Having a Mobile App Presence: Necessary or Nice to Have?

Dr. Steven Muskal

Chief Executive Officer
Eidogen-Sertanty, Inc
smuskal@eidogen-sertanty.com
Apple Market Cap = US Retail Sector Total Market Cap

Most of Apple Revenue is from Mobile Devices

Apple is Crushing the Competition

http://www.appleinsider.com

Thursday, March 15, 2012

Apple stock seen hitting $718 on sales of 60M iPads, 134M iPhones in 2012
What if I had bought Apple stock instead?

Last updated April 1, 2012

<table>
<thead>
<tr>
<th>Product</th>
<th>Release Date</th>
<th>Original Price</th>
<th>Stock Value Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple PowerBook G3 250 (Original/Kanga/3500)</td>
<td>1997-11-10</td>
<td>$5700.0</td>
<td>$731784</td>
</tr>
<tr>
<td>Apple Xserve RAID</td>
<td>2003-02-10</td>
<td>$5999.0</td>
<td>$500933</td>
</tr>
<tr>
<td>Apple Mac Server G3 266 Minitower</td>
<td>1998-03-02</td>
<td>$4499.0</td>
<td>$474055</td>
</tr>
<tr>
<td>Apple Mac Server G3 300 Minitower</td>
<td>1998-03-17</td>
<td>$4999.0</td>
<td>$454802</td>
</tr>
<tr>
<td>Apple Power Macintosh G3 266 Minitower</td>
<td>1997-11-10</td>
<td>$3000.0</td>
<td>$385149</td>
</tr>
<tr>
<td>Apple PowerBook G3 292 (Wallstreet)</td>
<td>1998-05-06</td>
<td>$4599.0</td>
<td>$363763</td>
</tr>
<tr>
<td>Apple Mac Server G3 233 Minitower</td>
<td>1998-03-02</td>
<td>$3349.0</td>
<td>$352881</td>
</tr>
<tr>
<td>Apple PowerBook G3 300 (PDQ - Late 1998)</td>
<td>1998-09-01</td>
<td>$4999.0</td>
<td>$351365</td>
</tr>
<tr>
<td>Apple Xserve RAID (SFP)</td>
<td>2004-01-06</td>
<td>$5999.0</td>
<td>$325493</td>
</tr>
<tr>
<td>Apple Mac Server G3 333 Minitower</td>
<td>1998-09-01</td>
<td>$4599.0</td>
<td>$323250</td>
</tr>
<tr>
<td>Apple Xserve G4/1.33 DP (Slot Load)</td>
<td>2003-02-10</td>
<td>$3799.0</td>
<td>$317227</td>
</tr>
<tr>
<td>Apple Power Macintosh G3 233 Desktop</td>
<td>1997-11-10</td>
<td>$2400.0</td>
<td>$308119</td>
</tr>
<tr>
<td>Apple Power Macintosh G3 233 Minitower</td>
<td>1997-11-10</td>
<td>$2400.0</td>
<td>$308119</td>
</tr>
<tr>
<td>Apple Power Macintosh G3 266 Desktop</td>
<td>1997-11-10</td>
<td>$2400.0</td>
<td>$308119</td>
</tr>
<tr>
<td>Apple Mac Server G4 1.25 DP (MDD)</td>
<td>2002-08-27</td>
<td>$3499.0</td>
<td>$282345</td>
</tr>
<tr>
<td>Apple Mac Server G4 533 DP (Digital Audio)</td>
<td>2001-01-09</td>
<td>$3999.0</td>
<td>$278790</td>
</tr>
<tr>
<td>Apple Mac Server G3 400 (Blue &amp; White)</td>
<td>1999-01-05</td>
<td>$4999.0</td>
<td>$276745</td>
</tr>
<tr>
<td>Apple Power Macintosh G4 1.25 DP (MDD)</td>
<td>2002-08-13</td>
<td>$3299.0</td>
<td>$270947</td>
</tr>
<tr>
<td>Apple Mac Server G4 350 (Blue &amp; White)</td>
<td>1999-06-01</td>
<td>$4999.0</td>
<td>$267602</td>
</tr>
<tr>
<td>Apple PowerBook G4 1.0 17&quot; (AI)</td>
<td>2003-01-07</td>
<td>$3299.0</td>
<td>$266206</td>
</tr>
<tr>
<td>Apple Mac Server G4 800 DP (Quicksilver)</td>
<td>2001-09-08</td>
<td>$3799.0</td>
<td>$262104</td>
</tr>
<tr>
<td>Apple Power Macintosh G3 300 Desktop</td>
<td>1998-03-17</td>
<td>$2750.0</td>
<td>$250191</td>
</tr>
</tbody>
</table>
Apple's iPad Sales Blow Past Projections

San Jose Business Journal March 14, 2011

Apple sold 14.8M iPads in 2010

During the release of the iPad 2 in March 2011, Steve Jobs said that just under 15 million iPads had been sold in the device's first nine months on the market — more than all other tablet PCs combined.

Apple iPad Sales Projected to Hit 28 Million in 2011

Posted 10:00 AM 09/09/10
http://srph.it/ak77QA

http://tech.fortune.cnn.com/2010/10/05/how-many-ipads-has-apple-really-sold/
The Post-PC Revolution Is Here...

"Tablet Sales Will Blow Past PC Sales To Nearly 500 Million Units A Year By 2015"

http://articles.businessinsider.com/2012-02-14/tech/31057828_1_tablet-sales-post-pc-era-lower-prices
iOS v. Android - The Numbers Vary

http://blog.nielsen.com/nielsenwire/consumer/more-us-consumers-choosing-smartphones-as-apple-closes-the-gap-on-android/
http://articles.businessinsider.com/2012-03-13/tech/31158768_1_ios-android-ipad
<table>
<thead>
<tr>
<th></th>
<th>Advantage iOS</th>
<th>Advantage Android</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimal fragmentation</td>
<td>Java-based</td>
</tr>
<tr>
<td></td>
<td>Nice development environment</td>
<td>Several development environments available</td>
</tr>
<tr>
<td></td>
<td>Better tablet support</td>
<td>Many powerful devices</td>
</tr>
<tr>
<td></td>
<td>Apple is a powerhouse</td>
<td>Many hardware vendors</td>
</tr>
</tbody>
</table>

**Advantages iOS**

- Minimal fragmentation
- Nice development environment
- Better tablet support
- Apple is a powerhouse

**Advantages Android**

- Java-based
- Several development environments available
- Many powerful devices
- Many hardware vendors

---

**Table: iPhone and Android Update History**

<table>
<thead>
<tr>
<th>Model</th>
<th>Release Date</th>
<th>Carrier</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple iPhone</td>
<td>6/29/07</td>
<td>AT&amp;T</td>
<td>$499</td>
</tr>
<tr>
<td>Apple iPhone 3G</td>
<td>7/11/08</td>
<td>AT&amp;T</td>
<td>$199</td>
</tr>
<tr>
<td>Apple iPhone 3GS</td>
<td>6/19/09</td>
<td>AT&amp;T</td>
<td>$199</td>
</tr>
</tbody>
</table>

| HTC G1         | 10/21/08     | T-Mobile | $180  |
| HTC MyTouch 3G | 8/5/09       | T-Mobile | $200  |
| HTC Hero       | 10/11/09     | Sprint  | $180  |
| Samsung Moment | 1/7/09       | Sprint  | $180  |
| Motorola Cliq | 11/2/09      | T-Mobile | $200  |
| Motorola Droid| 11/6/09      | Verizon | $200  |
| HTC Droid Eris | 11/6/09      | Verizon | $100  |
| Samsung Behold II | 1/18/09 | T-Mobile | $230  |

**Table: Android Update History**

<table>
<thead>
<tr>
<th>Model</th>
<th>Release Date</th>
<th>Carrier</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTC Nexus One</td>
<td>1/5/10</td>
<td>T-Mobile</td>
<td>$180</td>
</tr>
<tr>
<td>Motorola Devour</td>
<td>2/25/10</td>
<td>Verizon</td>
<td>$150</td>
</tr>
<tr>
<td>Motorola Backflip</td>
<td>3/17/10</td>
<td>AT&amp;T</td>
<td>$100</td>
</tr>
<tr>
<td>Motorola Cliq XT</td>
<td>3/17/10</td>
<td>T-Mobile</td>
<td>$130</td>
</tr>
<tr>
<td>HTC Droid Incredible</td>
<td>4/29/10</td>
<td>Verizon</td>
<td>$200</td>
</tr>
<tr>
<td>LG Ally</td>
<td>5/20/10</td>
<td>Verizon</td>
<td>$100</td>
</tr>
<tr>
<td>HTC MyTouch 3G Slide</td>
<td>6/2/10</td>
<td>T-Mobile</td>
<td>$180</td>
</tr>
<tr>
<td>HTC Evo 4G</td>
<td>6/9/10</td>
<td>Sprint</td>
<td>$200</td>
</tr>
<tr>
<td>Garmin Garminfone</td>
<td>6/9/10</td>
<td>Verizon</td>
<td>$200</td>
</tr>
<tr>
<td>HTC Aria</td>
<td>6/20/10</td>
<td>AT&amp;T</td>
<td>$130</td>
</tr>
</tbody>
</table>

* After $100 mail-in rebate ($50 on MyTouch 3G Slide & Garminfone)
# Web Apps v. Native Apps

## Web Advantages

- Central Management
- Device Agnostic
- No App Store Approval
- HTML5 is very powerful

## Web Disadvantages

- InterApp Communication Difficult
- Can’t Maximize Device Features (e.g. Gestures & Motion)
- URL exposed
- No App Store promotion

## Hybrid

Hybrid → Native Apps with WebViews
iProtein: > 8600 users
70% JSDraw/30% MMDS

MobileReagents: > 6000 users
5% JSDraw/95% MMDS

MMDSLib (native, template-based)

JSDraw (web-based)
The Cloud: Amazon AWS Growth

In January 2008, Amazon announced that the Amazon Web Services consume more bandwidth than its entire global network of Amazon.com retail sites.

Amazon S3 grew 192% year-over-year

AWS Free Usage Tier now includes Amazon MS-Windows Server EC2 instances

February 23, 2012
Cloud Computing - In Practice

AWS Management Console > Amazon EC2

Getting Started

To start using Amazon EC2 you will want to launch a virtual server, known as an Amazon EC2 instance.

Launch Instance

Note: Your instances will launch in the US East (Virginia) region.

Service Health

Service Status

Current Status | Details
---|---
Amazon EC2 (US East - Virginia) | EBS API errors

Availability Zone Status

Current Status | Details
---|---
us-east-1a | Availability zone is operating normally
us-east-1b | Availability zone is operating normally
us-east-1c | Availability zone is operating normally
us-east-1d | Availability zone is operating normally
us-east-1e | Availability zone is operating normally

My Resources

You are using the following Amazon EC2 resources in the US East (Virginia) region:

- 5 Running Instances
- 5 Elastic IPs
- 8 EBS Volumes
- 8 EBS Snapshots
- 5 Key Pairs
- 0 Load Balancers
- 0 Placement Groups
- 3 Security Groups

Events

- US East (Virginia): No events

Related Links

- Getting Started Guide
- Documentation
- All EC2 Resources
- Forums
- Feedback
- Report an Issue

Avg CPU Utilization (Percent)

Avg Disk Reads (Bytes)

Avg Disk Writes (Bytes)

Max Network In (Bytes)

Max Network Out (Bytes)
Mobile-Cloud Infrastructure

- Internet Connection (Wi-Fi or 3/4G)
- Database/WebServer (e.g. GoDaddy/HostGator)
  - Apache + php
  - mysql
- Application Server (Amazon Cloud-LAMP)
  - Apache + php, EC2 instances
  - mysql, RDS instances
  - ChemAxon JChem + JChemWebServices (includes tomcat/axis2, etc.)
  - InfoChem SPRESI Web Services
  - JSDraw (javascript)
Eidogen-Sertanty’s iPhone and iPad Apps

* Reaction101, Yield101, and SPRESImobile - built collaboratively with Molecular Materials Informatics, Inc.
App Awareness is Not Automatic

ELECTRONIC CHANNELS

Companies Offer Many Ways To Learn About, Use, And Purchase Consumables

Mobile technology is starting to put product information in researchers’ hands literally through smartphones and tablets that are now appearing in labs. And instrument suppliers are creating software applications, or apps, to help customers search for and use reagents and consumable products.

Agilent Technologies has apps for calculating liquid and gas chromatography parameters to determine equipment setups. Likewise, Thermo Scientific has a GC column selector tool. And Waters has a part selector app that allows users to select ultra-performance LC sample plates, vials, filters, and columns. Once users find a desired configuration, they can save or e-mail it, or place an order.

In biosciences, Life Technologies has mobile apps for cell imaging and viewing; plotting and comparing spectra; and calculating common scientific parameters. Merck Millipore has an app for finding filters and another for finding data and research reagents for histone modification and epigenetics research. Another app allows customers to view its EMD Chemicals catalog, with supporting product documents and pricing.

Aggregated information on commercially available chemicals is accessible through Eidogen-Sertanty’s MObile REagents app, which integrates with the firm’s other chemistry apps. The MORE app covers about 6 million compounds from more than 50 suppliers. Chemical structure searches are possible through a mobile device’s camera and the app’s optical structure recognition capability. And by using mobile devices’ ability to scan and print bar codes, Eidogen-Sertanty is trying to enable local inventory management.

Although ubiquitous in everyday life, mobile devices are just beginning to be adopted in the lab. “More and more companies are looking into bringing these devices into the labs,” says Maurizio Bronzetti, Eidogen-Sertanty’s business development director. Cost may be an issue and security a concern, especially in regulated industries such as pharmaceuticals.

Even so, companies “recognize that bringing the device closer to the experiment has its advantages,” Eidogen-Sertanty CEO Steven Muskal adds. And for scientists, “it is really important to be close to a device that gives them access to applications and content that helps them explore their ideas.”

Online ordering remains popular, and suppliers continue to improve their websites to make it simpler for customers to find what they need. The “find and decide experience,” which may happen on a mobile device, is often apart from the “buy experience,” says Larry Milocco, senior market development manager at Life Technologies. Many researchers shop from their desks, but an agent completes the purchase. “We are trying to look at how our customers want to connect with us,” he adds.
Mobile Reagents: Devices and Versions

- iPadV4: 15%
- iPadV5: 13%
- iPadV6: 13%
- iPhoneV6: 19%
- iPhoneV5: 13%
- iPhoneV4: 9%
- iPhoneV3: 4%
- iPhoneV2: 5%
- iPhoneV1: 5%
MobileApps: Worldwide Marketing Vehicles!

~ 25,000 People Use Eidogen Mobile Apps
New iPhone/iPad App - SPRESImobile

SPRESImobile: 410,000 Chemical Reactions Freely Available
Newly Submitted iPhone/iPad App - iOncology

Adenocarcinoma
Adenocarcinoma, non-small cell lung cancer
Carcinoma
Carcinoma (lung)
Carcinoma, large cell lung cancer
Carcinoma, non-small cell lung cancer
Carcinoma, small cell lung cancer
Carcinoma/colorectal carcinoma
Chronic myelogenous leukemia (CML)
Colorectal adenocarcinoma
Colorectal carcinoma
Cutaneous T-cell lymphoma
Cutaneous T-cell lymphoma, mycosis fungoides
Cutaneous T-cell lymphoma, acute myelogenous leukemia, Hodgkin's disease,....
Ductal carcinoma
Significant Growth Opportunity in “Our” Space

Most Popular iPad and iPhone Categories

- Books
- Business
- Education
- Entertainment
- Finance
- Games
- Healthcare & Fitness
- Lifestyle
- Medical
- Music
- Navigation
- News
- Photography
- Productivity
- Reference
- Social Networking
- Sports
- Travel
- Utilities
- Weather

Legend:
- Blue: Percentage Of Applications in Top Overall (iPad)
- Green: Percentage Of Applications in Top Overall (iPhone)
Almost All Tablet Owners Download Apps

iPad Download Behavior
All iPad Owners

- Downloaded an app: 91%
- Did not download an app: 9%

Top Paid App Downloads - Apple iPad
iPad Paid App Downloaders

- Games: 62%
- Books: 54%
- Music: 50%
- Shopping: 45%
- News & Headlines: 45%
- Celebrity & Entertainment News: 44%
- Location & Direction: 42%
- Movie Schedules, Buying Tickets: 41%
- Magazines: 41%
- Banking: 39%
- Financial Updates: 39%
- Social Networking: 37%
- Productivity: 37%
- Sports Information: 32%
- Travel Planning: 24%

Source: The Nielsen Company
How About Mobile/Gaming + Drug Discovery...

Serious Dilemma - 7 Billion people depend on fewer than 500,000 people worldwide to discover and develop new medicines...

Consider this,

- Hundreds of Millions of Gamers Worldwide
- Hundreds of Millions of Smartphones+Tablets
- “Foldit Gamers Solve Riddle of HIV Enzyme within 3 Weeks”
Summary

• Post-PC revolution is here - Go Mobile!
  ➡ Apple sold $3M iPad3 in the first weekend of its debut!

• Apps can be phenomenal marketing vehicles
  ➡ People come to you, BUT don’t expect large app revenue unless you tap into gaming

• Mobile and cloud computing pair well
  ➡ Server-side cloud (infinite) computing is a great enabler

• Many opportunities remain, but be patient...
  ➡ Don’t expect 22.4M weekly users out of the gate
Acknowledgements

- **Dr. Rajan Sharma** and **Prof. Stephan Schurer**
  - iOncology - Coming Soon!

- **Dr. Maurizio Bronzetti**

- **Dr. Alex Clark**
  - MMDSLib:
  - JSDraw:

- **Dr. Tony Yuan**

- **Dr. Peter Löw, Dr. Josef Eiblmaier, et al.**