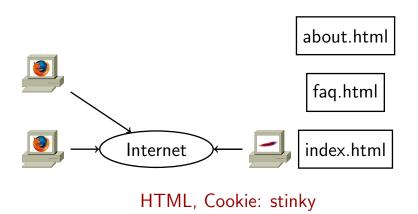


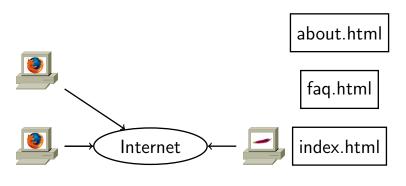




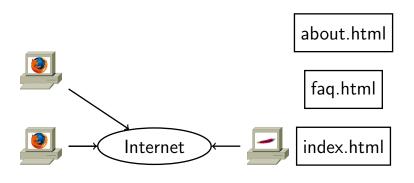




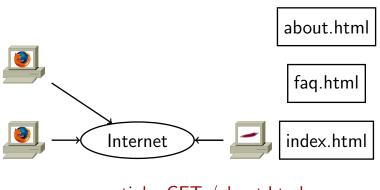




HTML, Cookie: stinky



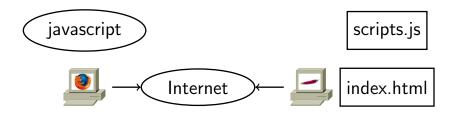
stinky GET /about.html

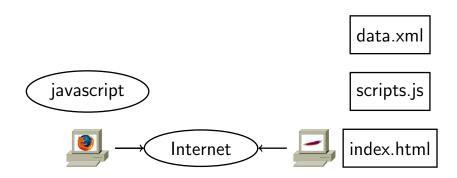


stinky GET /about.html

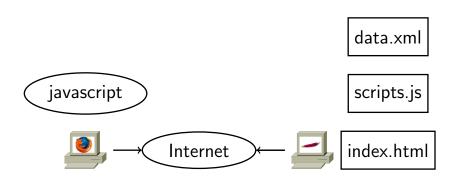






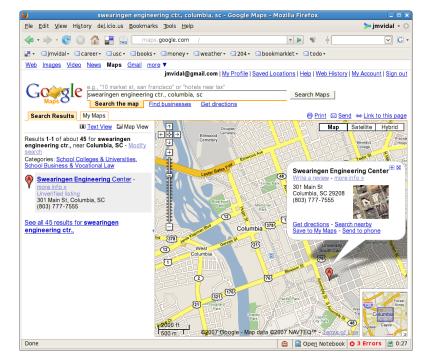


XmlHttpRequest /data.xml



XmlHttpRequest /data.xml

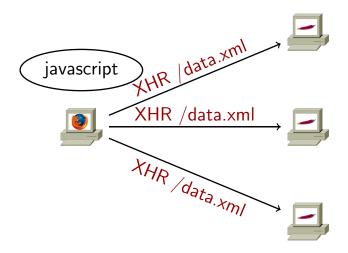




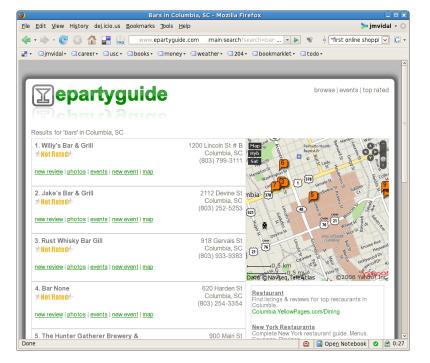
### Web as a Programming Platform



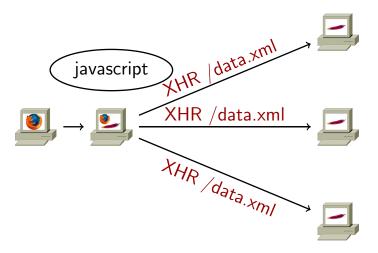
### Web as a Programming Platform



Mashup



## Web as a Programming Platform



Web Services

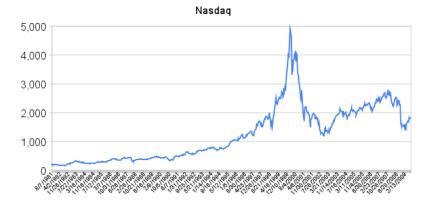
The Future

# The future is already here, it is just

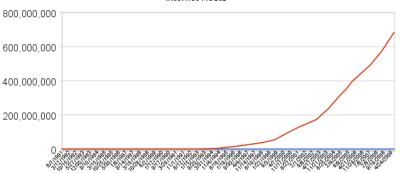
unevenly distributed.

William Gibson

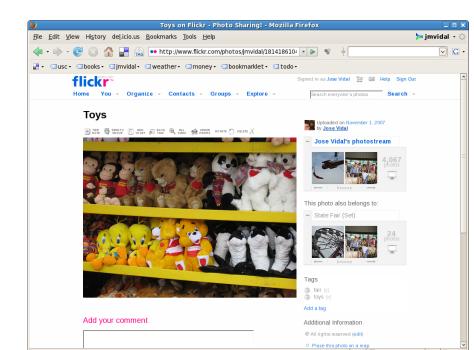
# Growth

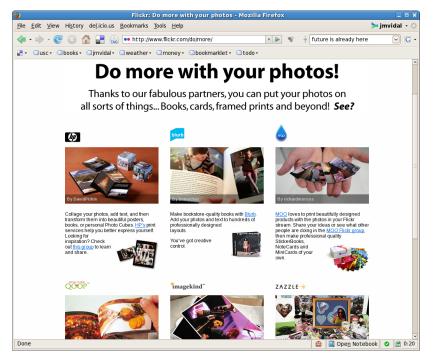


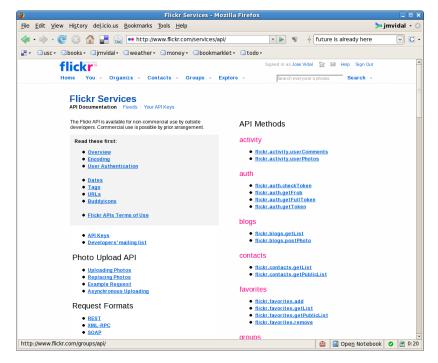




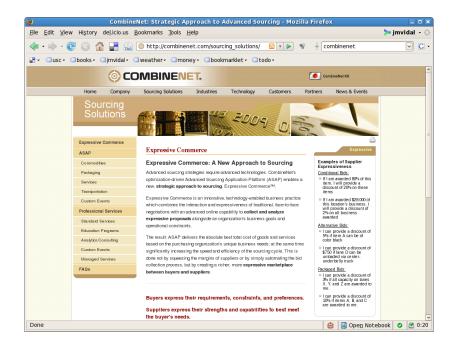
# Web as a Platform

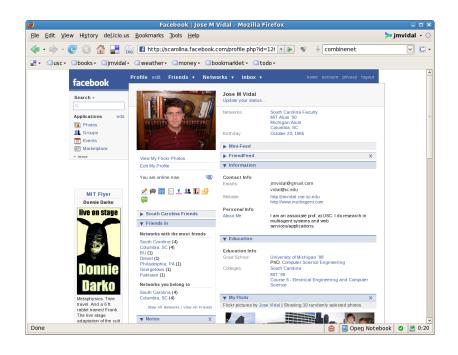


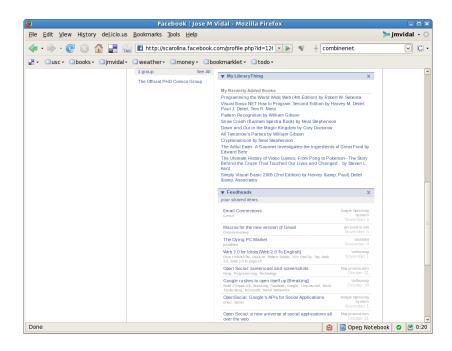


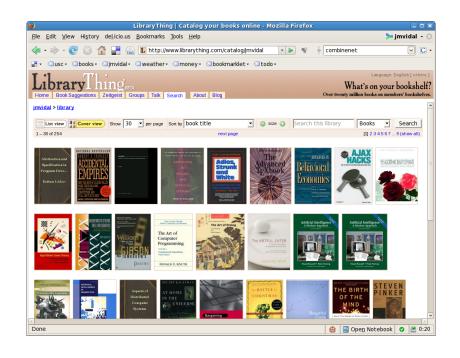














### The web is better when it's social

The web is more interesting when you can build apps that easily interact with your friends and colleagues. But with the trend towards more social applications also comes a growing list of site-specific APIs that developers must learn.

OpenSocial provides a common set of APIs for social applications across multiple websites. With standard JavaScript and HTML, developers can create apps that access a social network's friends and update feeds.



### Many sites, one API

to learn to build for multiple websites. OpenSocial is currently being developed by Google in conjunction with members of the web community. The ultimate goal is for any social website to be able to implement the APIs and host 3rd party social applications. There are many websites implementing OpenSocial. including Engage.com, Friendster, hi5. Hyves, imeem, LinkedIn, MySpace, Ning, Oracle, orkut, Plaxo, Salesforce.com, Six Apart, Tianji, Viadeo and XING.

Common APIs mean you have less

In order for developers to get started immediately. Orkut has opened a limited sandbox that you can use to

### How do I start?

- Review the OpenSocial API docs.
- 2. Write your first social gadget for Orkut.

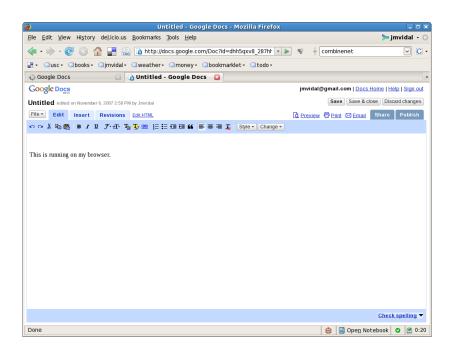
### Featured Videos

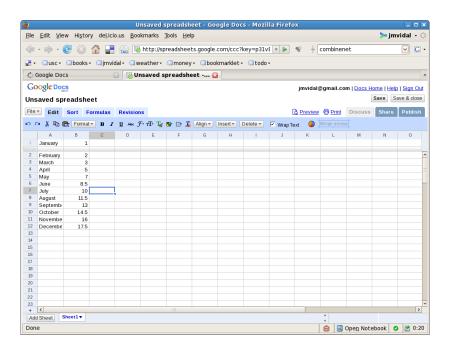


more videos >>

## Applications on your

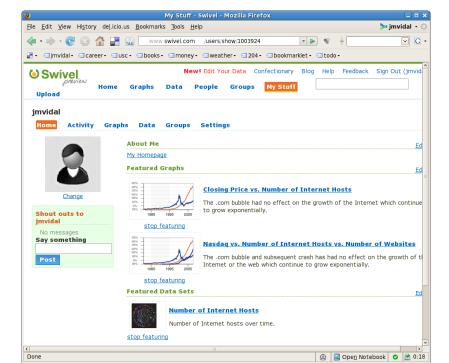
Browser

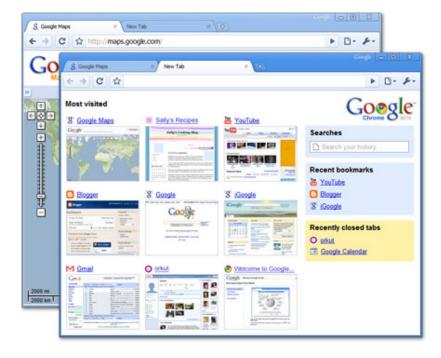




```
Bespin >
org.eclipse.e4.bespin.server
                                                                       0
                                             5 G
                                                        ኤ ub il
                                                                              AAA
      public class SettingsServlet extends HttpServlet {
           protected void doGet(HttpServletRequest rea. HttpServletResponse resp) throws ServletE)
               String pathInfo = req.getRathInfo();
         3 problem(s) found in src/org/eclipse/e4/bespin/server
         /SettingsServlet.java.
         x line 23: The method getRathInfo() is undefined for the type
         HttpServletRequest
         ! line 88: The declared exception ServletException is not actually
         thrown by the method doDelete(HttpServletRequest.
         HttpServletResponse) from type SettingsServlet
                 The declared exception IOException is not actually
         thrown by the method doDelete(HttpServletRequest,
         HttpServletResponse) from type SettingsServlet
```









Gears is an open source project that enables more powerful web applications, by adding new features to your web browser:



Let web applications interact naturally with your desktop



Store data locally in a fully-searchable database



Run JavaScript in the background to improve performance

Developer site Frequently asked questions

More help

### Gears is installed

Current version: 0.5.4.2:official:opt:linux:firefox

Click here to re-install.

### System requirements

- Linux (details)
- Firefox 1.5+
- 32-bit OS (64-bit not supported)

Gears is available for Windows, Windows Mobile, Mac (Firefox, Safari), Linux and Android.

©2008 Google - Gears Home - Privacy Policy

Semantic Web

# RDF

Semantic Web

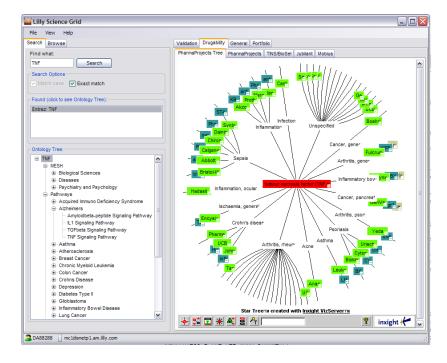




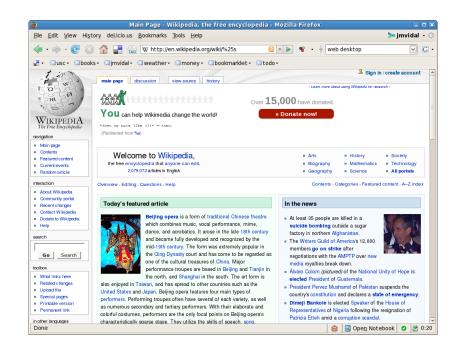


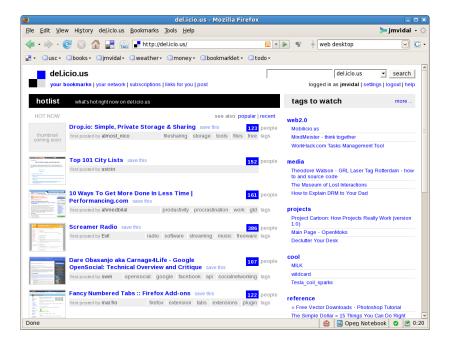
REVOLUTIONIZING HNOWLEDGE DISCOVERY IN THE LIFE SCIENCES

EDITED BY CHRISTOPHER J. D. BAHER AND HE-HOX CHEUNG



## User-Generated Web







#### facebook

Facebook helps you connect and s the people in your life.



### **Cwitter**

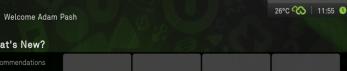
#### What is Twitter?

What?



Twitter is a service for friends, family, and coto communicate and stay connected through quick, frequent answers to one simple questic deline?





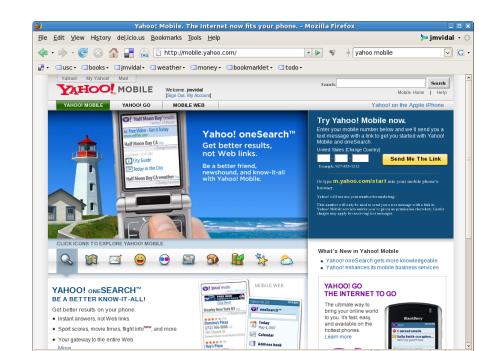






What's New?

Mobile











# 1 billion computers

# 1 billion computers

3.6 billion mobile

phones



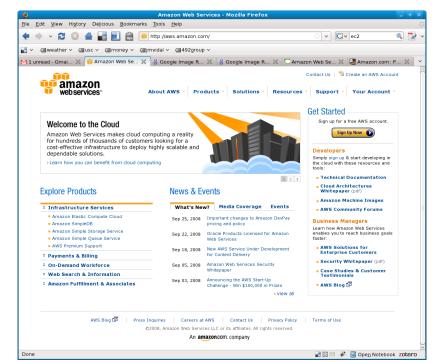
# Cloud Computing

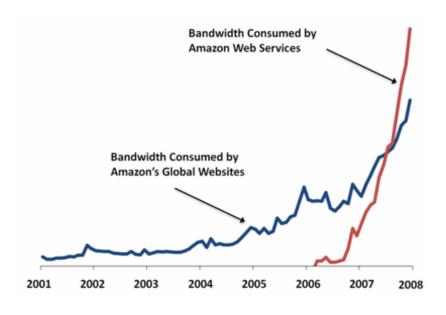


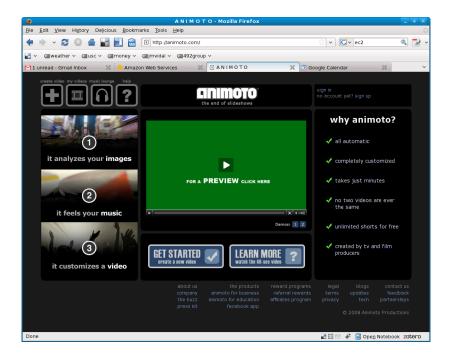




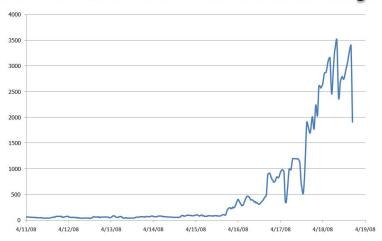
# Open-source Map Reduce





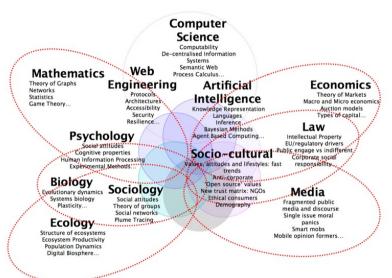


### Animoto: Last Week's EC2 Instance Usage





Web Science



#### **Colliding Web Sciences**

Conclusion

# The Internet is the

platform.

# CSCE 242: Client-Server Computing

Web applications for the 21st century.

Spring 2009 2010

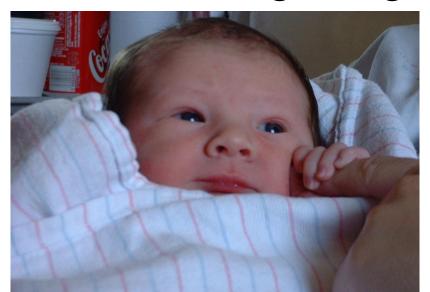
www.csce242.com

# 791 Seminars

Industry Speakers

Fridays, 2:30pm in Swearingen 2A31 google:csce791

# This is the beginning!



Questions?

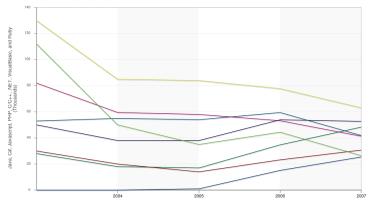
### **Opportunities**

- Exploit data.
- Exploit services.
- Exploit pervasiveness.
- Exploit personalization.
- Generate new functionality.

1. Use the Internet.

- 1. Use the Internet.
- 2. Learn to program well.

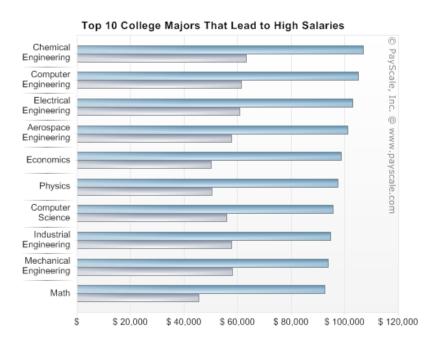




- 1. Use the Internet.
- 2. Learn to program well.
- 3. Algorithms and math.

- 1. Use the Internet.
- 2. Learn to program well.
- 3. Algorithms and math.
- 4. Be creative. Imagine.

- 1. Use the Internet.
- 2. Learn to program well.
- 3. Algorithms and math.
- 4. Be creative. Imagine.
- 5. Put in the hours.



# careers.cse.sc.edu