Weekly Syllabus

1. Scalability: *(Jan.)*

2. Agile Practices

3. Ecology/Mashups

4. Browser/Client

5. Data/Server: *(Feb.)*

6. Security/Privacy

7. Analytics

8. Cloud/Map-Reduce

9. Publish APIs: *(Mar.)*

10. Future*

* demo lunch this Wed. @ 11:30, Packard 204
Administrative Stuff

* Demo lunch tomorrow Wednesday, 11:30AM-2PM
  * Packard 204
  * 1-2 minute pitch plus walk through the app
  * Plenty of time for discussion & socializing
Project Assignment Feedback

* 50% built & ran, 50% needed some adjustment
  * README files were quite helpful
  * Significant functionality improvement all around
  * We really enjoyed testing the limits of several of them
    * rich data made a big usability difference
Environment, Project, Self

* Our environment, bad and good
* Trends and opportunities
* Scalable self
* Project Execution
Two Abstract Views

- Environment
- Self
- Project
Future of Scalable Web Programming (eeek!)

- Company cycle is getting shorter
- less time for development, launch, monetization
- VC model is in a state of flux
- patience is short and funding is small
- Gaining user attention is getting harder
- hard to show unique value proposition
Future of Scalable Web Programming (yay!!!)

* Coding challenges are becoming easier
* outsourcing is with us like it or not
* Incubator and angel models are more workable
* real experts are emerging
* Landscape is changing, but somewhat less radically
* web food chain is basically established
Untapped Markets

- Big ideas
  - “If X existed, everyone would use it”
  - “If we could do it on the web, everyone would do it”
- Some big trends lie “submerged”, invisible to current leaders
- First mover advantage results in faster growth
  - not necessarily better long term niche capture
Web Landscape Trends

- Asia
- Mobile
- Rich Data
- Real Time
- Augmented Reality
Asia Scaling

Internet Users in the World by Geographic Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Millions of Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>738.3</td>
</tr>
<tr>
<td>Europe</td>
<td>418.0</td>
</tr>
<tr>
<td>North America</td>
<td>252.9</td>
</tr>
<tr>
<td>Latin America / Caribbean</td>
<td>179.0</td>
</tr>
<tr>
<td>Africa</td>
<td>67.4</td>
</tr>
<tr>
<td>Middle East</td>
<td>57.4</td>
</tr>
<tr>
<td>Oceania / Australia</td>
<td>21.0</td>
</tr>
</tbody>
</table>

World Internet Penetration Rates by Geographic Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>74.2%</td>
</tr>
<tr>
<td>Oceania / Australia</td>
<td>60.4%</td>
</tr>
<tr>
<td>Europe</td>
<td>52.0%</td>
</tr>
<tr>
<td>Latin America / Caribbean</td>
<td>30.5%</td>
</tr>
<tr>
<td>Middle East</td>
<td>28.3%</td>
</tr>
<tr>
<td>Asia</td>
<td>19.4%</td>
</tr>
<tr>
<td>Africa</td>
<td>6.8%</td>
</tr>
<tr>
<td>World, Avg.</td>
<td>25.6%</td>
</tr>
</tbody>
</table>

Source: Internet World Stats - www.internetworldstats.com/stats.htm
Estimated Internet users are 1,733,993,741 for September 30, 2009
Copyright © 2009, Miniwatts Marketing Group

Penetration Rates are based on a world population of 6,767,805,208 and 1,733,993,741 estimated Internet users for September 30, 2009.
Copyright © 2009, Miniwatts Marketing Group
Asia Scaling

- Focus on internationalization
- utf8 encoding of unicode character set
- place all app text into resources
- Cultural differences affect user attitudes towards
  - privacy, individuality, society, authority, wealth, celebrity
- Possible barriers to assimilation of different cultures
Mobile Scaling 2009

Handsets 1.13 Billion
Smartphones 175 Million
PC Shipments 306 Million
Mobile Scaling 2009

- Mobile web has unique size, input, latency constraints
  - web apps can be faster than client apps
  - simple, direct data input is critical
- New opportunities
  - more real world sensors
  - mobile peering
Rich Data Scaling

* New YouTube uploads the equivalent of 1200 channels 24/7
* About 100 Petabytes of data in the deep web
  * web form accessible databases
  * ripe for mashups
* Google finds data; we also need
  * translators, summarizers, converters, visualizers
Reality Scaling

- Live rendering of movie quality CG
- Convergence of film and gaming industries
- Interactive location enabled search & result rendering
- Instant virtual enterprise
- Virtual management and leadership skills
- Emergence of a kind of global consciousness
How Do We Get There?

- Self Conviction, Passion, Obsession, Stick-to-itiveness
- Relentless project execution
  - agile and scalable practices
- Knowledge arbitrage
  - understanding the inefficiencies of information transmission
  - best opportunities for growth lie in un(der)-tapped niches
Personal Example

* Runty, hyperkinetic know it all with no social skills
* International exposure made me study societies and groups
  * my weakest areas when it came to entrepreneurship
* Stubbornness allowed me to fail repeatedly without giving up
* Conclusion
  * don’t emulate me, implement a process
Execution

* Understand your group dynamics inside out
* Find common direction and purpose
  * win win opportunities convert people quickly
* Make small frequent adjustments
  * measure and adapt to current environment
Successful Team Practices

* Ethics - value integrity
* Products - deliver fast
* Leadership - focus direction
* Execution - reach common goals
* Transparency - communicate
* Environment - be sustainable
Agile Practice Review

* everything digital and in git repos
* quick iteration, throw nothing away
* allow for failures, but never repeated
* aim for two birds with one stone
* parallelize and multitask, don’t serialize - (controversial?)
* opportunistic effort, not expedient effort
* measure and checklist everything
Worth Checking Out

* Internet World Stats
  * http://www.internetworldstats.com/stats.htm

* Outsourcing/freelancing
  * elance, guru, odesk, rentacoder

* Switch - Chip Heath & Dan Heath
Q & A Topics

* Predictability horizon has significantly shortened
  * can we speak with confidence about the web in 2015?
* Radical originality/innovation is more difficult to achieve
  * the same concepts are broadly available to many people