MSIS Project
Agenda

- Project Goals
- Introduction & Demo
- Technology stack
- Market Analysis and Opportunity
- Lessons Learned
Project Goals

- Explore the technology stack for deploying a web application on the cloud
  - Produce a functional web service, a finished product
- Market research
  - Find opportunities
What is Skejuo?

- “Ske – ju – o” is a phonetic spelling of the word schedule
- Mission: Simplify the way local service providers and service consumers connect with one another
- Phase 1: scheduling capability
  - Alleviate the clumsiness of appointment making by phone
  - Service providers need to be available to take appointments 24/7
  - Provide a way for service providers to share their availability schedule
- Web Address: [www.skejuo.com](http://www.skejuo.com)
Phase 1: a simple scheduler
Demo
Technology Stack

Platform: Google App Engine

Google Services

Google Accounts

BigTable

Development Environment

Eclipse

Google App Engine Plugin

Maven

Selenium, SoapUI

Client

jQuery

jQuery UI

Dojo Toolkit

GWT

Server

RESTFUL API

Apache Chains

Spring Security

Spring Framework

JPA

Platform: Google App Engine

HTTP

JSON

HTML

HTTP

JSON

HTML

Apache Chains

RESTFUL API
Google App Engine

- Platform as a Service
- “Easy to use, easy to scale, and free to get started.”
- Pay rent to use Google’s infrastructure
- Eliminate barriers for developers to build apps
  - Hardware, server maintenance overhead
  - Deployment, scalability issues, logistics overhead
- Supports Python and Java
- Graduated from “preview” Nov 2011
Google App Engine

- **Pros**
  - It’s free to try
  - Full of features, seamless integration with its public API’s
  - Simple and convenient development environment
  - Good ecosystem for developers

- **Cons**
  - Learning curve
  - Still maturing
  - Java application JVM loading latency
BigTable

- **NoSQL**
  - A break away from traditional relational database
  - More de-normalized
  - Less structure, no real schema
  - No joins
  - Google: BigTable, Facebook: Cassandra, MogolDB, etc.

- Very fast, designed to scale

- Need to rethink how we typically do data modeling
"Simple thing should be simple, and complex things should be possible." - Alan Kay

"Unless simple things are simple, complex things are impossible." - Rod Johnson

Dependency Injection (inversion of control)
- Central to Spring Framework
- Objects shouldn’t know how to build/get things that it is dependent on
  - e.g. A flashlight object is dependent on a battery object. The flashlight object shouldn’t know how to build a battery object, it doesn’t matter if it’s a duracel or an energizer. It’s the responsibility of something else to supply the battery to the flashlight. The flashlight just needs to know that it needs a battery.
The Command Chain Pattern

- Object oriented pattern, also called chain-of-responsibility pattern
- An old pattern popularized by Henry Ford's Assembly Line
- Promotes loose coupling, highly testable, highly repeatable
- Best for linear processing
  - Even for complex, multi threaded applications, execution becomes linear at some level
- Adds complexity, but trade-off for robustness is worth it
The Command Chain Pattern

Input (Raw materials):
- Server Request
- Configuration

Output (Finished product):
- Response

Context (the conveyor belt)

Commands (the work stations):
- Validate Input
- Call Data Backend
- Evaluate Context
- Construct Model
The Command Chain Pattern

- Apache’s Commons Chain library implementation
- Composite Pattern
Client side Javascript

- Javascript is a powerful and flexible language that needs to be tamed

- Jquery
  - A web designer’s approach

- Dojo
  - A software engineer’s approach

- GWT
  - Google’s approach
Market Analysis and Opportunities
The market

Tungle.me
Angie's list
OpenTable
craigslist
ZocDoc
skejuo
redbeacon
timebridge
Doodle
ScheduleOnce
Pencil'Em
skedge.me
Future Direction

- Online service designed to connect local service providers with consumers
- Offers “apples-to-apples” comparison of local services for consumers by focusing on commoditized services market
- Needs critical mass of service providers to support a marketplace-like environment
Current “What’s So” in Market

- Over $330B spent annually on locally-based, commoditized services in the US
- Highly fragmented market with millions of providers
- No ubiquitously used online tool to connect services supply & demand – Despite the entrance of several competitors over the last three years
- Vast majority of the locally-based services providers do not have an organized online strategy or presence
- Overall services industry is relative stable
  - Year-over-year spending is flat (down .4% from 2010)
Current Market Size – $332B (IBIS World 2011)

- Plumbing, $68
- Mechanics, $51
- Wedding Services, $47
- Hair & Nail, $37
- Body Shops, $35
- Private Services, $15
- Electronic Repairs, $21
- Dry Cleaning, $14
- Funeral Homes, $13
- Other, $31
The Opportunity

- Create a better marketplace for analyzing and purchasing services for consumers
- Become the de facto standard for searching for services
- Capture a fraction of the services business total revenue through pre-paid service options
- Assist service providers with expanding web presence
Voice of the Service Providers

**Availability**

<table>
<thead>
<tr>
<th>Availability</th>
<th>No Tool</th>
<th>Shows</th>
<th>Allows</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>0.6</td>
<td>0.8</td>
<td>1</td>
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</table>

**Ratings**

<table>
<thead>
<tr>
<th>Ratings</th>
<th>No Ratings</th>
<th>Show Ratings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>2</td>
</tr>
</tbody>
</table>

**Price**

<table>
<thead>
<tr>
<th>Price</th>
<th>Advertise</th>
<th>No Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-2</td>
<td>-1.5</td>
</tr>
<tr>
<td></td>
<td>-1</td>
<td>-1</td>
</tr>
<tr>
<td></td>
<td>-0.5</td>
<td>-0.5</td>
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</table>

**Payment**

<table>
<thead>
<tr>
<th>Payment</th>
<th>Pay After</th>
<th>Prepay Online</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
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<tr>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
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</table>
Voice of Service Consumers

**Availability**
- >4 days
- 2-3 days
- Tomorrow
- Immediate

**Price**
- $50-$80
- $81-$100
- $101-$150

**Quality Rating**
- *
- **
- ***
- ****

**Payment**
- Pay after
- Prepay online
Voice of the Market

**AVAILABILITY**

- >4 DAYS
- 2-3 DAYS
- TOMORROW
- IMMEDIATE

**QUALITY RATING**

- *
- **
- ***
- ****

**PRICE**

- $50-$80
- $81-$100
- $101-$150

**PAYMENT**

- PAY AFTER
- PREPAY ONLINE

$50 - $80

$81 - $100

$101 - $150
Most Important Factors for Providers

- Allows Scheduling: 14.59%
- Pay After Option: 25.61%
- No Price: 28.81%
- Show Ratings: 30.99%
Most Important Factor for Customers

- Price: 8.23%
- Pay After Option: 18.18%
- Immediate Availability: 35.12%
- **** Rating: 38.47%
Product

- Provides pathway for consumers to find relevant providers
- Allows providers to receive useful business services
- Offers tutorial video for both consumers and providers on how to interact with the online tool
- Offers discounted prepay online option for monetization
- Content derived from agreements with service providers
Product: Wireframes

Step 1: Answer 4 Simple Questions
Step 2: Review Local Service Provider Options
Step 3: Get Cheaper, Faster Service

Need to find a service provider? CLICK HERE
Service Providers CLICK HERE
Product: Wireframes

Step 1: Answer 4 Simple Questions

Step 2: Review Local Service Provider Options

Step 3: Get Cheaper, Faster Service

1. Where do you need the service?

ENTER ZIP CODE:
Product: Wireframes

2. What type of service do you need? (SELECT ONE)

- ELECTRICIAN
- PAINTER
- PLUMBER
3. What specific plumbing service do you need? (SELECT ONE)

- UNCLOG DRAIN
- FIX DISHWASHER PLUMBING
- FIXTURE INSTALLATION/REPLACEMENT
Product: Wireframes

Step 1: Answer 4 Simple Questions

Step 2: Review Local Service Provider Options

Step 3: Get Cheaper, Faster Service

4. What is your timeline? (SELECT ONE)

- TODAY
- TOMORROW
- 2-3 DAYS
- OVER 4 DAYS
## PLUMBING SERVICE PROVIDERS: SANDY, UT / UNCLOG DRAIN / IMMEDIATE TIMELINE

<table>
<thead>
<tr>
<th>SERVICE PROVIDER</th>
<th>NEXT AVAILABILITY</th>
<th>RATING</th>
<th>PRICE</th>
<th>SKEJUO PRICE</th>
<th>CONTACT INFO</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAA Plumbing</td>
<td>8/12: Morning</td>
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<td>$140</td>
<td>$112</td>
<td>Bob Jones</td>
</tr>
<tr>
<td>Acme Plumbing</td>
<td>8/5: All Day</td>
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<td>$120</td>
<td>$96</td>
<td>Peter Wilson</td>
</tr>
<tr>
<td>Alta Plumbers</td>
<td>8/4: TODAY</td>
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<td>$100</td>
<td>$80</td>
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</tr>
<tr>
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<td>William Walker</td>
</tr>
<tr>
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**Full Name:**

**Billing Address:**

**Credit Card #:**

**State:**

**Zip:**

**Security Code:**

**Service Location:**

**State:**

**Zip:**

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**Product: Wireframes**
Target Market

- Phase 1: Target local plumbing service providers in SLC
- Phase 2: Bring local consumers to Skejuo.com
- Phase 3: Expand to other local service providers in SLC
- Phase 4: Expand to other markets

Target Profile of Service Providers
- Small service providers (1-5 employees)
- Little-to-no online presence
Target Market Value Proposition

- Service providers
  - Expand sales through more online visibility
  - Multiple means of demonstrating value to consumers
    - Availability
    - Rating
    - Price
    - Skejou discounted price

- Consumers
  - Commoditized, “apples-to-apples” service market comparison
  - Should lower market price for consumers
Value Proposition Challenges

- Price is important to consumers, but providers do not want to advertise price

- Neither consumers nor service providers want to prepay online

- Difficulty reaching critical mass in local markets to make the service a useful one
  - How do you gain the trust of service providers?
Financials - What we Know

- Building the rest of the website will be expensive
  - Skejuo.com has the scheduling engine, but it does not yet have overall GUI completed with a services database & search capability
  - Anticipate 6 months of development work at a cost of approximately $150K

- Adding service providers to create market buzz & critical mass will require considerable manual sales effort
  - Anticipate 12 months of sales work at a cost of approximately $120K

- As website traffic increases, infrastructure costs will increase
  - Anticipate $10K of infrastructure costs for the first 12 months
Financials – What We Need

- $280K of Seed funding to complete development of the application & launch business
- $150K Product Development Costs
- $10K Infrastructure Costs
- $120K Pre-Revenue Salary (Sales, Finance, Support in place)
Lessons Learned

- Time dimension grows complexity exponentially, simplify if at all possible
  - Time zone
  - Recurrence
  - Timeline management

- Immature technology ends up driving the design and possibly business requirements, it should be the other way around