Dave Feldman rants about product design

- One Year Later: Is HTML5 Ready for Prime Time vs. Native? No. Jan 6

  A year ago I published a series of posts about HTML5 mobile web frameworks: Sencha Touch, jQuery Mobile, jQTouch, and...

- I'm Leaving AOL. Here's What's Next. Dec 21

  In early 2010 I left my job as Director, User Experience for Yahoo! Messenger. After three years I was ready...

Comparing Mobile Web (HTML5) Frameworks: Sencha Touch, jQuery Mobile, jQTouch, Titanium

It's been an exciting year for the mobile Web. Adoption of HTML5 and CSS3, improved performance in mobile browsers, and an explosion of mobile app frameworks mean it's more feasible than ever to create rich, interactive Web experiences for mobile devices. Using a wrapper like PhoneGap, you can distribute them via the native app stores for iPhone, iPad, and Android —targeting multiple platforms with a single codebase.

Or can you?

I needed a platform for Pints — a mobile app that answers answer the question, "Which beer should I order?" As someone who works in Web technologies on a daily basis I saw HTML5 & friends as an alluring option.

Pints isn't complicated: a home screen, a few lists screens, a few forms. Its greatest complexity lies at the data level: as an iPhone app destined for San Francisco bars it can't possibly rely on an Internet connection, so it has to keep a local copy of the beer database and sync it with the server when that's available. HTML5 has the necessary building blocks in the form of several offline storage options; it's just a question of writing the synchronization code.

Mobile Web developers have a plethora of frameworks to do the heavy lifting for them: animated transitions, toolbars, buttons, list views, even offline storage. Most of these are new and the landscape is shifting rapidly. I started Pints in jQTouch, then migrated to jQuery Mobile, and finally rewrote the whole app (now in private beta) in Sencha Touch. Along the way I also investigated Appcelerator's Titanium Mobile. Here's what I found:

jQTouch

jQTouch is easy to use and relatively well-documented. It's featured in the excellent *Building iPhone Apps with HTML, CSS, and JavaScript*. jQTouch takes a progressive-enhancement approach, building an iPhone-like experience on top of your appropriately-constructed HTML. It's simple, providing a basic set of widgets and animations and just enough programmatic control to permit more dynamic behavior.

But even in my simple test app there were performance issues. Page transitions can be jumpy or missing, and there are periodic delays in responding to tap events. And while the project is technically active, the original author has moved on and development seems to have slowed.

jQTouch is available under the permissive MIT License, one of my favorite open source licenses.

jQuery Mobile

jQuery Mobile is the new kid on the block. Announced in August 2010, it's quickly progressed to a very functional Alpha 2. It takes a similar – but more standards-compliant – approach to jQTouch and feels very much like that framework's successor, with a broader array of UI controls and styles.

jQuery Mobile's performance is variable (though better than that of jQTouch), particularly in responding to tap events rendering animations. It also lacks a small number of key programmatic hooks that would permit easy creation of more dynamic apps. For instance, there's an event that triggers when a page is about to load (i.e. slide into view) but no way to tell the associated handler code what UI element resulted in the page switch, or to pass additional information to that handler. I was able to create workarounds but hope that future versions will take a cue from jQTouch and build out this functionality a little more.

jQuery Mobile's documentation is a little scattered but improving; I'm hopeful that it will become as robust as that of the core jQuery library. (Note that jQuery Mobile is really a mobile counterpart for jQuery UI, *not* for jQuery itself, on which it builds.)

jQuery Mobile is available under either the MIT or the GPL2 license.

Sencha Touch

Sencha Touch is the mobile counterpart to the Ext JS framework. Its approach differs significantly from jQTouch and jQuery Mobile: instead of enhancing preexisting HTML, it generates its own DOM based on objects created in JavaScript. As such, working with Sencha feels a little less "webby" and a little more like building apps in other technologies like Java or Flex. (It's also a bit more like YUI than like jQuery.) I personally prefer the progressive enhancement approach, but it really is a matter of preference.

Sencha is far more extensive than its competitors, with a vast array of UI components, explicit iPad support, storage and data binding facilities using JSON and HTML5 offline storage, and more. (It's very cool to manipulate app data in one of Sencha's data structures and watch the corresponding list update in real time.) It's also the only Web framework I've seen with built-in support for objects that stay put (like a toolbar) while others scroll (like a list).

For all that apparent extra weight, Sencha performed noticeably better and more reliably than either jQTouch or jQuery Mobile in my tests, with the exception of initial load time.

When working with a library or framework, it's usually counterproductive to "fight the framework" and do things your own way. Given how extensive Sencha Touch is, that means your app will probably end up doing just about everything the Sencha way. I'd originally used WebKit's built-in SQLite database for offline storage but ultimately eliminated both complexity and bugs by moving that functionality into Sencha's data stores.

The documentation, while extensive, has odd holes. Between those and the sheer size of the framework, I spent a lot of time fighting bugs that were difficult to trace and to understand. Responses to my questions in the developer forums were more frequent and helpful than with the other frameworks, but still ultimately insufficient. Sencha provides paid support starting at $300/year; I strongly considered purchasing it but oddly, their response to my sales support inquiries was incredibly underwhelming given my interest in sending them money.

Sencha Touch is available under the GPL3; under a somewhat confusing set of exceptions to the GPL that seem similar to the LGPL; or under a free commercial license.

Titanium Mobile

Much like Sencha Touch, Appcelerator's Titanium Mobile allows you to write apps using a JavaScript API. But unlike Sencha, it compiles most of your code into a native iPhone or Android app. That means it isn't really a Web framework, but a compatibility layer or compiler. (Note that its cousin Titanium Desktop *is* Web-based, allowing you to write HTML/JS applications that run inside a native wrapper on the desktop.)

So Titanium allows Web developers to produce high-performance, easily skinnable native apps using JavaScript and a little XML, i.e. without learning Objective-C or Cocoa Touch. My simple test app blew away the true Web frameworks in terms of performance, and wasn't much harder to put together.

But that advantage is also its greatest disadvantage: you can only target the platforms Titanium supports, and you're tied to their developer tools. As if to prove this point, my test app quickly got into a state where it wouldn't launch on the iPhone. Titanium doesn't include much of a debugger; Titanium projects can't be run and debugged in XCode; and it ran fine in the simulator, leaving me with no real way to attack the problem.

Analysis

Rebuilding my app on three of these four frameworks was tedious but educational. I like jQTouch but have trouble believing it will evolve much from here. I'm rooting for jQuery Mobile for its simplicity and its very Web-centric approach to development...but it lacks a few key features and doesn't perform as well as Sencha Touch.

It's unfair to compare an Alpha 2 product with a 1.0 one, except in one respect: I need something now. Which brings me to Sencha Touch. I was initially impressed with its performance and breadth, but put off by its development style. As I've dug in, the holes in its documentation have been frustrating but the breadth has continued to impress me, and I've gotten more used to the coding style. The option for paid support is tempting, and I'd probably buy it if they'd answer my emails. But for now, Pints is a Sencha-based app.

Conclusion

I haven't answered the big question: can a Web-based app really hold its own alongside native

apps? And if so, are the challenges of getting it there worth the benefit of a single codebase?

Two weeks ago I was leaning toward no. Pints was in performance and bug hell, hanging for 10-15 seconds at a time; scrolling was choppy; and other animations were inconsistent.

But I'm hopeful again. In my next post I'll discuss why, what I've learned, and my perspective on mobile Web apps today. I'll also cover PhoneGap and other methods of distributing a Web app in a native wrapper. Stay tuned.

Posted Sunday, January 23rd, 2011 at 9:28 pm under General. (RSS)

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tecsined 5 pts

Thank you for this article. I think is really good. I am trying to choose between Sencha and Kendo UI. I haven't found any good comparison on internet. Could somebody with experience in these tools help me?

Thanks

7 DAYS AGO Like Reply

SpikyOrange 5 pts

Thanks for the post, I've been looking at this from the perspective of either creating a new JavaScript API for my employers product, or writing a C# API and use mono to get a native app on Android, iOS, Windows phone 7 and Blackberry.

As we do not have the API yet, we could go either route, but, if I stick with a web stack, we could re-use a majority of the code as a web app, mobile app and native(ish) app (Sencha+phonegap for example).

It's a tough choice, but, for this particular application there will be a lot of dynamic UI interactions, so it's possible that after a short while the web frameworks will not scale, therefore a native app with threading and customised rendering for optimal performance might be the ultimate solution.

The API itself doesn't need to concern itself with UI, it will collect data, store it in a generic model, then fire events to listeners (one of those would be a Sencha Touch view), this should keep the core API independent of view code (and datasources).

I really didn't like what I saw with JQuery Mobile - just because it was very declarative, I couldn't understand how I could dynamically create content (perhaps via an API).

So, right now, my choice would be...

Webby:

Javascript for the core API, perhaps utilising KnockoutJS for firing events when the data model changes. SenchaTouch for a majority of the user interface (receiving data from the knockout event). PhoneGap to wrap it as an 'app' if required.

Native-like:

Titanium mobile, re-using the javascript API detailed above, but now the UI will hook in to real native UI components.

Native:

Using C# and mono touch / mono-for-android, windows phone 7 and blackberry.

Of course, there's always the choice of going true native (objective C on iPhone), but I'm going for code-reuse over performance as a sensible tradeoff.

26 DAYS AGO Like Reply

Jehu99 6 pts

Thank you for this great article. Thanks too to the commenteers who have linked some further greate frameworks.

I've developed some one-page web apps this year: One huge app in ExtJS and some other apps by using knockout.js [1] and angular.js [2]. I love them both, but something more angular.js because it is designed for complete applications (including MVC and Routing).

Now i develop my first real mobile application and i've chosen jQuery mobile instead of SenchaTouch. Reason was, i don't love ExtJS and it's "Web distant" approach, so SenchaTouch was not so pleasant to me. Also for this mobile app (will be "baked" with phonegap to a hybrid-app later on) i've used angular.js too, which make it easy to write responsible apps with a few lines of code. It was very straightforward to develop with this toolset.

Sure, SenchaTouch has a lot of useful widgets. This could be a reason to chose it in some cases. But in my experience developement with sencha products costs a lot of time for seemingly simple tasks too.

And here's another candidate for mobile web applications i've found: http://www.kendoui.com/

[1] http://knockoutjs.com

[2] http://angularjs.org

28 DAYS AGO Like Reply

Joe_Estes 5 pts

Great comparison. I think you are one of the first people to have developed across those 4 platforms. I have used JQuery Mobile and am mostly disappointed so far. As you mentioned it jumps around and feels flaky. Sencha has a learning curve that has me thinking I should stick with native development.

1 MONTH AGO

Like Reply

MuhammadWaris 5 pts

Hi Any one knows about these apps, seems these are done in HTML, CSS and JS. Which APIs are used in these apps, Sencha touch, JQtouch or some else. Sliding and zooming text, how its done? any idea

http://itunes.apple.com/pk/app/the-economist-on-ip...
http://itunes.apple.com/pk/app/bmw-x3/id404814453?...

2 MONTHS AGO

Like Reply

maxwolke 5 pts

Hey all you funk soul brothers. Check out Application Craft
http://applicationcraft.com

jQuerymobile has announced AC as a JQM dev platform, here:
http://jquerymobile.com/resources/

And here's a case study that Phonegap did on them :
http://phonegap.com/case_study/phonegap-applicatio...

In summary, it is a cloud-based dev platform that does mobile (all important platforms) and desktop on an equal footing. It's got an IDE that does drag-and-drop / wysiwyg UI building as well as code editing. I guess you could describe it as Visual Basic in the Cloud, but Javascript not Basic. Widget based like VB was, extensible. Open Source with free platform offering.

x

2 MONTHS AGO

Like Reply

cyberstreets 5 pts

Thank you for this helpful overview. Now I will start with jQuery Mobile & not pull my hair out like I would undoubtedly do with Sencha. Thanks for defining them in terms of programming ease for newbies & not just functionality.

3 MONTHS AGO

Like Reply

gbarretx 5 pts

I am using jQMobile. Wanting to add the offliine support but ... I am still looking for a good framework to add it.
This is an application that was first written for the ios and then as web app.
http://www.gbarret.com/sites/gbarret/us_citizenshi...
I have found that it is relatively easy to convert an old web site to a mobile version by using the jQmobile.

4 MONTHS AGO

Like Reply

WillTurner 5 pts

Anyone has reviewed Web 2.0 Touch? http://web20boom.com/touch

5 MONTHS AGO

Like Reply

aboukone 5 pts

Very interesting conversation. I have decided myself to go with Sencha Touch but it was more of a matter of familiarity with the Sencha way being that I worked with ExtJS. My main issue right now if figuring out Authentication on the server side. idxdot

5 MONTHS AGO Like Reply

JohnPascal 5 pts

Appcelerator Titanium is very good. You can found components at: http://singulartouch.com and http://codecanyon.net/user/SingularTouch/portfolio...

5 MONTHS AGO Like Reply

jhall 5 pts

I did my static-data demo with JQuery Mobile, which looked great on the devices. But now I'm considering jumping over to Sencha Touch for the actual, database-driven application. Secha, with their data stores, seems like a better fit. This from an old C++/MacApp framework guy! The breadth of Sencha-Touch can definitely give one pause after the simplicity of JQMobile. I can see how the Sencha coding style will take some time to get used to. But for somebody like me, who's more used to C++ than HTML/CSS, should not take too long.

6 MONTHS AGO Like Reply

hwande 5 pts

I just got Dreamweaver 5.5 at work and Adobe's integrated JQuery Mobile and Phone Gap into it. I've been leaning towards Sencha Touch but DW drag-and-drop is pretty sweet and makes it easier to learn.

7 MONTHS AGO Like Reply

giulio 5 pts

Great overview.. It confirms my suspicions that mobile development (still) has no utopia, and that the discrepancies between platforms and protocols are cavernous. i am working on a project that involves Sencha Touch, and it seems to be the most mature for HTML5. Having said that, iPhone compatibility and stability is great, Android has alot of issues.... Reminds me of the battle of the browsers back in the late 90's

7 MONTHS AGO Like Reply

coolsegi 5 pts

Similar comparison at the following link as well:

http://forum.jquery.com/topic/jquery-vs-gwt

7 MONTHS AGO Like Reply

TedW.Bendixson 5 pts

Hey there,

I just wanted to say thanks for writing this. I've been questioning my decision to go with Sencha for sometime now, and it's good to see why you've chosen to stick with it.

I do have one question. Did you ever find a way to fix the initial load time problem? My app doesn't take THAT long to load, but the loading time is definitely noticeable. It would be awesome to get rid of that problem so the app has a smoother feel to it.

Your help is much appreciated,

-Ted Bendixson

7 MONTHS AGO Like Reply

klrfin 5 pts

Did you ever finish Pint?

7 MONTHS AGO Like Reply

thorsten.giesecke 5 pts

On plattforms like iOS or Android most of the users expect native apps (UI design, behaviour, plattform specific functions). Another problem is the comaptibility of the specific OS version and browser version - not all of them are supporting HTML5, offline app support or native acceleration of CSS animations like on iOS. Currently, if you dont dont want to write native apps for each platform, using Titanium, PhoneGap as the app container and using Sencha or jQueryTouch for developing the interface is a good approach. Pro: you have a native app in the market/ app store, you can access native functions (camera, sensors etc.), you can load updates from a webserver (pure html/js) without control of Apple. Cons: its not a native app, its not supported on all platforms, you cannot use advanced features and background services (limited by Titanium, PhoneGap orother proprietary frameworks).

7 MONTHS AGO Like Reply

dfeldman 9 pts

thorsten.giesecke I agree overall but take issue with one thing: users don't really expect native apps, and indeed most don't think in those terms. They expect apps that behave the way they expect them to. Your app's functionality determines how closely you can match those expectations in HTML5. From there it's a trade-off: is the discrepancy in experience worth what you gain in terms of cross-platform support or the ability to leverage your team's existing web expertise?

7 MONTHS AGO Like Reply

B 5 pts

Cool review. I came to the same conclusions when moving into Mobile and testing all the above technologies.

7 MONTHS AGO Like Reply

chzumbrunnen 5 pts

Interesting comparison. I would love to know if anyone has additional experience with phonegap (http://www.phonegap.com) which seems to be able to use a whole lot of the existing frameworks and create "native" apps. Also I wonder, if http://xuijs.com/ might be worth trying out. At this time the frameworks are really booming. Everyone wanta a piece of the cake ;-) I'm also trying my first steps with jQuery mobile right now.

8 MONTHS AGO Like Reply

neavilag 5 pts

chzumbrunnen I made similar approaches ending with JQM as the easiest to start with, check out this app http://trafico.chileroapps.com sorry is in spanish, looks good in iOs and on android, took like 2 days, is a 1 file app..

7 MONTHS AGO Like Reply

alanbr82 20 pts

Have you looked at the AppMobi XDK? A lot of the same features but haven't seen the same bugs described.

8 MONTHS AGO Like Reply

zachleat 5 pts

Can you give more detail on how Sencha does not use Progressive Enhancement techniques?

8 MONTHS AGO Like Reply

dfeldman 9 pts

zachleat Sure. In jQTouch or jQuery Mobile you write specially-structured HTML. When it loads the library reconfigures the page and turns your regular links into Ajax-based animated ones. With Sencha you basically don't write HTML at all, but instead create your UI and app by writing, subclassing, and instantiating JavaScript objects.

8 MONTHS AGO Like Reply

SpikyOrange 5 pts

dfeldman zachleat I'm wondering whether you can also use jqTouch / jQueryMobile the other way around - is there an API so that you can programatically add to the DOM too? If not, say that I had a UI component that I wanted to create dynamically and populate it with data, how would you do this - perhaps injecting the new 'html' into the dom, but then this could look ugly in code?

26 DAYS AGO Like Reply

Jehu99 6 pts

SpikyOrange take look at
http://jquerymobile.com/test/docs/pages/page-dynam...

26 DAYS AGO Like Reply

paul.lazarev 5 pts

Thanks for this great comparison.

Here is one more option for building html5 web mobile apps - DHTMLX Touch framework:

http://dhtmlx.com/touch/

It's in beta, but the official release is promised to be in May 2011.

9 MONTHS AGO Like Reply

Francis Robert

Thanks a lot for this post. I've been doing research recently on some of these frameworks and so far the only one I really tried/used is jQueryMobile. I've been using jQuery for a while now so it was easy for me to jump in.

Still there are some sides that I like less like transitions for example, sometimes after tapping a link I just don't know what it's gonna do, it scrolls up, then it waits, load, transition and there's the page I wanted.

I'm going to take a look at Sencha, even if I really like to "write less, do more"...

10 MONTHS AGO Like Reply

Joacim Boive

Great stuff!

Been on a similar journey myself. Choose Titanium finally, but that product is on ice until the release a debugger, which is just around the corner with Appcelerators acquisition of Aptana.org.

Started to learn Objective-C in the meanwhile.

Going to have another serious look at Sencha Touch, which reminds me a lot about Titanium/Appcelerator.

Thanks for the article - great read!

/J

10 MONTHS AGO Like Reply

Jonas Lind

There is also another approach.

If you can develop in C++ the starup MoSync has developed a SDK. with the SDK you work in a familiar C-like environment and the automatic porting tool in MoSync will port your code to native iOs, Android, JavaME, Windows Phone, Symbian, etc.

11 MONTHS AGO Like Reply

bulmaca sözlüğü

Thanks for the fascinating comparison.

11 MONTHS AGO Like Reply

Aaron Moore

@Dave

"It'd be interesting to hear his perspective on the two different approaches to building an app."

Here's a post where the creator of jQTouch talks about it vs. Sencha. Been up to this same complex research project myself, and stumbled across it. Just thought I'd pass it along.

http://9-bits.com/post/723711597/jqtouch-and-sench...

11 MONTHS AGO Like Reply

O'neill

There is also Wink (http://www.winktoolkit.org) which offers some pretty cool features.

12 MONTHS AGO Like Reply

Kristofer Layon

Consider NimbleKit, a framework that allows you to design using Web Standards. Currently supports iOS and Android, and is constantly adding new features.

http://www.nimblekit.com/

and

http://www.nimblekit-android.com/

(also the only framework featured as an Apple Development Tool on apple.com)

Disclosure: I've written a New Riders book about NimbleKit... because, after experimenting, decided it's the best option out there.

12 MONTHS AGO Like Reply

Dave

@Ed, at least for my purposes I'd probably prioritize the following:

(1) Performance out of the box
(2) Serious performance issues and other bugs on grouped lists
(3) I'd love a new data store type that syncs with a server but stores and manages persistent data on the client, i.e. something to support offline operation. I'm happy to share the code I wrote to do this, though I won't claim it's superb.
(4) More documentation at the here's-how-it-all-fits-together level, particularly for complex multi-object systems like stores, proxies, readers, etc.
(5) Better sales support. I'd probably be a paying customer by now if I'd received better and more reliable responses to my emails.

Thanks again! (And I'm happy to add you to the beta at http://pintsapp.com if you'd like to see what I'm doing with Sencha!)

12 MONTHS AGO Like Reply

Ed Spencer

Thanks for the fascinating comparison. We're working to patch remaining holes in documentation in Sencha Touch - what did you find most lacking?

12 MONTHS AGO  Like Reply

Jeremy Voros

I'm a web developer struggling with some of the jQuery Mobile issues you describe and looking at jumping over to Sencha. This post was most helpful. Thanks for sharing.

12 MONTHS AGO Like Reply

Dave

@James: Which is interesting since jQuery Mobile (rather than Sencha) is so similar to jQTouch. It'd be interesting to hear his perspective on the two different approaches to building an app.

1 YEAR AGO Like Reply

James Pearce

jQTouch: 'the original author has moved on...'

... to Sencha Touch ;-)

1 YEAR AGO Like Reply

hwande 5 pts

This is one of the best and easiest to understand comparison of the prominent mobile frameworks out there. Thank you.

9 MONTHS AGO Like Reply

jqm

nice article. But you have forgot the brand new mobile framework "the m project" http://www.the-m-project.net

1 YEAR AGO Like Reply

TRACKBACKS

1. *Tweets that mention Adventures in HTML5: Mobile Web Frameworks « InterfaceThis - Dave Feldman rants about product design -- Topsy.com* says: January 24, 2011 at 2:31 pm

   [...] This post was mentioned on Twitter by christian crumlish and OpenAppMkt, David Feldman. David Feldman said: Blog post: Adventures in HTML5: Mobile Web Frameworks http://t.co/b3510lq [...]

2. *Mobile App Development: Is HTML5 Ready for Prime Time vs. Native? « InterfaceThis - Dave Feldman rants about product design* says:

February 26, 2011 at 4:12 pm

[...] my last post I compared frameworks for building app-like mobile experiences with Web technologies: Sencha [...]

3. *Mobile framework throwdown « Dinosaurs with Laserz* says:
March 27, 2011 at 8:27 pm

[...] Apps created with web app frameworks don't perform as well as custom API frameworks. Dave Feldman's tests indicated Sencha Touch (custom API framework) performed noticeably better and more reliably than [...]

4. *This Week in Titanium Mobile: 4 June 2011 | Titanium Development* says:
June 4, 2011 at 6:19 am

[...] Mobile gets a mention in Dave Feldman's Comparison of Mobile Web Frameworks along with Sencha Touch, jQuery Mobile and jQTouch. Titanium Mobile is the only one that builds [...]

5. *3 Tips To Get You Started With HTML5 | TechLoy* says:
August 15, 2011 at 12:37 am

[...] multimedia are just some of the many features it offers us. Such is its appeal that it is even capable of creating mobile and, more surprisingly, desktop apps. So, if you haven't already started using it for your [...]

6. *Leverage your web developer skills for mobile development « The Technological African's Blog* says:
August 21, 2011 at 12:30 pm

[...] Interface This: An excellent comparison of the different frameworks based on actual experience by Dave. A Must Read. Share this:FacebookTwitterLinkedInDiggRedditStumbleUponEmailPrintLike this:LikeBe the first to like this post. [...]

7. *Native Apps or Web Apps? « Linux Philippines* says:
January 4, 2012 at 10:53 pm

[...] 3. Sencha Touch – the mobile counterpart to the Ext JS framework. Its approach differs significantly from jQTouch and jQuery Mobile: instead of enhancing preexisting HTML, it generates its own DOM based on objects created in JavaScript. As such, working with Sencha feels a little less "webby" and a little more like building apps in other technologies like Java or Flex. (It's also a bit more like YUI than like jQuery.) (courtesy of Dave Feldman) [...]

- ## About Dave Feldman

Dave Feldman is a product designer and occasional developer based in San Francisco. He recently left his role as Sr. Director, Special Projects at AOL to pursue a

new startup, Operation Project.

Follow @dfeldman 542 followers

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  - The Myth of the Average User: Your Mom Knows How to Click and Drag
  - Redesigning TechCrunch: We Picked this Logo Just to Piss You Off
  - AOL? Really! My First Year as an AOLer
- **On Twitter**
  - @gshellen Us never covers when I unfollow someone. Best I can do is Financial Times. 1 day ago
  - The mall is a strange place on a Monday afternoon. (at @WestfieldSFC) 1 day ago
  - @tessap Analytics for small mobile businesses, driven by their existing payment systems. 2 days ago
  - Woohoo! Our Startup Weekend product, Sidewalk HQ, won honorable mention! http://t.co/E2YG6nLt 2 days ago
  - That might be the first glitch-free demo I've ever been a part of. (with Nelson at AT&T Foundry - Palo Alto) 2 days ago
  - Startup Weekend: Team Sidewalk HQ (with Nelson at AT&T Foundry - Palo Alto) [pic] — http://t.co/MsGtgJnL 2 days ago
  - I am at the AT&T Foundry. The Wi-Fi keeps going down. 3 days ago

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