



designing for
TOUCH

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SCIENCE!

Friends, that's what we're here for.
To study the storied science of web design.

Part of the process is realizing, every so often,
that we've been doing SOMETHING wrong all along.

That's the nature of science and discovery:
Periodic realizations that our assumptions need a tweak.
A flash of insight that we've been understanding things naively.

10 years ago: web standards.
We have to separate content from presentation.

3 years ago: responsive design.
The web isn't about one screen size.

THERE IS NO ONE TRUE OUTPUT FOR THE WEB.

There's a new shift brewing. And it's this realization.

There is no *one true input* for the web.



There is no one true INPUT for the web.

In other words: the web is not just for the mouse.

Responsive: we have to anticipate a variety of displays.

New wrinkle: we have to anticipate a variety of inputs, too.

Like most truths, this one's been staring us in the face all along.

The web has always been device agnostic.

It embraces:
text-only devices.

Screen readers.

Speech is coming on strong,
Natural gesture, too.

LOTS of different inputs coming our way.

But the big input-related design transition that we're confronting now...
and really we started confronting five years ago with mobile...

is touch.

Because right now, hands and fingers are coming to life on our interfaces...



no, it's okay.

TOUCH THAT

As advertised, this talk is about designing for touch.

We've been dealing with touch on smartphones, and tablets are coming on strong.

So sure, I'll talk about guidelines for designing on phones and tablets. But perhaps more important, I'll also talk about designing for touch on the desktop.

[next]

Because friends, touch has erupted on the desktop, in just the last few months
And that has some thorny implications for responsive design.

ULTIMATELY, IT MEANS THIS:

All desktop web designs have to be touch-friendly.

[repeat]

But first...let's begin at the beginning:
With the basics, with first principles.

[twitter]31% of US adults own a tablet. Up from 12% a year ago, and basically zero 3 yrs ago. <http://j.mp/Xgyspe>[/twitter]

Jan 2013:
<http://pewinternet.org/Commentary/2012/February/Pew-Internet-Mobile.aspx>



I have an ugly truth for you, friends.

To date, we've thought about web design as a visual pursuit.

A feat of visual design, of information design.



So we naturally approach our work in visual terms,
we think in pixels.

But when you add touch to the mix...
[next]
we go beyond the visual... and to the physical.

Easy big guy. Easy.

*It's not only how your pixels
LOOK
but how they
FEEL*



It's not just how your pixels look.
But how they feel.
How do your pixels feel in the hand?

The very nature of our job is changing.

[twitter]Designing for touch means: it's not just how your pixels LOOK... but how they FEEL in the hand.[/twitter]

You're not “*just*” a visual designer.



That means you're not just a visual designer anymore.

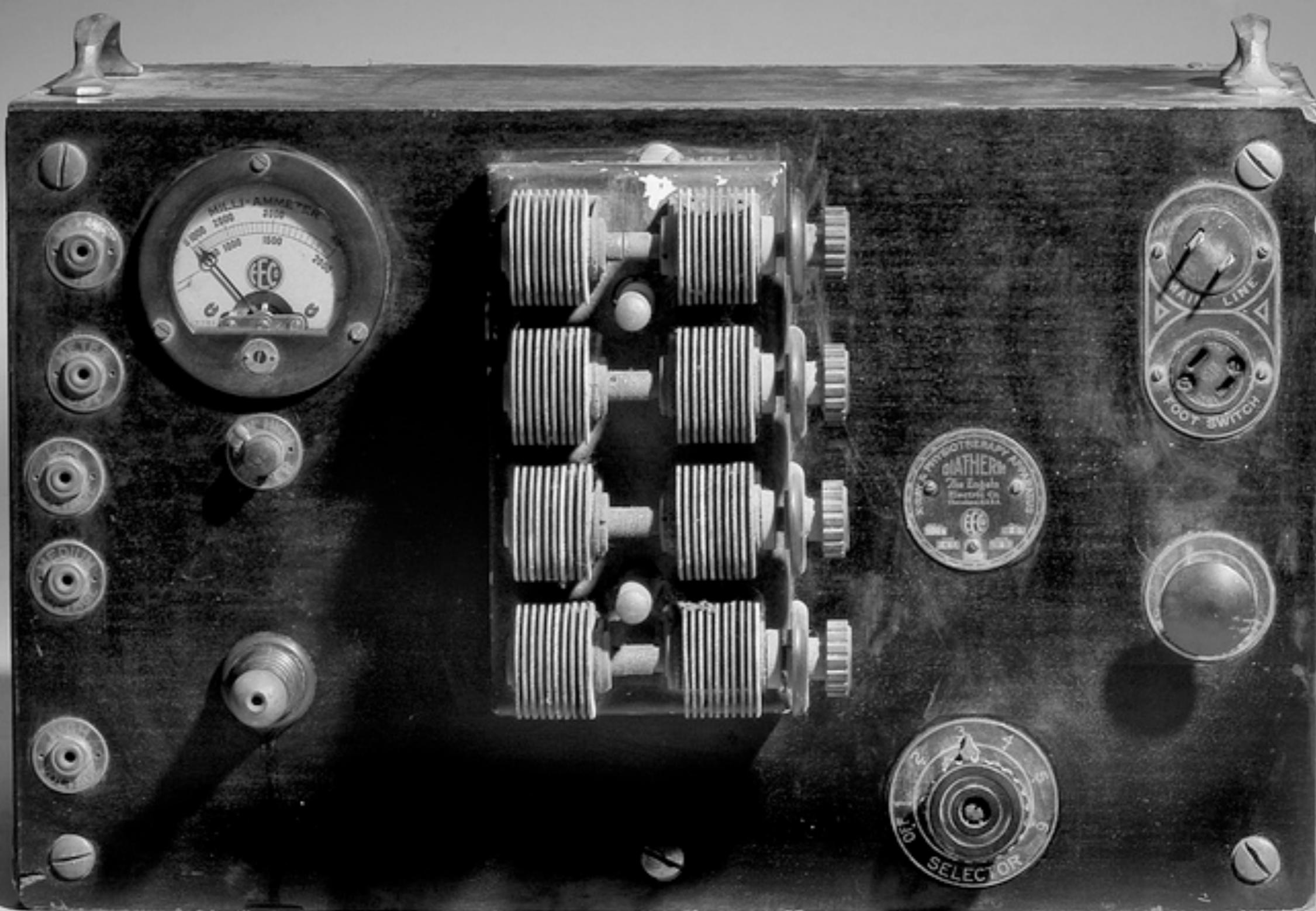
You're an industrial designer.



You're also an industrial designer.

Or at least your job now includes aspects of industrial design,
the art of crafting a physical thing.

Because when you design a touchscreen interface,
you have real, honest ergonomics to consider.



In a very real sense, you're designing a physical device.

Not literally.

Virtual, flickering liquid crystals

But because they're explored by human hands—
unlike desktop experiences to date—
you're designing how hands interact



Been dealing with this on mobile for 5 years.

Phones and tablets confront us with a blank slate.
Invite us to impose our own interface, ANY INTERFACE.

Because that interface requires touch,
defines device in very physical way.

Soldering circuit boards, molding plastic, diecast
Real ergonomics:
Again how does it feel in your hand?

But to know that, you have to know how someone
will HOLD it in the hand.

Basically three ways to hold a phone. [next]

Steven Hoober did a field study,
observed over 1300 people in the street
tapping away at their phones.

Big plurality, nearly half, were tapping with one hand,
with their thumb.

We switch between these grips often, very contextual.
The most popular though is that one-handed grip.

Gives us freedom to use the other hand.
To write, to hold coffee, to juggle a baby.

But I want to pause to look at that middle one, too,
where we hold the phone in one hand and jab with the other.



49%

36%

15%

<http://www.uxmatters.com/mt/archives/2013/02/how-do-users-really-hold-mobile-devices.php>

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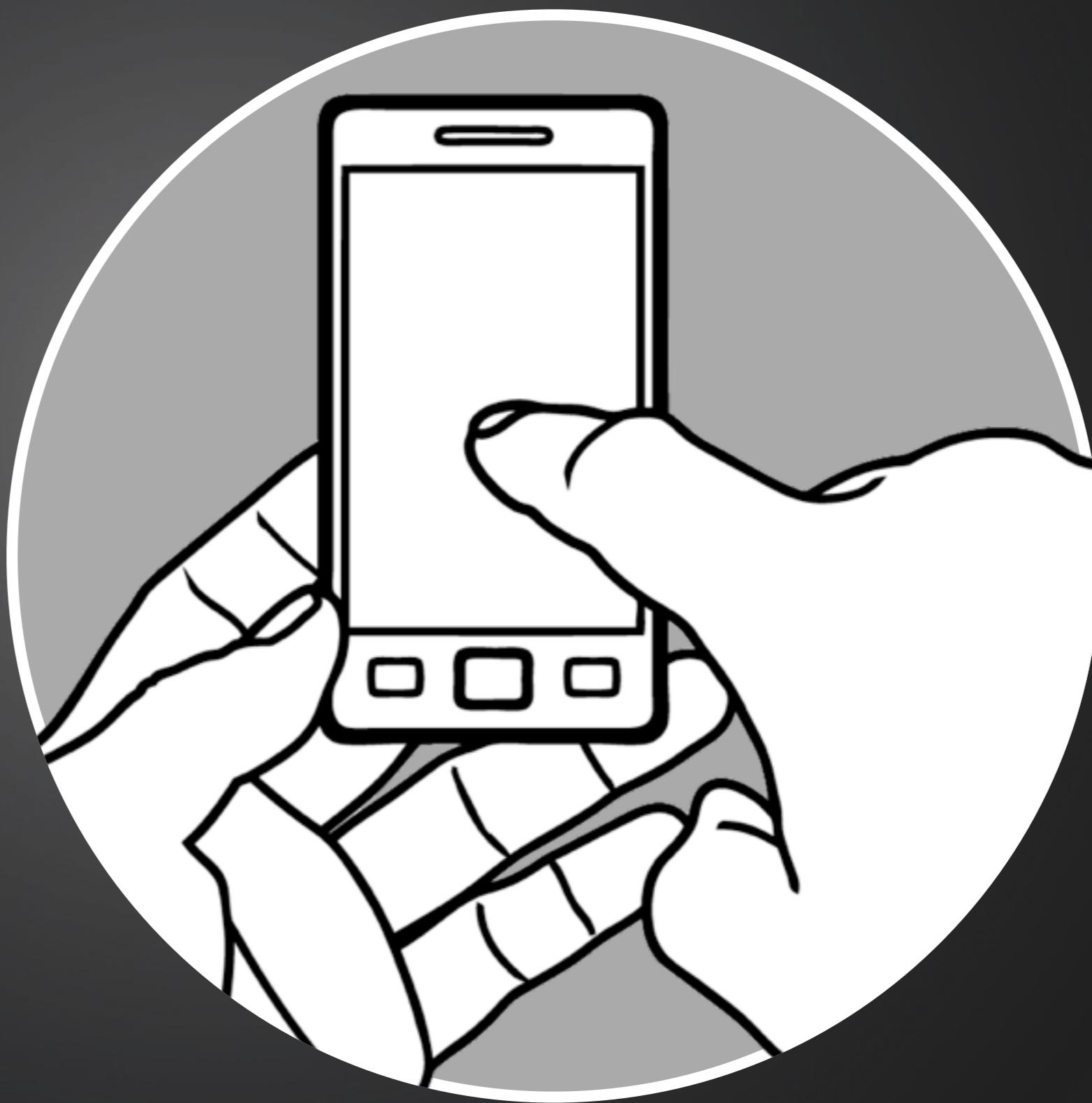
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But I want to pause to look at that middle one, too,
where we hold the phone in one hand and jab with the other.



This picture shows a finger doing the tapping.
Turns out that most of the time, when we use
this hold and stab posture, it's not actually the
finger that does the work.



Instead, Steven observed:
72% of the time people use the cradle grip,
WE USE OUR THUMB.



75%
of phone interactions

Add it up, and that means
75% of our phone interactions are these two grips.

Three quarters of the time,
WE TAP THE SCREEN WITH ONE THUMB.

We often talk about how we're designing for fingers...



All thumbs.

In reality, we're designing for thumbs.
As we'll see, that truth cuts across other device types, too.

Thumbs are awesome.
But they have their limits.

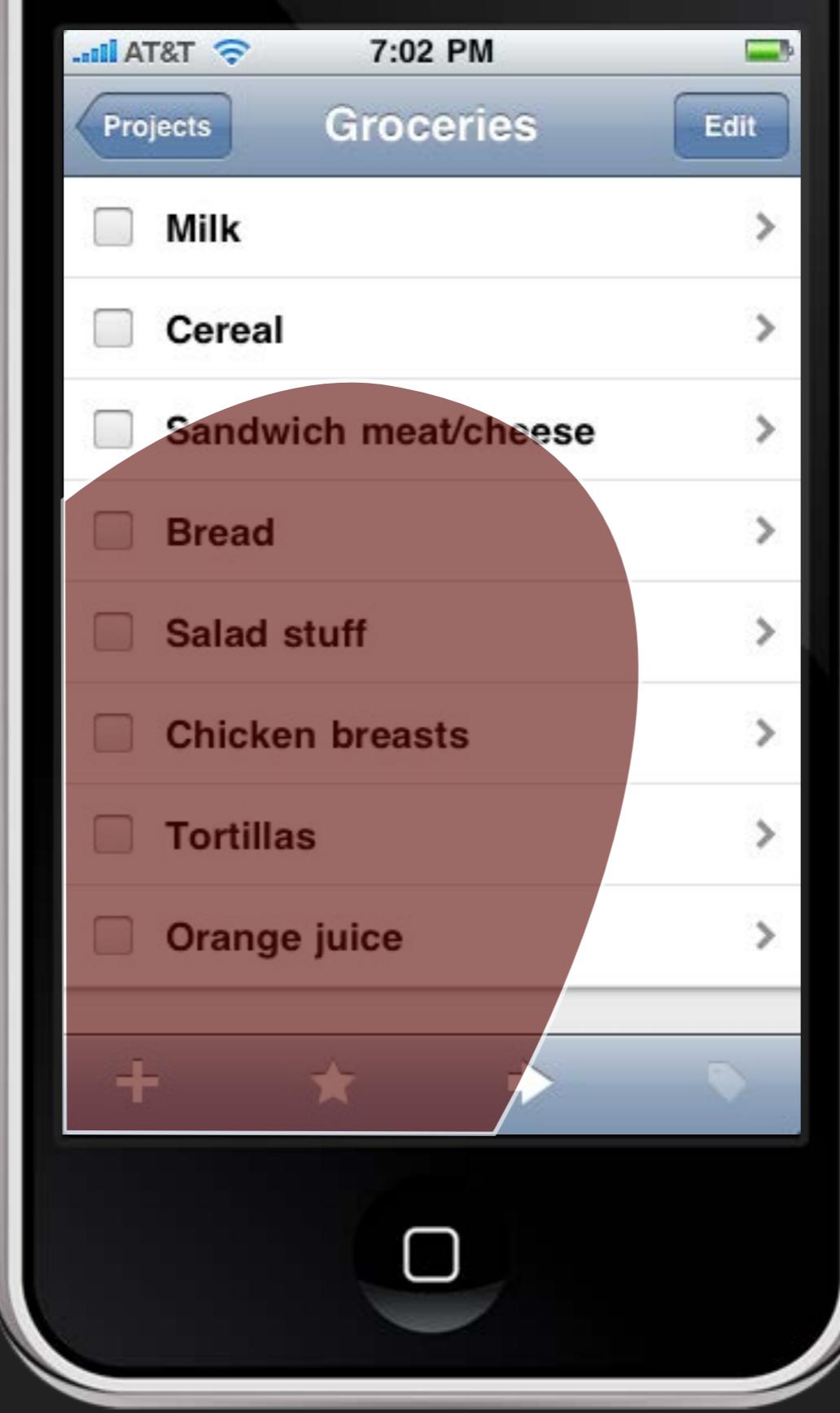


And this is it: the thumb-tapping hot zone.

Comfort zone for thumb when held in right hand.

Bottom of the screen opposite side of the thumb—
left side for the right thumb—
where tapping is easiest, where thumb naturally rests

Obviously thumb can reach anywhere onscreen,
but this is most comfortable zone.



Important implications:
That's why iOS puts primary controls at bottom.

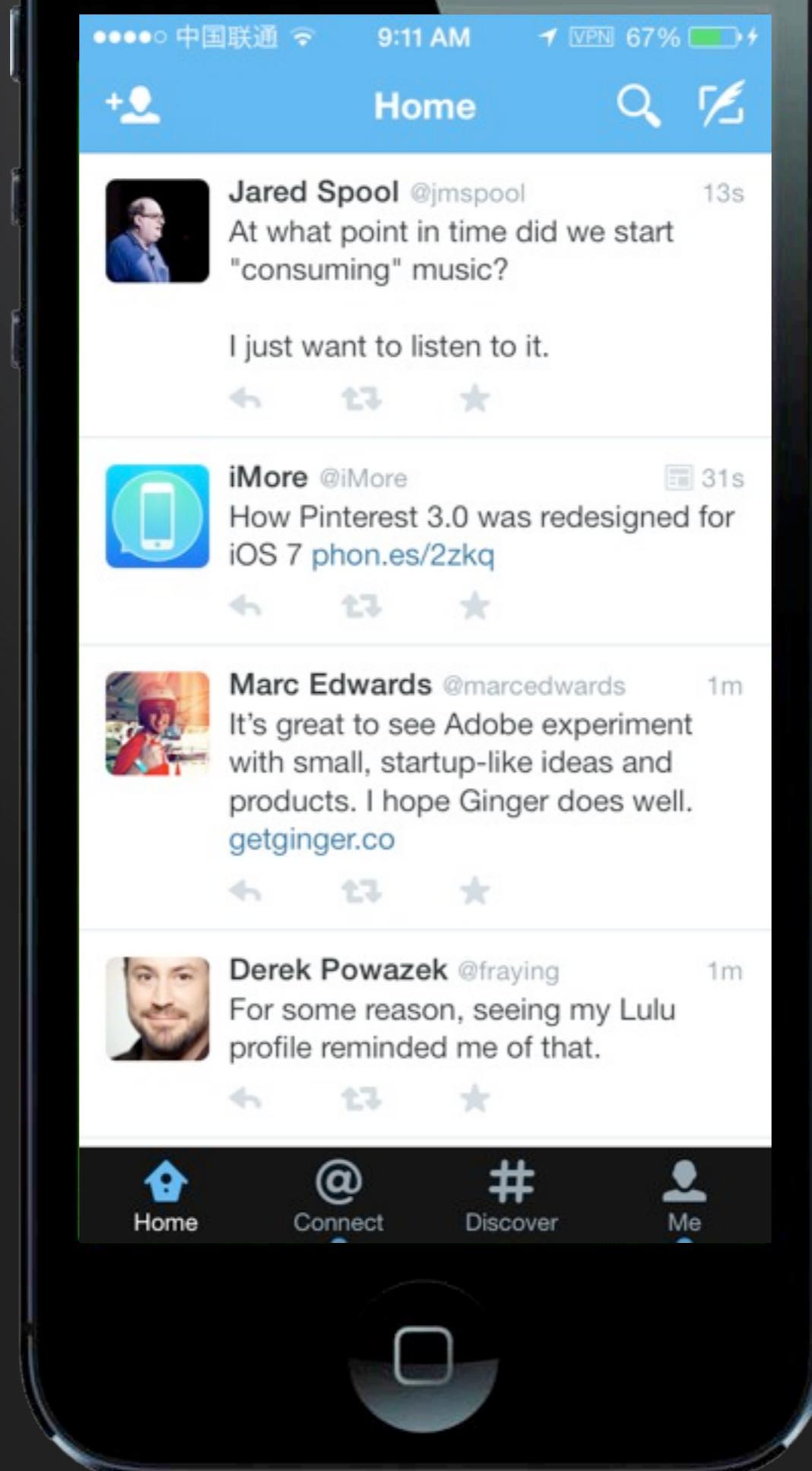
Turns desktop convention on its head

LEFT VS RIGHT

Steven's study found that two-thirds of the time,
we tap the screen with the right hand.

But very fluid about which hand we use.
More important bit is top vs bottom.

And look what's NOT in the thumb zone: edit button.



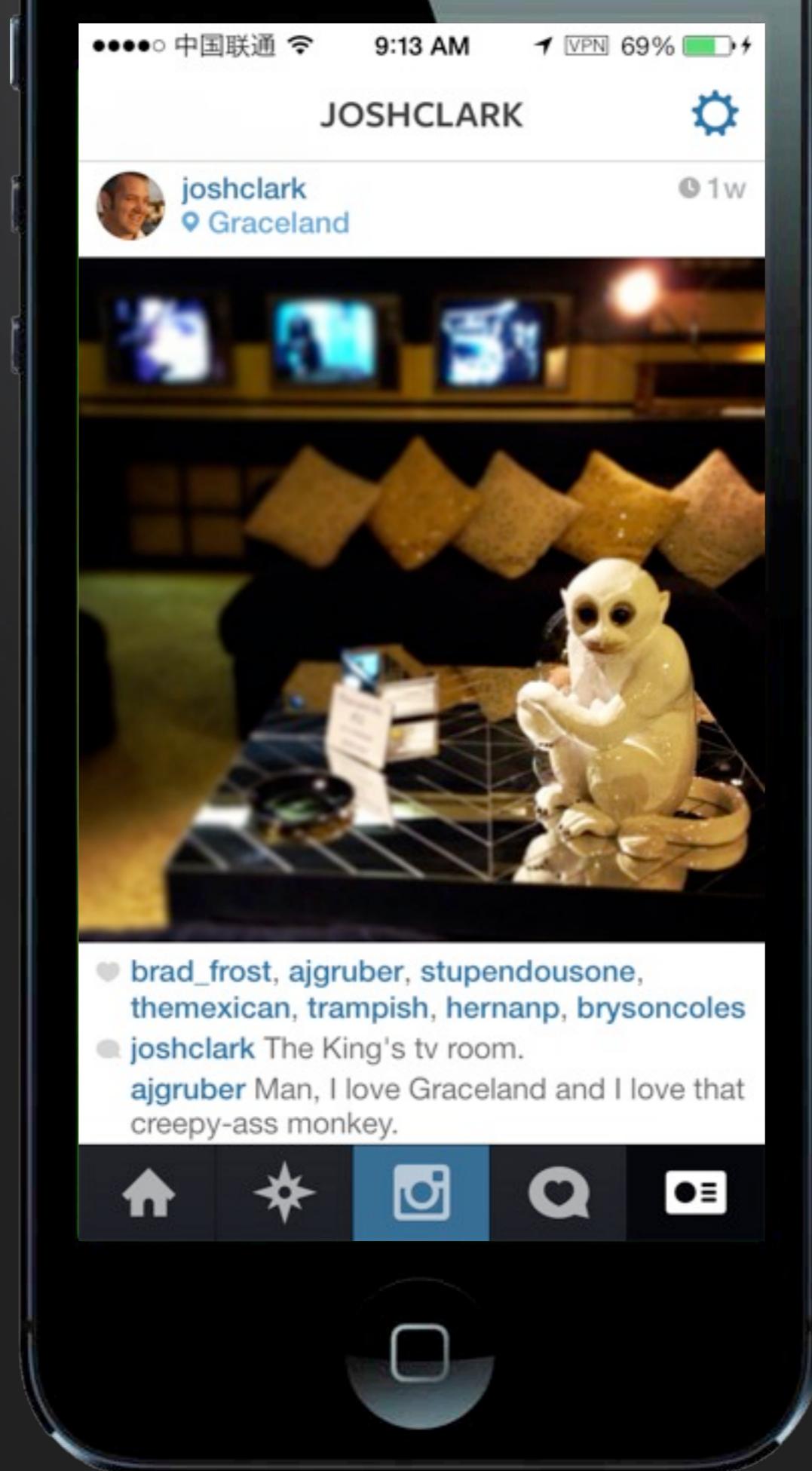
Common pattern, though, is also to put a primary action up there.
Post a new message always there in the top right of Twitter app.



You see a similar approach in the Foursquare app.
Foursquare puts the checkin button in top right corner.
Still the same idea -- put this data-changing button out of harm's way.



More recently, moved the checkin bottom to middle.
Hide navigation options.
Single primary action in single primary area.



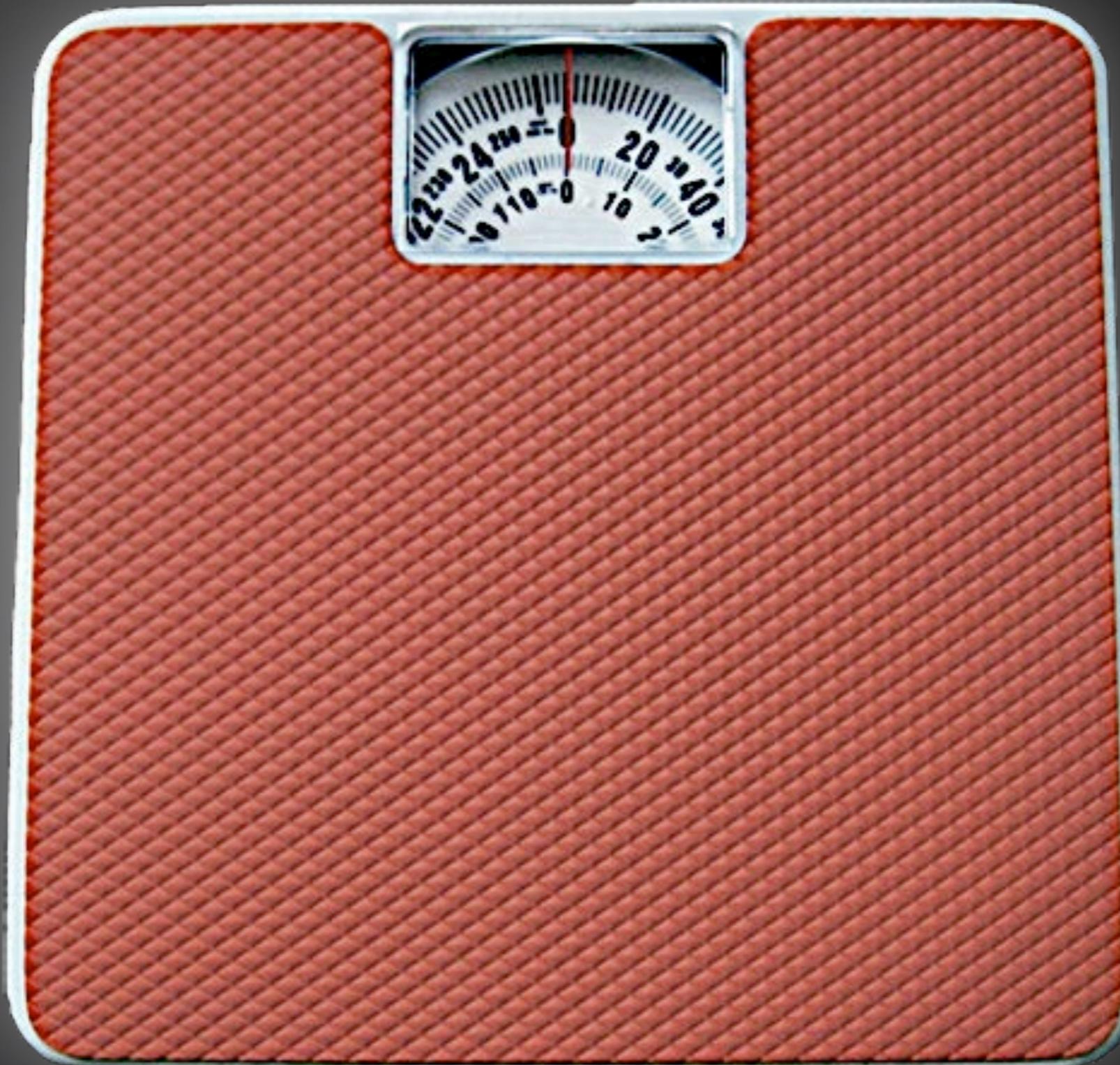
Instagram puts primary action -- add photo -- in the middle and highlights it.

Been talking about this in terms of thumb comfort,
where your hand naturally falls on the screen.

But not only a thumb comfort issue.

Fingers obscure view.

This brings up an age-old principle of industrial design.
Content at top, controls at bottom.



Here are a few examples.
Feet at bottom, scale at top.



Dial at bottom, display at top.
Controls below, content above.

Design to keep fingers out of way of content.
Hands, feet, fingers at bottom
make room for display at top.

Meat on the bottom, content on top.



Isn't that right little professor?



Design to keep fingers out of way of content.
Hands, feet, fingers at bottom
to make room for display at top.

Consider this a cardinal rule:
put controls below content.

That's what you see in iOS.
But it all depends on who gets there first.

So the story changes a little bit for Android.



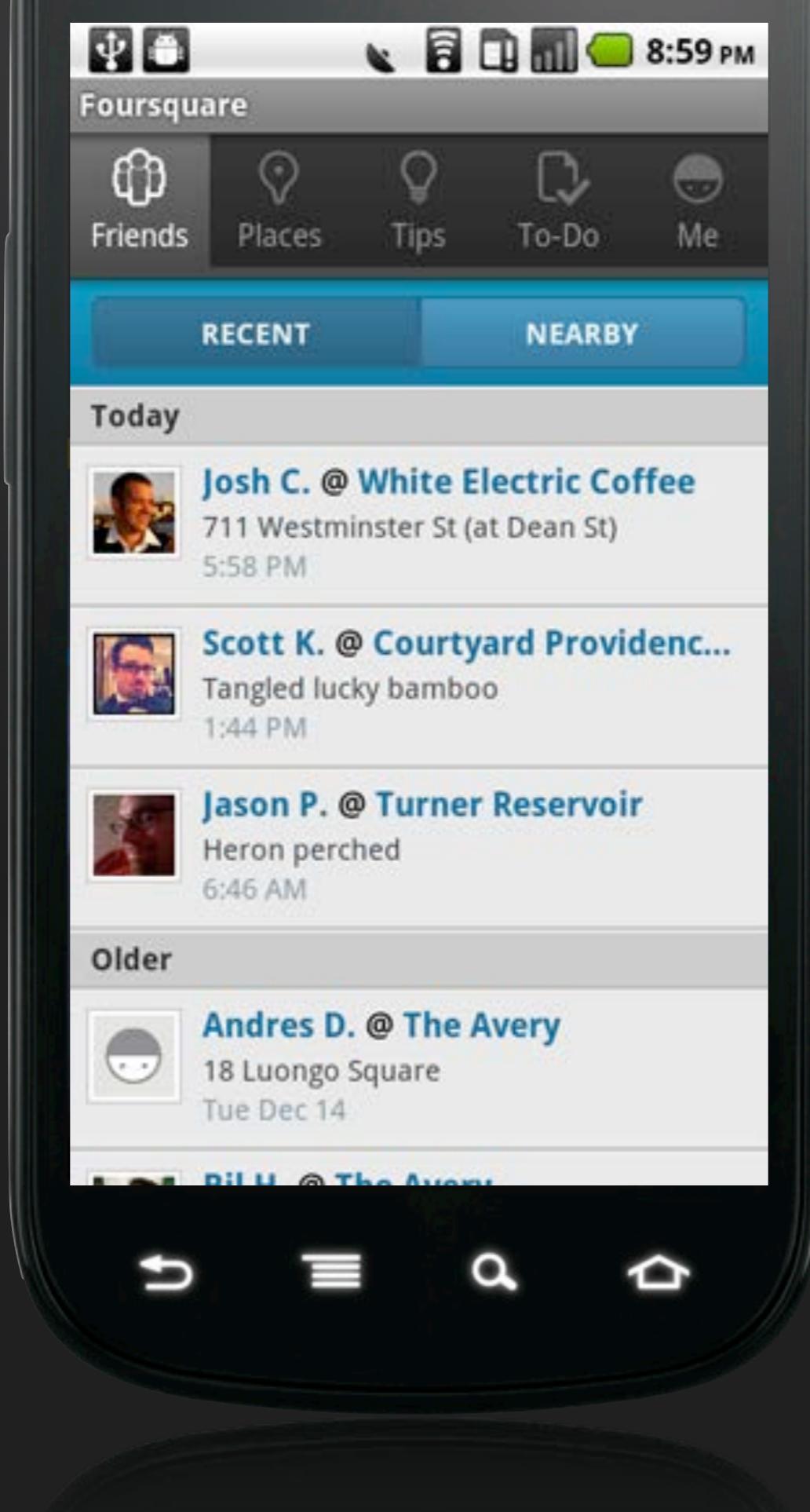
Complicated by the presence of system buttons on the bottom.

IThey're doing the right thing:
controls below content.

The trouble is, where do you put YOUR app controls.

The operating system beat you to the bottom of the screen.
Do you stack them on top like you see here?

Always bad to stack controls in touch devices
—invites errors and mistaps—
but it's worst to do it at screen bottom.

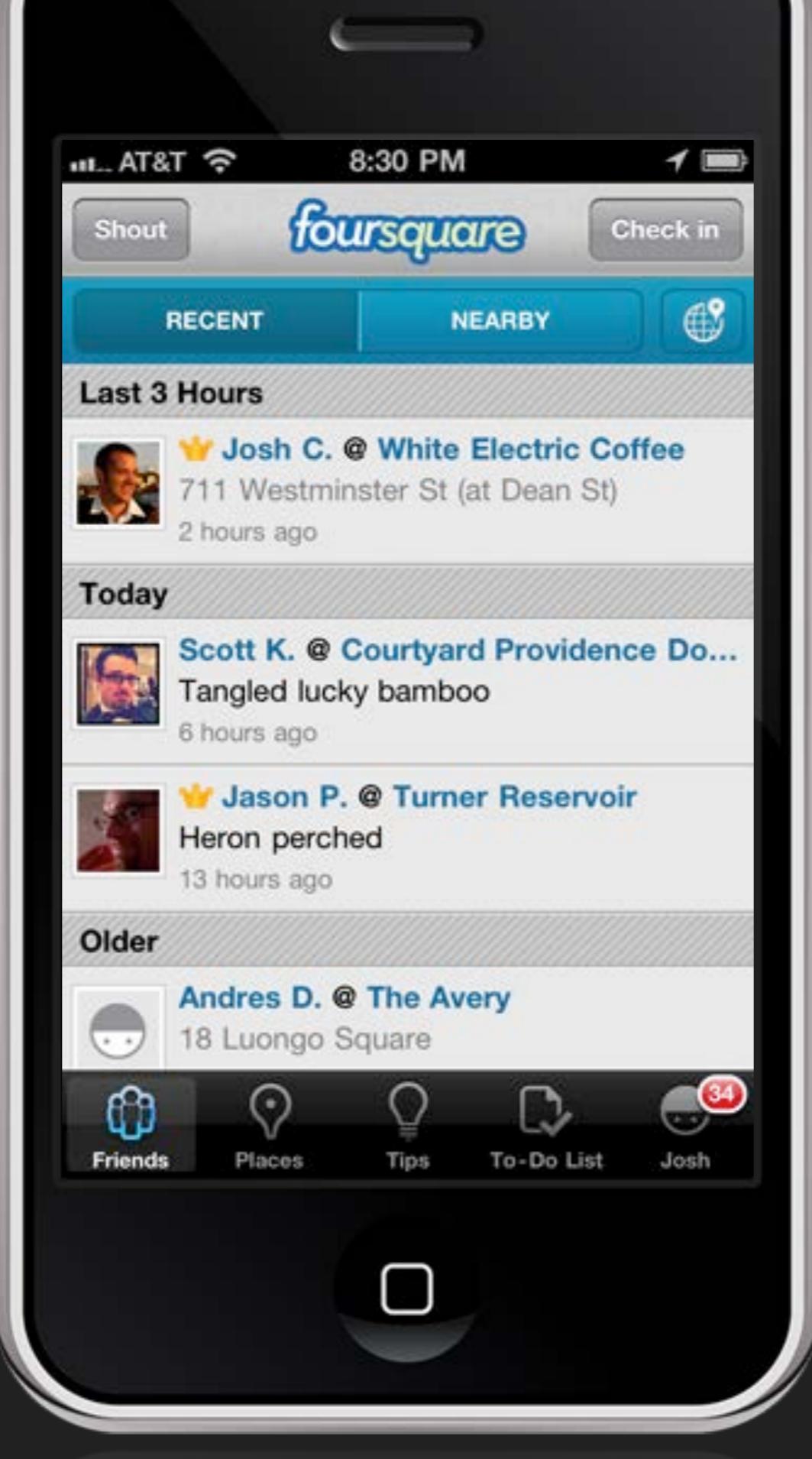


Here's the older version of Android—Gingerbread—that runs on most phones right now. Hardware buttons at bottom.

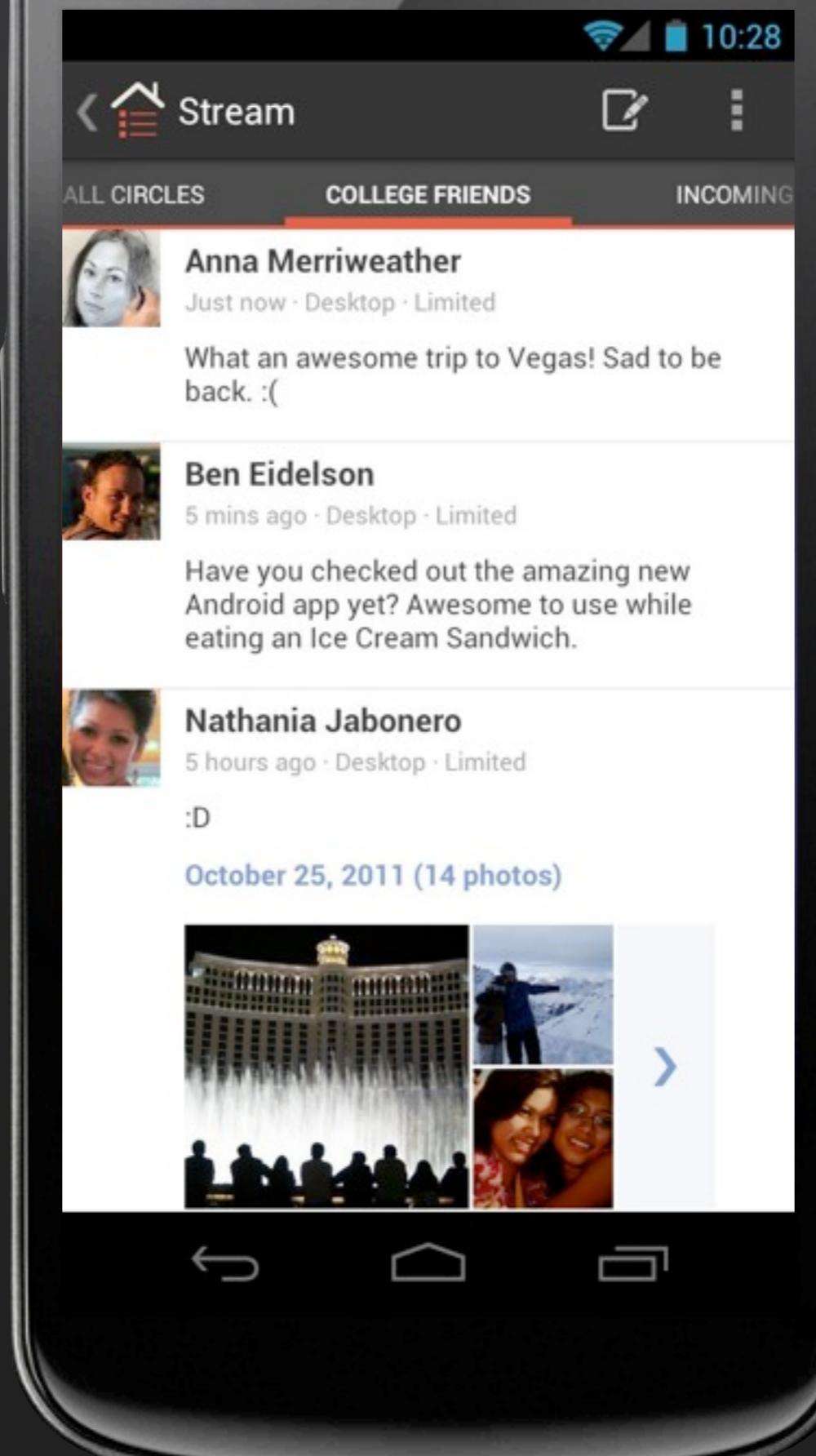
There, the general guidelines was and remains:
PUT APP NAVIGATION AT TOP,
so it doesn't interfere with those system buttons.

Trouble is that this necessarily means that you're covering the content when you go to tap that button.

Take a look at the same legacy version of the Foursquare app in iPhone...



Navigation bar back on the bottom.
And at top right: "check in" which affects data,
safely tucked away at top right.
Available but out of danger of mistap.



The recommended default navigation for newer versions of Android,
Ice Cream Sandwich and Jelly Bean,
uses the ACTION BAR pattern shown here.

Again, at screen top.
All to avoid that stacked navigation at screen bottom.

So that's Android.

And the web?

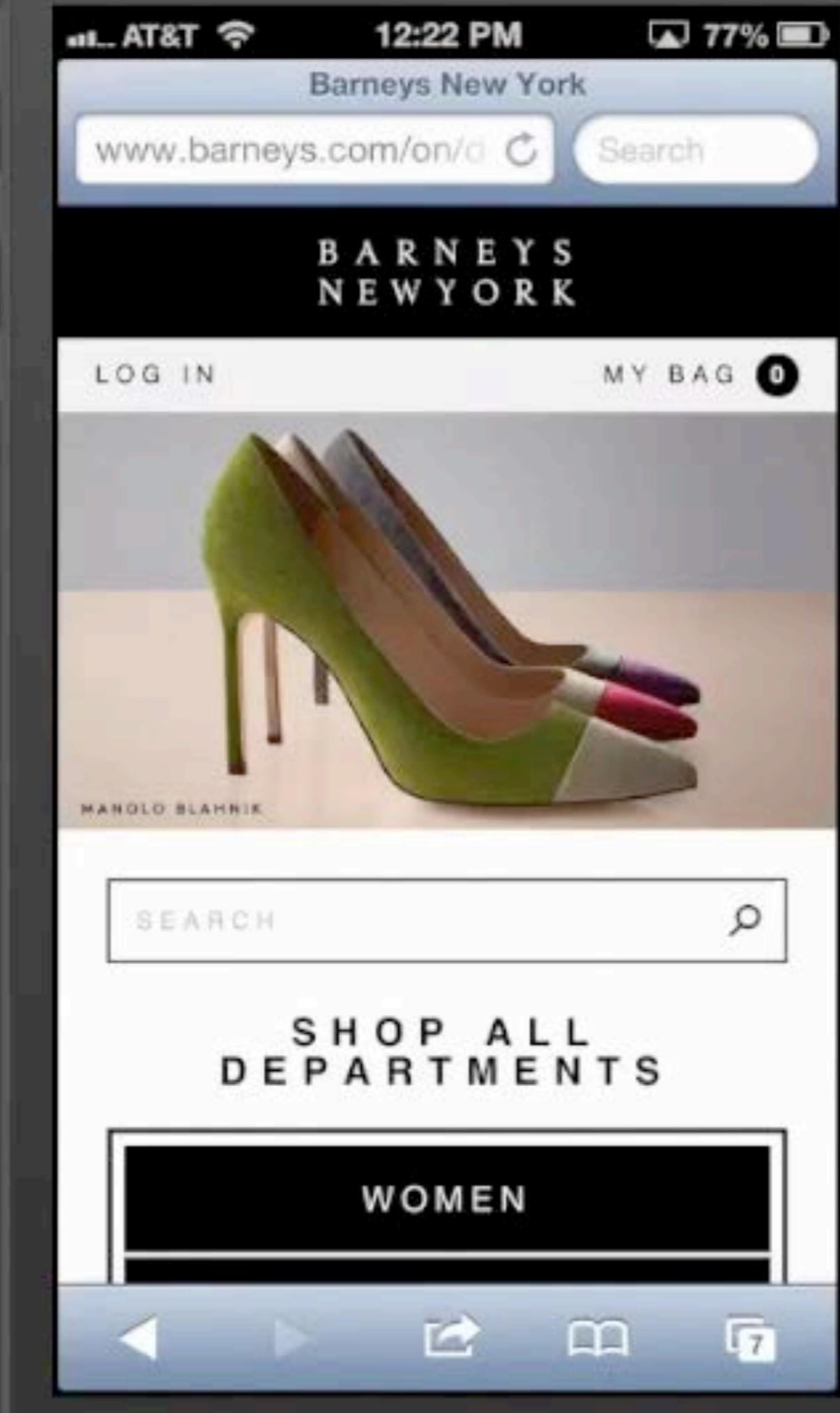


Turns out the story changes yet again for touch on the web
for phones and small screens.

3 problems pinning a navigation toolbar to either top or bottom.

1st is that you would normally use position:fixed to do that.
Really pretty buggy. It doesn't work at all on some browsers,
other browsers it's implemented poorly.

So you have a technical challenge of just getting your navigation bar
to sit still on top or bottom of the page.



Second, you start to choke out the content.
Barney's mobile website.

Logo and toolbar are fixed on screen.
Looks okay in portrait, even though over 1/3 of screen is
browser chrome, logo, and toolbar.

[next: scroll] so you're giving up a lot of real estate
that you could give to content.

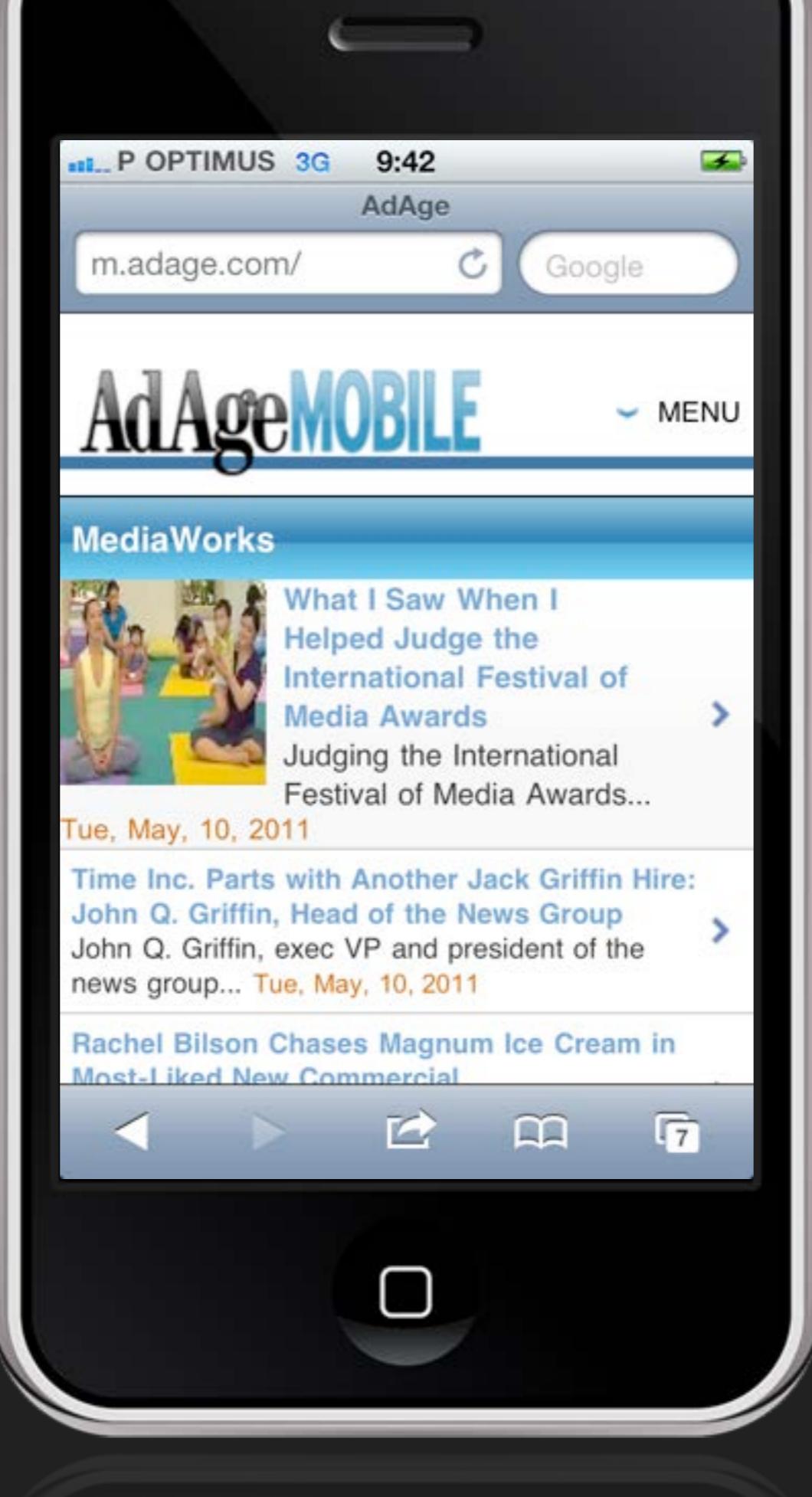
But much worse when you flip to landscape,
barely a sliver of content peeks through.

It's barely a Blahnik!

And worse, try to scroll by swiping on that fixed toolbar,
and you can't. doesn't respond.
all the interaction AND content is limited to that tiny strip.

The screen already has browser chrome.
Fixing your own navigation tools on screen makes it worse.

Nobody comes to your website to use your
awesome navigation controls. Get them out of the way,
FEATURE THE CONTENT.

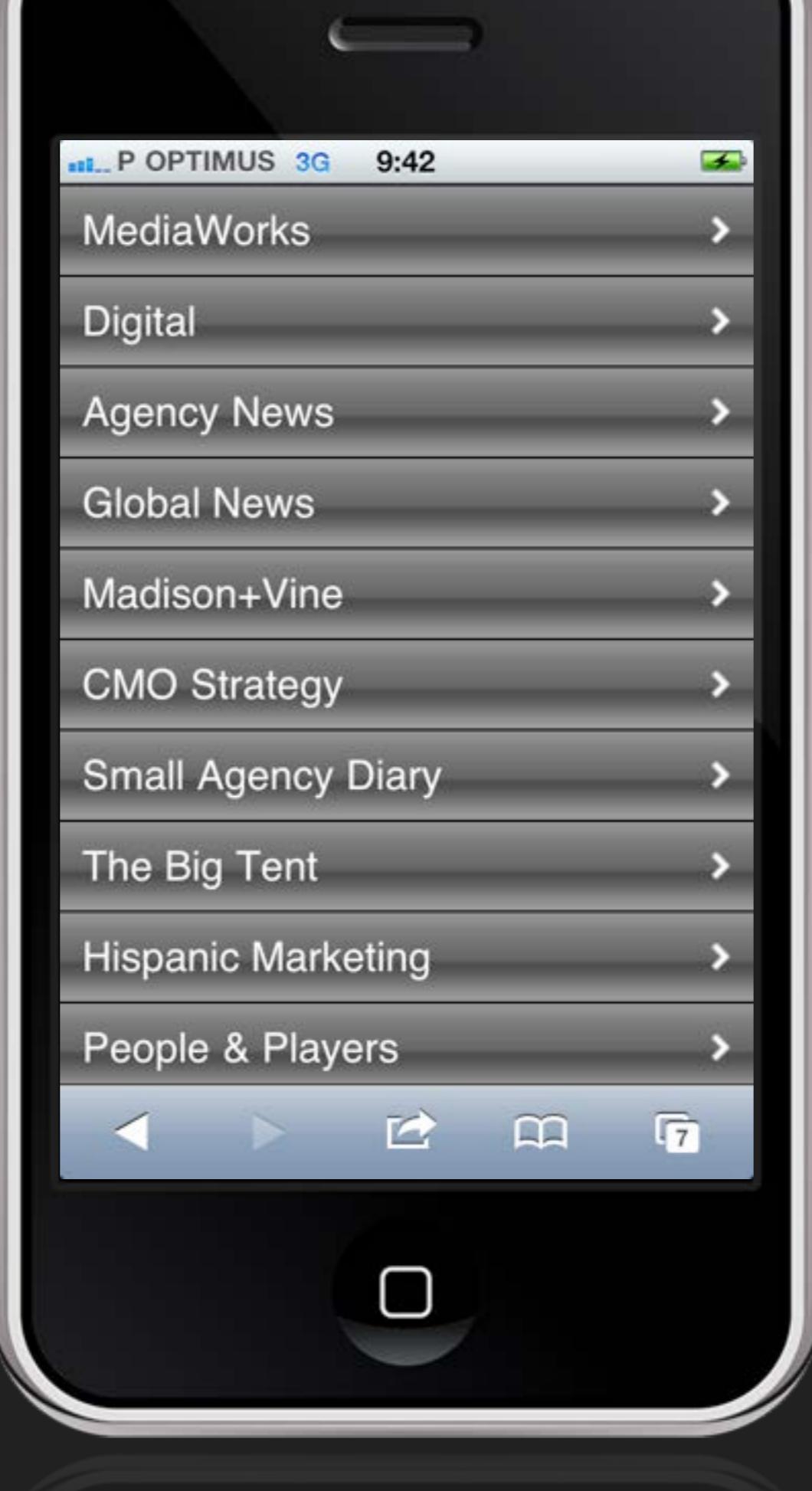


3rd problem is also related to browser chrome.
In iOS, Safari has a fixed toolbar at screen bottom.

Not all browsers do—Android doesn't—but in this case,
putting a toolbar on the bottom here would create that stacked
toolbar problem.

So three strikes against putting controls anywhere permanent on the page.

Instead, this is my favorite pattern for small screens.



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PHONE GUIDELINES

iOS apps

Controls at screen bottom

Android apps

Controls at screen top

Web

Controls at *page* bottom



Started with very simple concept:
Content at top, controls at bottom.

But it turns out, environment matters.
Who gets there first.

And as a result, you get three different rules for these different platforms.

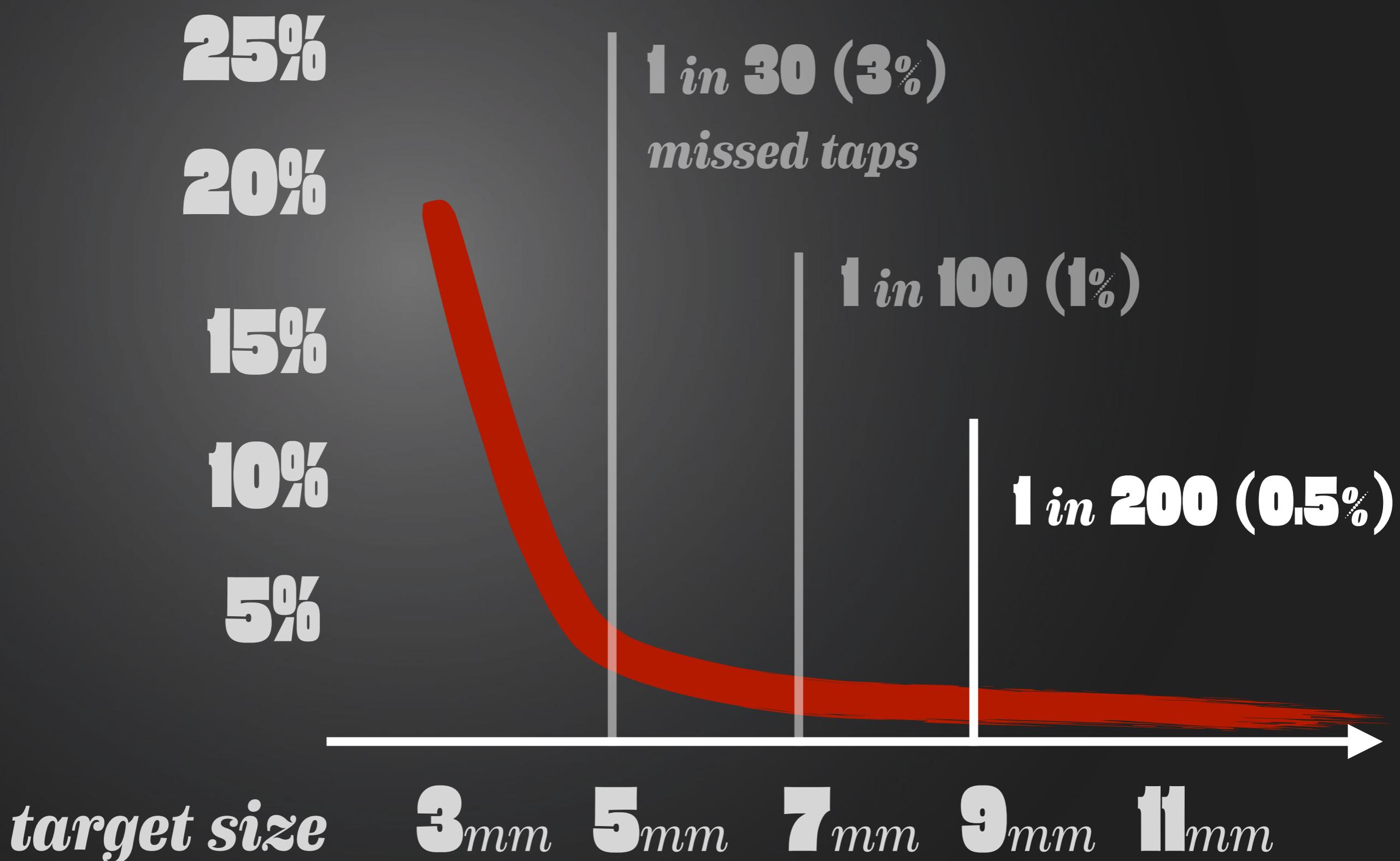
SEVEN

millimeters

BUT HOW BIG, Josh?
When we're designing for touch, how big should touch targets be?

7mm, about $\frac{1}{4}$ "
Spread of fingertip as contact point on screen.
Size of target that finger can reliably hit

missed taps



<http://msdn.microsoft.com/en-us/library/windows/apps/hh465415.aspx>

Microsoft did some research for Windows—for both desktop and phones—and found very consistent results.

So 7mm pretty good for everyday, 9mm if you're being super-cautious.

I don't know about you.
For me, mm isn't exactly my standard css unit.
So how do we specify this size?

Well maybe standards can help us out here.

[twitter]How big should touch targets be? Microsoft study: 7mm good, 9mm to be safe. <http://j.mp/UzDGfZ>[/twitter]

<http://msdn.microsoft.com/en-us/library/windows/apps/hh465415.aspx>

css 2.1

1 pixel = 1/96 inch

7mm = 26.457 pixels

30

pixels



Starting with CSS 2.1,
pixel measurements don't refer to dots on the screen but an actual physical distance.

1 pixel = 1/96 inch, like the old 96dpi monitors.
Let's round it up, call it 30 pixels. Done, right?

Unfortunately, no.

It SHOULD be 30 pixels, if all was neat and clean in the world.

This doesn't factor in the practical reality of dynamic viewports.
You know these from your phones and tablets.
This is the magic that lets you see a full-width website on a tiny screen.
Pinching and zooming.

css 2.1

~~1 pixel = 1/96 inch~~

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DYNAMIC VIEWPORTS



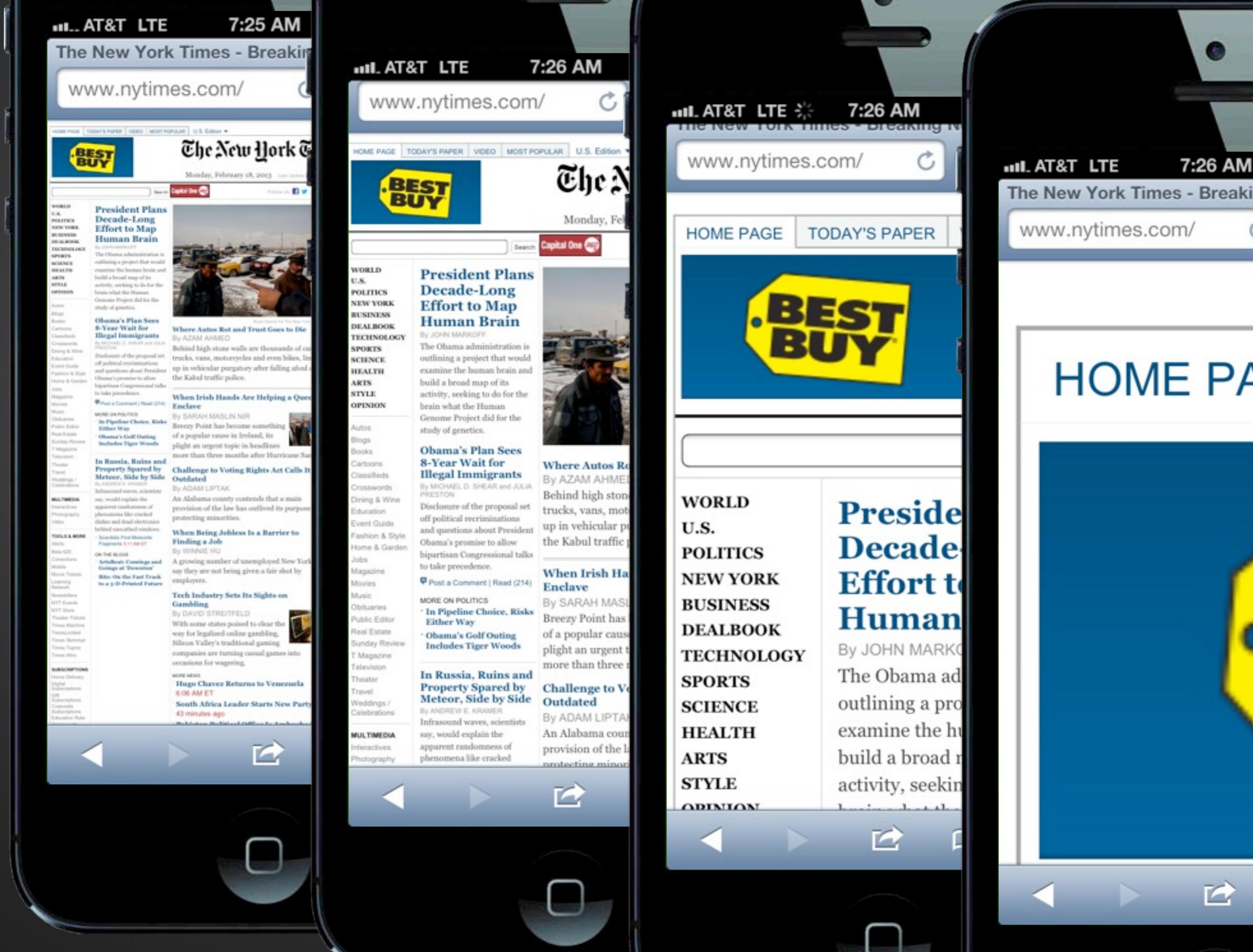
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This is the magic that lets you see a full-width website on a tiny screen.
Pinching and zooming.



Launch the NYTimes and you get this.

Where's my 96 dpi pixel now?

This is 972 pixels, but it sure doesn't look like like 10" here.

Squeezed into less than 3".

And that's a good thing—the only way I can see the whole site.

From there, I can zoom in to read it and it's suddenly, much larger.

Or this [next] or this or this.

There's seemingly no "true" size for this thing.

By design, dynamic viewports destroy the very idea of mapping a pixel to a fixed physical size.

But all is not lost.

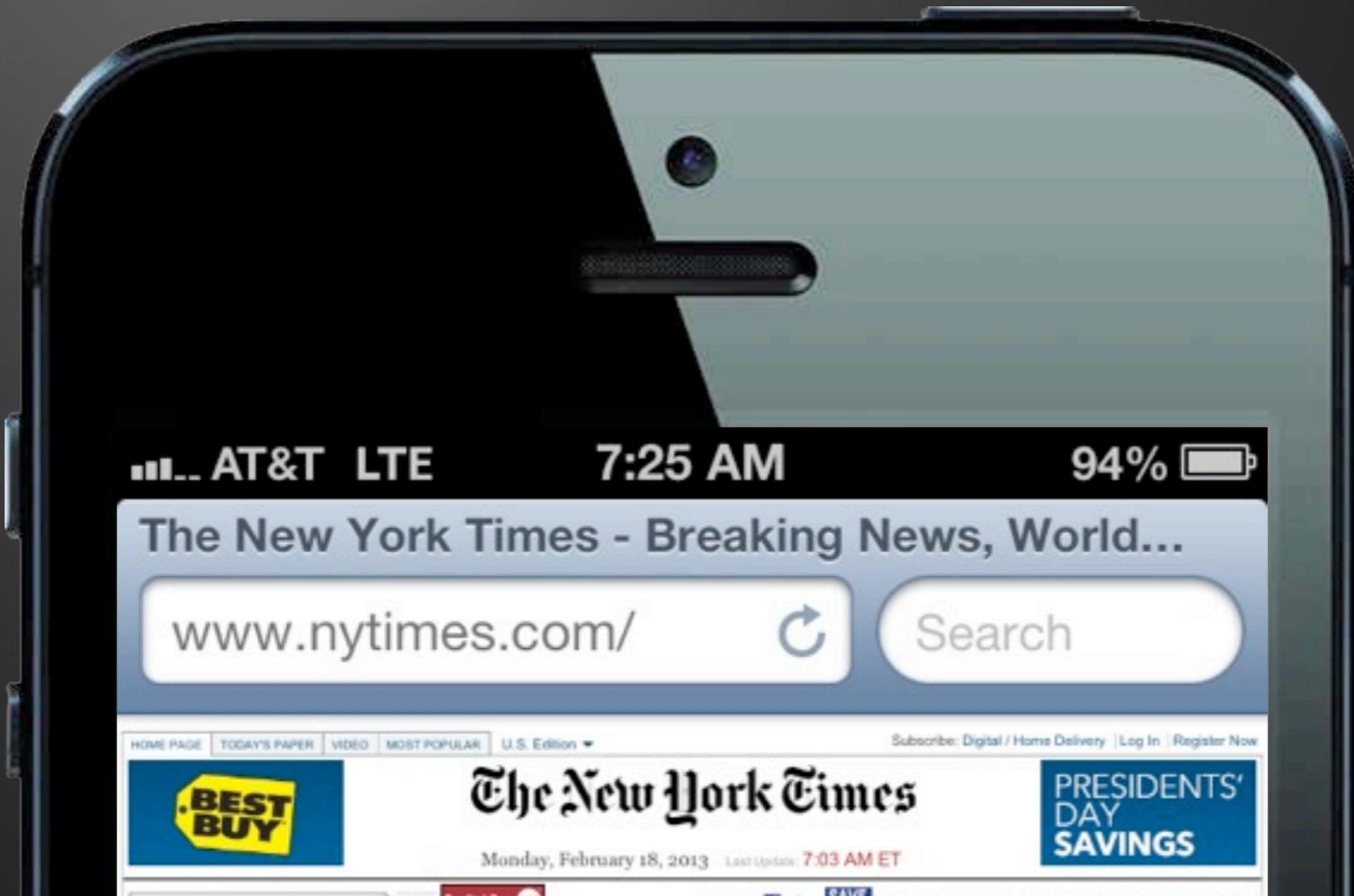
Devices do still report their device width.

That's basically their native, "true" size.

These are the numbers our media queries hook onto.

[twitter]CSS standard says pixel is 1/96 inch (96 dpi), but dynamic viewports mean it's rarely the case.
Vexing viewports: [http://j.mp/WSj7vt\[/twitter\]](http://j.mp/WSj7vt)

320 pixels



iPhones for example, report their device width as 320 pixels.

That means that, unless you specifically say the page should be wider, your designs will default to a 320 pixels wide on an iPhone.

This has nothing to do with how many physical pixels are actually on the screen. Unrelated to retina display.

These are called virtual pixels. Call them web pixels if you like. Here, iPhone says, it has a device width of 320 web pixels across in portrait. Even if, in practice, a retina iPhone has 640 hardware pixels across.

[next]

On iOS, that fixes a web pixel at around 160 dpi, not 96 as CSS spec suggests.

Apple popularized this approach to the dynamic viewport, and most platforms and devices have followed suit with similar dpi numbers.

So. Going with Apple's recommended touch target turns out to do the trick in most cases.

Forget about the “proper” 30 pixels we calculated earlier.

```
<meta name="viewport"  
      content="width=device-width" />
```

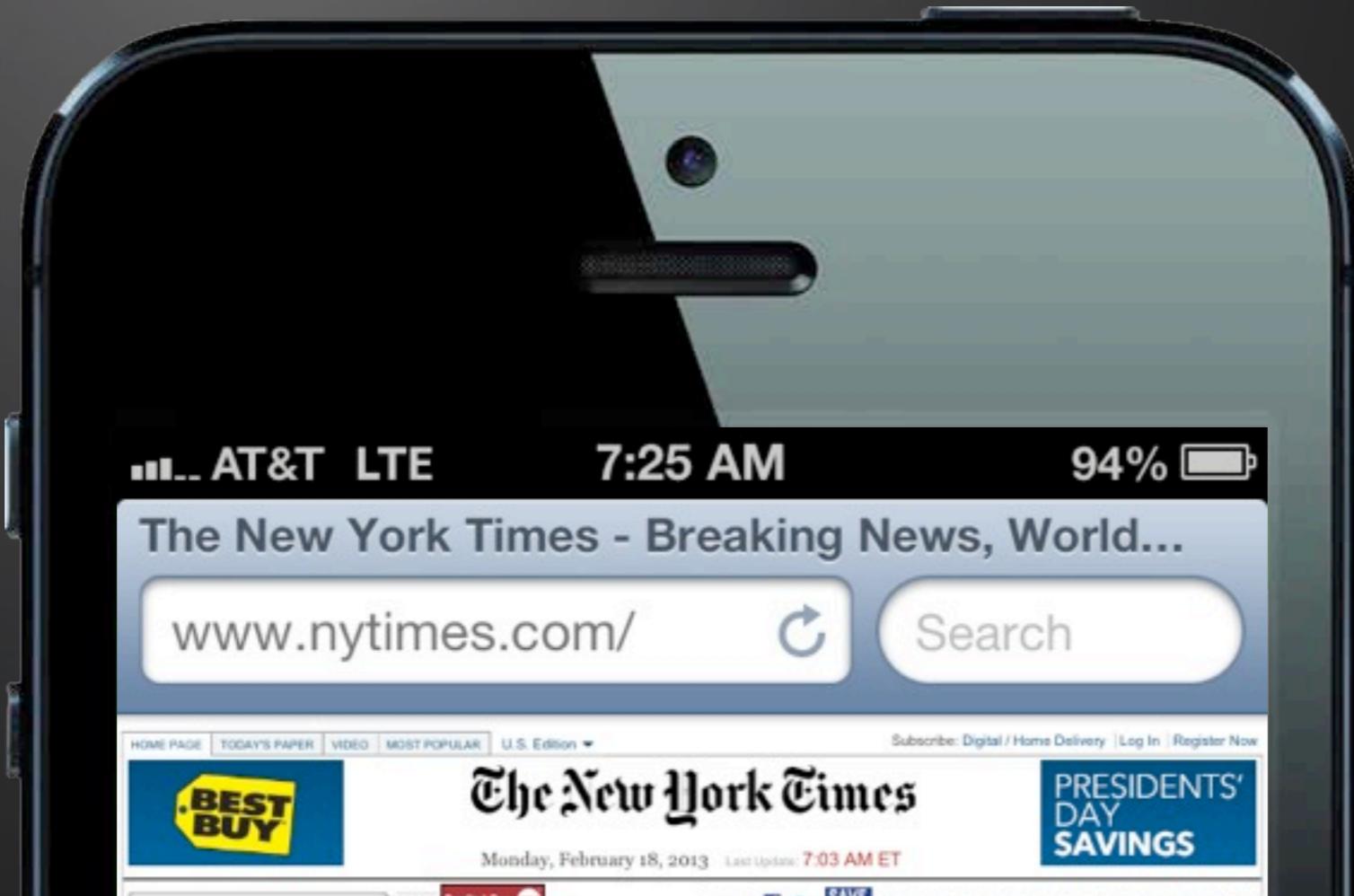
Add this tag to the `<head>` tag of a page—and you should—sets the viewport to match the device width.

So whatever the width of the device, that will be the width of your webpage.

```
<meta name="viewport"  
      content="width=device-width,  
              initial-scale=1.0" />
```

And just an aside, adding this will also make it so that it will always rescale to viewport size, on orientation change for example.
No scaling in landscape in iOS.

320 pixels



On iPhone, again, that will be 320 web pixels.

So it turns out that, on individual devices at least,
web pixels do have a fixed width,
assuming you set the viewport to the device width.

It's just that it's almost never the 96dpi size
that the web specification says it should be.

Apple's decision to set the iPhone device width to 320px...

[next]

...made iPhone's web pixels 160dpi, and that choice impacted all the mobile browsers that followed.

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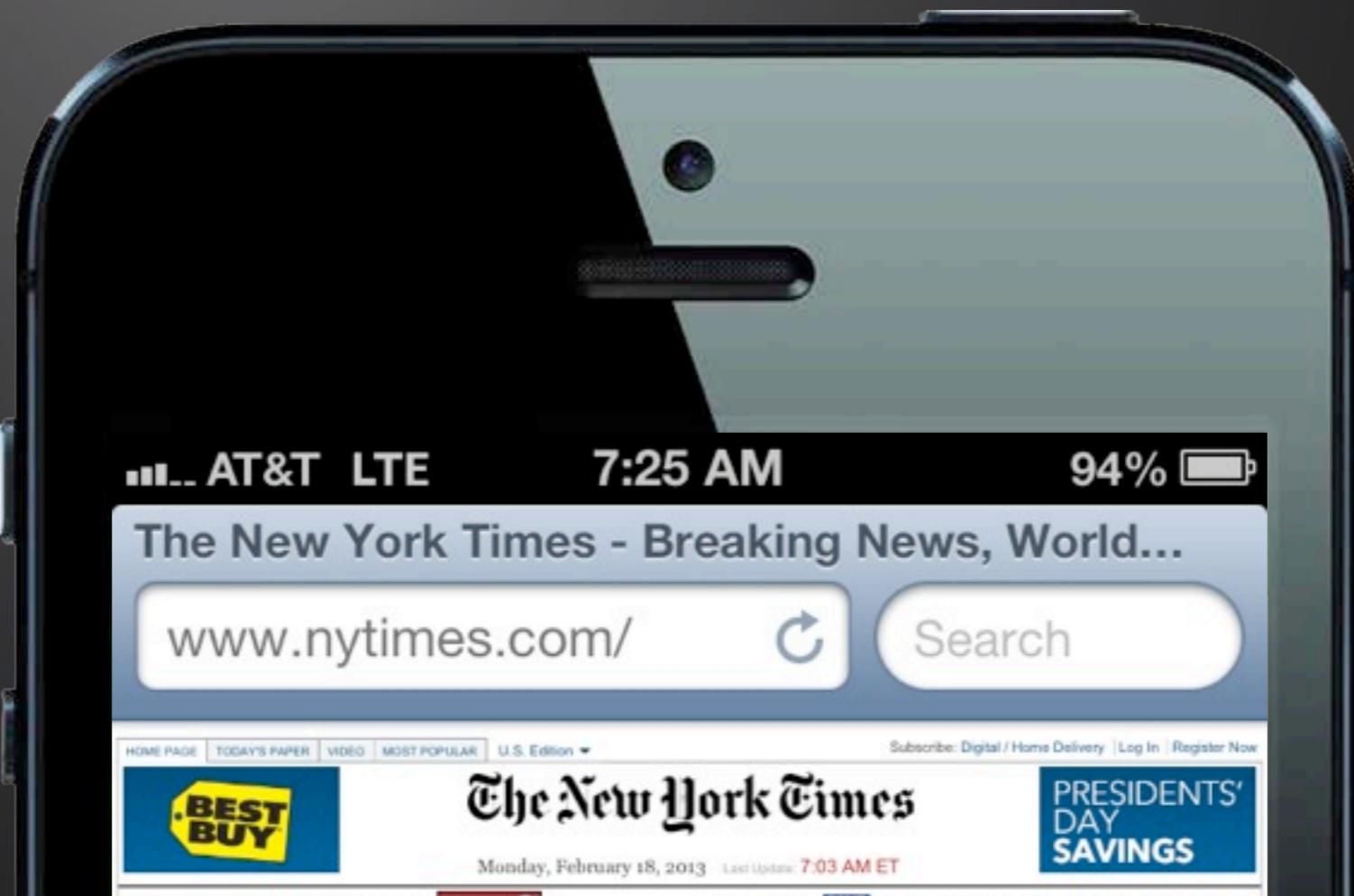
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160

dpi



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pixels

Boom.
Forty-four pixels, friends: that's the new hotness.

7mm in most touch browsers.

Now. Most of us don't work in pixels any more.



Boom.

Based on the 16-pixel default size,
2.75 ems should give you a good touch target.

[twitter]For the web, 44px is a sturdy minimum size for touch targets, or 2.75 ems.[/twitter]

160
dpi

160 *dpi*

44 **44** **44**
pixels *points* *dp*

web

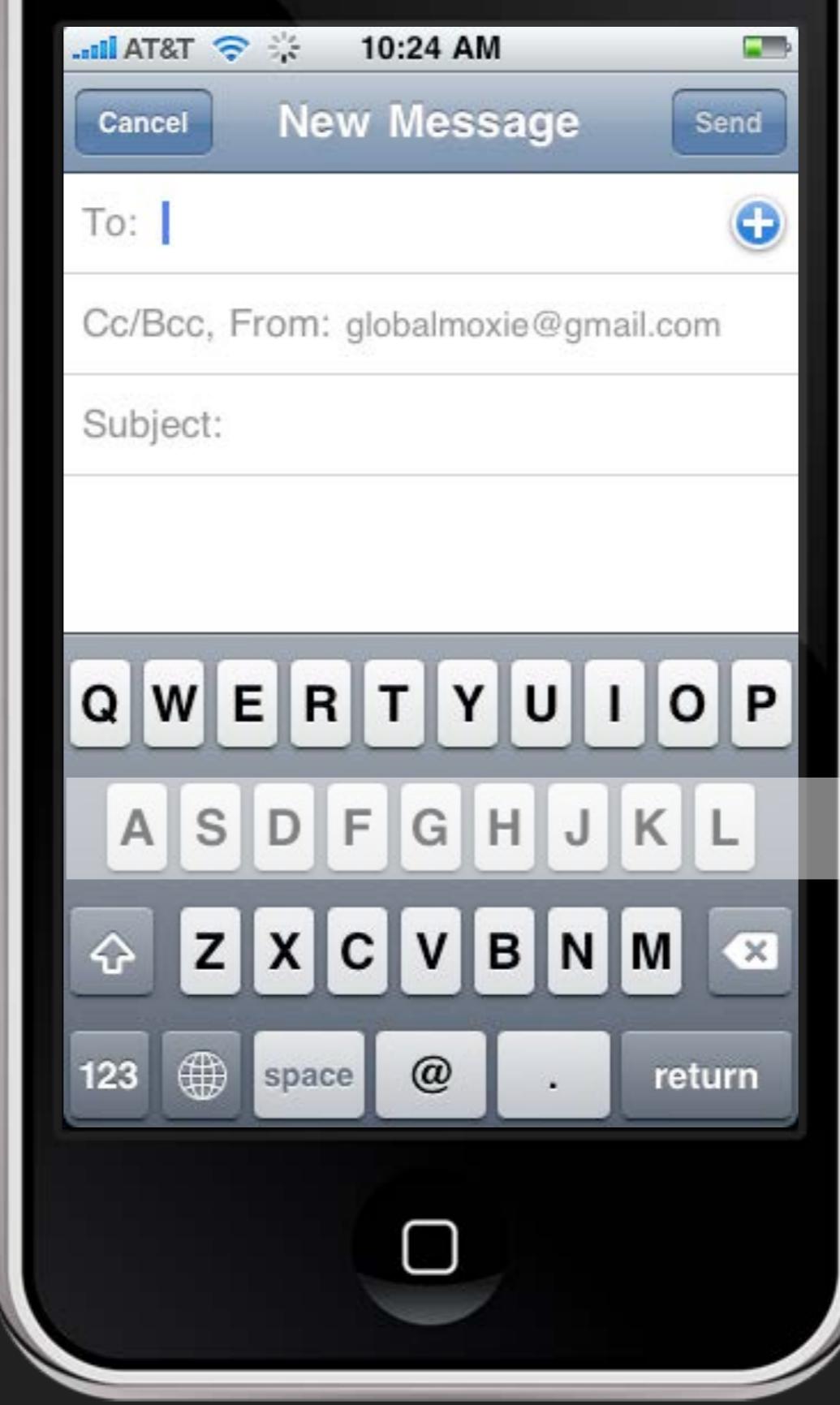
44
pixels

iOS

44
points

Android

44
dp



44

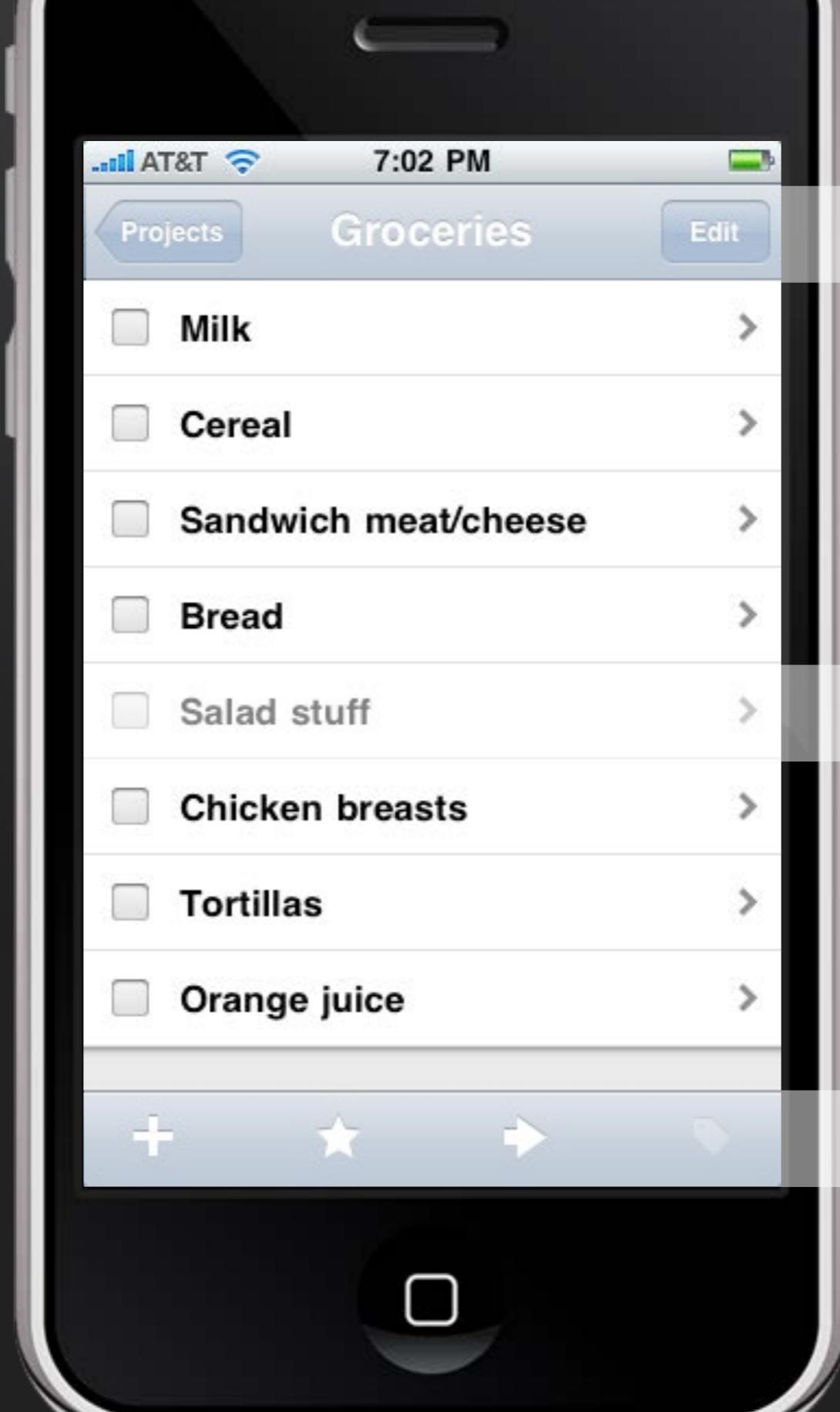
Compromise necessary sometimes.
Have to get all the letters of the keyboard on the screen.
Squeeze to 29 width.

In iOS, 44 number is not just a guideline,
but it's actually cooked everywhere into the operating system.



As long as one dimension is at least 44,
can squeeze other to 29.

Practical minimum for tap targets: 44x29 or 29x44.



Again, though, 44 appears everywhere.
Nav bar, height of rows in standard list view, tool bar.



88

88

Home screen grid doubles up to 88.

Idea is that organizing in multiples of 44
multiples of finger's touch surface,
app not only looks right
but literally feels right

Design to a 44 pixels rhythm.

Gives you easy, to read, easy to touch interface.

How cool is this!
All elements sized exactly in proportion to your finger print.

For the hand, but also of the hand



Not only for the hand, but of the hand

Every element in proportion,
Not only to one another but to the finger itself.

Design to a 7mm rhythm
Don't think 7mm just for buttons but for overall layout

That's lovely.
But THIS is not....



Man enough: had one of these bad boys
Casio Gold Data Bank watch. Calculator watch.
Not only small buttons but too close
Aim for 5, get 8 or 2
More wheel of fortune than calc

Not just button size but spacing
Closer -> larger

7mm
touch targets

2mm
padding







For example, this is a terrible idea.
It is both awesome AND terrible.

The Triple Triple burger from a place called Jake's Wayback Burgers.
Nine patties on one sandwich.
Over 5000 calories.

Too much of a good thing is still too much.

Removing stuff from an overloaded webpage can be good.
It has a clarifying effect.

Because in general, and certainly for mobile interfaces...

[twitter]Too much of a good thing: Triple Triple Burger packs 9 patties (and 5100 calories) into one sandwich: <http://j.mp/Z2tjht>[/twitter]



This is the Accuweather.com iPad app,
but I'm not sure that it manages complexity in the right way.
First of all, scary.

But more important, jammed with information.
More than you need at any given time.
Don't make me scan all this data for what I'm looking for.
Instead, let me ask for it as I need it.

Manage complexity not by presenting it all at once,
but by managing it through give and take.



Accuweather.com.

Actually does a better job with complex information
in small screen of iPhone app instead of iPad app.

Dense info for the current moment

[next]

Oh baby... yeah... Now we're talking. Ken's in hog heaven.
I've got dew point, I've got humidity, barometric pressure.

Nice start:

But how to provide all of the day's detailed info?



Swipe at current conditions to move into future. [next]

Detailed conditions for 7am, and temps for later.

I ask app about 10am... by touching 10am!

Only when I ask for that info does it give it to me.

Question, answer. Ask, receive.

This is true in all interfaces, but especially in mobile...



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This is true in all interfaces, but especially in mobile...

Clarity trumps density



In a mobile interface, clarity trumps density.

Requires more taps than just dumping all the data on you directly.
But each screen more digestible.

Progressive disclosure



Progressive disclosure. A little bit at a time, as people need it or ask for it.

Progressive disclosure helps you uncomplicate complexity.

You can trim some things off the screen and return to them later.

Extra taps & clicks

**NOT
EVIL**



The web has given us a squeamishness about extra clicks.
Network latency.

[slow]
In mobile: tap quality far important than tap quantity.

As long as each tap delivers satisfaction,
extra taps are ok. ARE GOOD.

It invites conversation,
give and take that you can get at and explore.

Speaking of not being evil...

Speed matters.



We think about this in terms of performance more often than we think about it in human efficiency, but some of this stuff just doesn't work very quickly on touch.

40%

**jump ship
after 3 seconds**



Source: <http://bit.ly/o59qCI>

Source: <http://e-commercefacts.com/research/2011/07/what-usrs-want-from-mobil/>

74%

**jump ship
after 5 seconds**



Source: <http://bit.ly/o59qCI>

80 %

would use mobile
more if it was faster



This isn't just about how fast your app or website loads.
This is also about how long it takes to slog through your interface.

USER PERFORMANCE also matters.
How long does it take me to complete the task?
How many swipes and taps?

Let's look at one industry example.

Source: <http://bit.ly/o59qCI>
Source: <http://e-commercefacts.com/research/2011/07/what-usrs-want-from-mobil/>
44

priceline.com®

52 *taps*

102 *seconds*

Hotels.com

40 *taps*

109 *seconds*



Hotel Tonight

My friend Luke Wroblewski turned me onto this company,
which takes a wholly different approach.
Total focus on speed



Hotel Tonight

4 *taps/swipes*

8 *seconds*

1

The focus on a simpler task:

I want a hotel tonight for this town. And they ruthlessly trimmed the amount of interactions it takes to choose and book.

They use sensors. They use account history.

Boom boom boom. Three taps and a swipe.

If you want to sell stuff on eBay, there are a LOT of forms to fill out.

You've done a great job of shepherding people through those,

making them efficient, some of the forms are optional.

but there are still more opportunities to trim those down,

speed your way through, and we'll explore that this afternoon with mobile team.

I want to be careful here, though.

Because more taps aren't necessarily bad. And fewer taps aren't necessarily good.

A risk of being ruthless about this is that you can trim useful content and features.

So the goal here is not necessarily to reduce taps

but to reduce GARBAGE taps.

Interactions that don't add anything.

Otherwise, the risk is that you'll cut muscle, not fat.

Speed matters.



So as I said, speed matters. It's a competitive advantage.

And if speed is so important...

Speed kills.



...that means that it should also bump aside other considerations.

Speed should eliminate certain interface conventions in touchscreens.
Let's see what speed kills when you design for touch.

speed kills **EXTRA FIELDS**

...that means that it should also bump aside other considerations.

Speed should eliminate certain interface conventions in touchscreens.
Let's see what speed kills when you design for touch.

Step 1 of 2 - Billing & Shipping Information

Billing Information

Please enter the billing address as it appears on your credit card statement.

* First Name:

Middle Initial:

* Last Name:

* Address:

Step 1 of 2 - Billing & Shipping Information

Billing Information

Please enter the billing address as it appears on your credit card statement.

* First Name:

Middle Initial:

* Last Name:

* Address:

* Address:

* City or APO/FPO:

APO/FPO Military Address

* State:

Select a State ▾

* Zip Code:

Contact Information

Contact Information

*Primary Phone:

Evening Phone:

Mobile Phone:

Enter mobile number to receive order status updates by text.

Messaging rates may apply.

*Email:

* Retype Email:

*Card type:

Select Credit Card

*Card number:

*Name on card:

*Payment Plan:

Select a payment plan

[What's this?](#)

*Sterling Credit Terms & Conditions

[Summary of Terms & Conditions.](#)

Please review your Order Summary below
before placing your order.

YOUR ORDER SUMMARY

Shopping Bag (1 Item)

Billing Address

KAY JEWELERS

Step 1 of 2: Billing & Shipping Information

Billing Information
Please enter the billing address as it appears on your credit card statement.

First Name:

Middle Initial:

Last Name:

Address:

City or APO/FPO:

APOLITI Military Address:
State: County: Zip Code:

Contact Information
Primary Phone:
Billing Phone:
Mobile Phone:

Enter mobile number to receive order status updates by text.
Message text may apply:
Name:
Mobile Email:

Please send me Email updates including
product news, special offers,
sales notices and special events.

Shipping Options
Please select:
 Ship to Billing Address
 Ship to Other Address
 FREE - Ship to a Store (GUR Shipped in Store)

First Name:

Middle Initial:

Last Name:

Address:

City or APO/FPO:

APOLITI Military Address:
State: County: Zip Code:

Estimated Order Total: \$21.75.

By placing your order, you agree to the Kay Jewelers
Return Policy and Privacy Policy.
Learn more on [Return and Shipping policies](#).

Credit Card Information
Required Field
Card Type:
Cardholder Name:
Card number:
Name on card:
Payment Plan:
Select payment plan:
Where to?

Shipping Credit Terms & Conditions
Please review our [Shipping Credit Terms & Conditions](#)
before placing your order.

Please review your Order Summary below
before placing your order.

YOUR ORDER SUMMARY

Shipping Reg. (if avail)
Billing Address
Contact Information
Shipping Address
Shipping Method

PLACE ORDER

40

fields

KAY JEWELERS

Step 1 of 2: Billing & Shipping Information

Billing & C/P - Payment Information

Check or Money Order Cash Pay

Estimated Order Total: \$21.75.

By placing your order, you agree to the Kay Jewelers
Return Policy and Privacy Policy.
Learn more on [Return and Shipping policies](#).

Credit Card Information
Required Field
Card Type:
Cardholder Name:
Card number:
Name on card:
Payment Plan:
Select payment plan:
Where to?

Shipping Credit Terms & Conditions
Please review our [Shipping Credit Terms & Conditions](#)
before placing your order.

Please review your Order Summary below
before placing your order.

YOUR ORDER SUMMARY

Shipping Reg. (if avail)
Billing Address
Contact Information
Shipping Address
Shipping Method

PLACE ORDER

KAY

Step 1 of 3: Billing & Shipping Information

Billing Information
Please enter the billing address as it appears on your credit card statement.

First Name: _____
Middle Initial: _____
Last Name: _____
Address: _____
City or APO/FPO: _____
APO/FPO Military Address: _____
State: _____ Zip Code: _____
Contact Information
Primary Phone: _____
Billing Phone: _____
Mobile Phone: _____
Enter mobile number to receive order status updates by text.
Emergency info may apply:
Name: _____
Mobile Email: _____
 Please send me email updates including special offers and promotional news.
 Ship to Billing Address
 Ship to Other Address
 FREE - Ship to a Store (CDR Shipped in-store)
First Name: _____
Middle Initial: _____
Last Name: _____
Address: _____
City or APO/FPO: _____
APO/FPO Military Address: _____
State: _____ Zip Code: _____
 I agree to the [Shipping Policy](#)
[NEXT STEP](#)

KAY

Step 1 of 3: Billing & Shipping Information

Step 2 of 3: Payment Information

Estimated Order Total: \$21.75

By placing your order, you agree to the [KAY Website Terms of Use](#), [Privacy Policy](#) and [Shipping Policy](#).

Credit Card Information
 Check/Money Order
 Cash
 Prepaid Card
 Other
Card number: _____
Name on card: _____
Payment Plan: _____
Delivery Instructions: _____
Where to ship: _____
Shipping Credit Terms & Conditions
Please review our [Order Summary](#) before placing your order.
YOUR ORDER SUMMARY
Shipping Reg. (14 days) _____
Billing Address: _____
Contact Information: _____
Shipping Address: _____
Shipping Method: _____
[PLACE ORDER](#)

1 Personal

Required Fields *

Full Name*

Email Address*

Phone Number*

2 Shipping

Shipping in U.S. only

Shipping Name

Street Address*

Zip Code*

3 Finalize

Credit Card Number*

Expiry* MM YYYY

CVV*  Last 3 digits on back of your credit card

Buy - \$18.00

10

KAY JEWELERS

Step 1 of 3: Billing & Shipping Information

Billing Information
Please enter the billing address as it appears on your credit card statement.

First Name: _____
Middle Initial: _____
Last Name: _____
Address: _____
City or APO/FPO: _____
APO/FPO Military Address: _____
State: _____ Zip Code: _____
Contact Information
Primary Phone: _____
Billing Phone: _____
Mobile Phone: _____
Enter mobile number to receive order status updates by text.
Emergency info may apply:
Name: _____
Mobile Email: _____
 Please send me email updates including special offers, product news and general events.
 Shipping Options
 Ship to Billing Address
 Ship to Other Address
 FREE - Ship to a Store (CDR Shipped in Store)
First Name: _____
Middle Initial: _____
Last Name: _____
Address: _____
City or APO/FPO: _____
APO/FPO Military Address: _____
State: _____ Zip Code: _____
Next Step

KAY JEWELERS

Step 1 of 3: Billing & Shipping Information

Step 2 of 3: Personal Information

Estimated Order Total: \$21.75

By placing your order, you agree to the Kay Jewelers Privacy Policy and Return Policy.

Credit Card Information
 Visa
 MasterCard
 American Express
 Discover
 Diners Club
Card number: _____
Name on card: _____
Payment Plan: _____
Where to Go...
Showing Credit Terms & Conditions
Please review your Order Summary before placing your order.
YOUR ORDER SUMMARY
Shipping Reg. (7 days)
Billing Address
Contact Information
Shipping Address
Shipping Method
Place Order

1 Personal

Required Fields *

Full Name*

Email Address*

Phone Number*

2 Shipping

Shipping in U.S. only

Shipping Name

Street Address*

Zip Code*

3 Finalize

Credit Card Number*

Expiry* MM YYYY

CVV* CVV Last 3 digits on back of your credit card

Buy - \$18.00

10



For example, credit card info, what's the minimum you need:

Credit card number

Security code

Expiration

Billing zip

Square pioneered shmooshing all of this into a single field,
using just the single numeric keyboard.
Very fast. Just tap through the numbers,
in a single field with minimum info

Zachary Forrest built this for the web,
a Square-inspired widget for accepting credit card forms.

<http://zdfs.com/toscani/paymentInfo/index.html>

Video from @lukew: <http://www.youtube.com/watch?v=XUa5pfHdVwQ>

40 → 77

BE RUTHLESS
with form fields

speed kills **SELECT MENUS**

...that means that it should also bump aside other considerations.

Speed should eliminate certain interface conventions in touchscreens.
Let's see what speed kills when you design for touch.

seek out

SINGLE-TAP

interactions

...that means that it should also bump aside other considerations.

Speed should eliminate certain interface conventions in touchscreens.
Let's see what speed kills when you design for touch.

•••• vodafone UK 10:54 PM 76%

mobile.fandango.com

DIVERGENT IN THEATERS AND IMAX MARCH 21
Be automatically entered for a chance to win a WALK-ON ROLE in *Insurgent* when you buy tickets now.
NO PUR. NEC. 18+. See Fandango.com/Phone/Divergent for Official Rules. [BUY TICKETS >](#)

 [HOME](#) > [MOVIES](#)


The LEGO Movie
PG, 1 hr 35 min
FANS SAY **MUST GO!** CRITICS SAY **MUST GO!**
An ordinary LEGO figurine (Chris Pratt) mistakenly becomes part of a quest to stop a tyrant's plan.

[Play Trailer](#)

[Showtimes](#) [Details](#) [Reviews](#)

Today	Mon	Tue	Wed	Thu	Fri	Sat	Sun
MAR 16	MAR 17	MAR 18	MAR 19	MAR 20	MAR 21	MAR 22	MAR 23

Near In
[!\[\]\(dae99aeb69fae6e23785b7e7d1be2a37_img.jpg\)](#) [!\[\]\(d200c6c6bbbb9f1dc8ae2a5233a3ffba_img.jpg\)](#) [!\[\]\(ecc34d5dd4d2040ffe3f4c39ee4c2583_img.jpg\)](#) [!\[\]\(02aa0f888f36d5bc5246f458bebafdda_img.jpg\)](#) [!\[\]\(25465d22af8999e424bf53c6ec87d635_img.jpg\)](#)

UA Court Street 12 & RPX 1.3 mi

Buy Tickets + Pick Up at the Theater

realD 3D SHOWTIMES

realD 3D • No Passes •

Accessibility devices available

4:10p

Share

STANDARD SHOWTIMES

Accessibility devices available

11:05a

1:35p

6:40p

9:30p

Share

Pavilion Park Slope 1.9 mi

This Theater Doesn't Sell Tickets on Fandango

STANDARD SHOWTIMES

12:30p

2:45p

5:00p

7:15p

•oooo O2-UK 10:56 PM 76% tickets.fandango.com

 HOME > PURCHASE TICKETS

Ticket Selection STEP 1 OF 4

The LEGO Movie
PG, 1 hr 35 min

UA Court Street 12 & RPX
106 Court St.
Brooklyn, NY 11201

Sunday, Mar. 16 at 9:30 pm

Adult:

+ 0 - x \$14.50 = \$0.00

Child:

+ 0 - x \$10.50 = \$0.00

*** Senior:**

+ 0 - x \$10.00 = \$0.00

*Valid ID may be required for theater admittance.

speed kills **CONFIRMATION BUTTONS**

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Let's see what speed kills when you design for touch.

GESTURE

jiujitsu



One last topic on awkward gestures, something I call gesture jiu-jitsu.
Art of self defense against mistaps.

The problem:
Ease/sensitivity of touchscreen can work against you.
Buttons get pushed when don't intend it.
Surprise calls from handbags and backpockets.
Carelessly delete data by tapping wrong item.

Awkward or challenging gestures can protect against mistaps.



Swipe requires intention.

Cross something out to delete or mark it read.

Swipe to unlucky.

Swipe to answer the phone.

Or combination of taps.

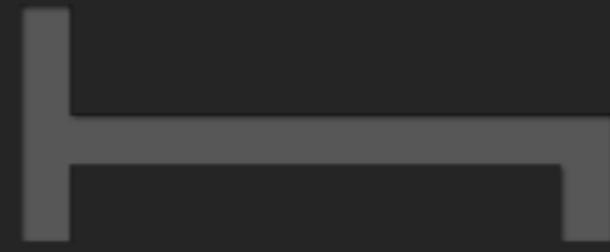
In any case, a brief moment of focus, that's not a confirmation dialog.

◀ Back One More Thing!

Before we book, let's make sure
we're all on the same page:

- Your purchase is non-refundable.
- The hotel will assign the room type at check-in. The room will fit 2 adults.
- This booking is for tonight, for check-in immediately.
- The hotel may require a credit card or deposit for incidentals.

TRACE THE BED TO AGREE TO THE ABOVE
TERMS AND CHARGE YOUR CARD.



speed kills **DETAIL VIEWS**

...that means that it should also bump aside other considerations.

Speed should eliminate certain interface conventions in touchscreens.
Let's see what speed kills when you design for touch.



Again progressive disclosure.

Show enough summary information that you may not need to drill down.

•••• vodafone UK 11:54 AM 75%

Whole-Grain & High-Fiber

Search SCAN

 Cascadian Farm Organic Dark Chocolate & Almond Granola 13.25oz \$4.99/ea	 
 Cascadian Farm Organic Fruit & Nut Granola 13.5oz \$4.99/ea	 
 Cascadian Farm Organic Purely O's Cereal 8.6oz \$4.99/ea	 
 familia Swiss Crunch Müesli Roasted Cereal with High Fiber and Low Fat 11oz. \$4.69/ea	 
 Fiber One Nutty Clusters & Almonds Cereal 16.1oz \$5.99/ea	 

Home Shop Cart Delivery More

•••• vodafone UK 11:54 AM 75%

Whole-Grain & High-Fiber

Q Search SCAN

Bear Naked All Natural Granola, Fruit & Nut
12oz
\$4.99/ea

Cascadian Farm Organic Dark Chocolate & Almond Granola
13.25oz
\$4.99/ea

Cascadian Farm Organic Fruit & Nut Granola
13.5oz
\$4.99/ea

familia Swiss Crunch Müesli Roasted Cereal with High Fiber and Low Fat
11oz.
\$4.69/ea

- 1 + Add to Cart

Grocery Delivery

Home Shop Cart Delivery More

speed kills **CAROUSELS**

* KILL CAROUSELS

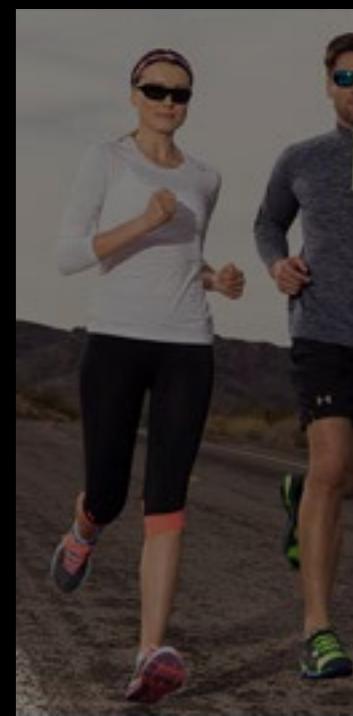
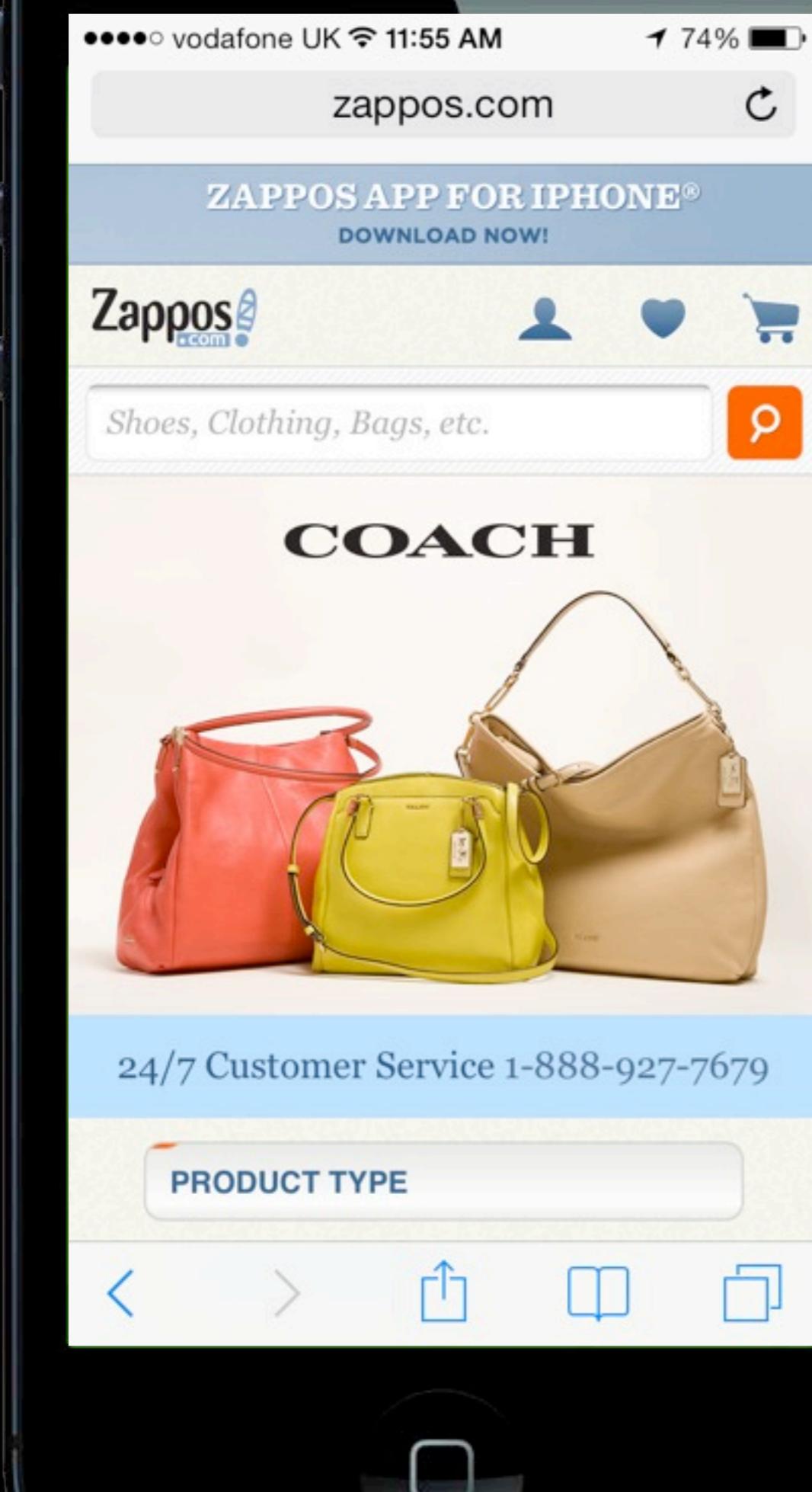
This might seem counter-intuitive because carousels are a kind of progressive disclosure.

You see this in editorial and marketing sites.

Want to have high-profile visuals for lots of stuff, but how do you cram it in?

But: faint scent of information. What's on the next slide? What's to pull me through?

Worse, it takes nine interactions to see that tenth slide.



Did I mention?

seek out

SINGLE-TAP

interactions

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Let's see what speed kills when you design for touch.



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**See the trailer for 'Midnight Crossroad' by Charlaine Harris**

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**See the cover of the final 'Bane Chronicles' installment**

2 hours ago

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Host: "I'm not mad about how the season ended nor am I angry with Juan Pablo"



'Veronica Mars': 10 essential episodes



'Flash': First look at full-body costume

TV RECAPS**TV TONIGHT**

'The Real Housewives of Beverly Hills' season finale recap:

'The Bachelor' season finale recap: Bait and Ditch



Chris Harrison's 'Bachelor' blog: 'After the Final Rose'

Host: "I'm not mad about how the season ended nor am I angry with Juan Pablo"



'Veronica Mars': 10 essential episodes



'Flash': First look at full-body costume



Justin Bieber: 'Ordinary People' dance with Selena?



Jaimie Alexander previews 'Agents of SHIELD'



President Obama goes 'Between Two Ferns'



SXSW Music 2014: 20 on the verge

TV RECAPS

'The Real Housewives of Beverly Hills' season finale recap:

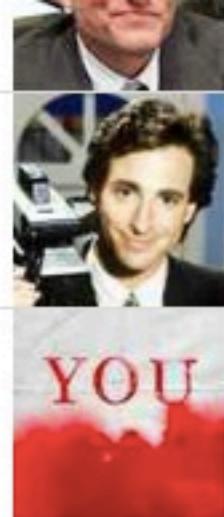
TV TONIGHT

'The Bachelor' season finale recap: Bait and Ditch

16 minutes ago

Which 'Full House' star should host 'America's Funniest Home Videos'?

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First peek at 'YOU' by Caroline Kepnes -- EXCLUSIVE

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'The Bachelorette': What we can expect from Andi Dorfman

1 hour ago



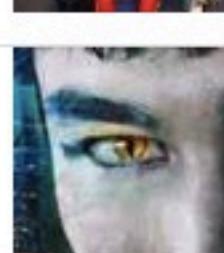
Chris Harrison blogs 'The Bachelor' finale and 'After the Final Rose'

1 hour ago



See the trailer for 'Midnight Crossroad' by Charlaine Harris

1 hour ago



On the Books: Keith Richards wrote a children's book and Anne Rice's Lestat lives!

2 hours ago



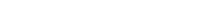
See the cover of the final 'Bane Chronicles' installment

2 hours ago



Justin Bieber, Selena Gomez perform sexy dance routine

2 hours ago



'Game of Thrones': Vanity Fair asks who should sit on the Iron Throne

2 hours ago



LATEST NEWS



Mindy McCready's Ex 'Not Shocked' by Her Suicide

08:20AM EST

Survivor's Francesca Hogi: Booted Twice But Has Best Sense of Humor Ever

09:30AM EST

Kate, Back from Babymoon, Resumes Royal Duties

09:20AM EST

Beyoncé & Jay-Z Celebrate All-Star Weekend in Houston

06:00AM EST

Downton Abbey's Season 3 Finale: Shocking, Says PEOPLE's TV Critic

Sunday, 10:00PM EST

See the Dress Only Jennifer Lopez Could Wear

Sunday, 07:00PM EST

Adorable Alert: Check Out Katherine Heigl's Sweet Family

Sunday, 05:35PM EST

VIDEO: Peek Inside a SI Swimsuit Model's Closet

Sunday, 04:00PM EST

98 Degrees: We're Giving Fans What They Want on Reunion Tour

Sunday, 03:05PM EST

Why Carrie Underwood Made You Say 'Wow' This Week

Sunday, 12:35PM EST

MOST READ



Mindy McCready Is Dead In Apparent Suicide

2 Downton Abbey's Season 3 Finale: Shocking, Says PEOPLE's TV Critic

3 Adorable Alert: Check Out Katherine Heigl's Sweet Family

4 Why Carrie Underwood Made You Say 'Wow' This Week

5 Did John Put a Ring on It? The Scoop on Katy's Sparkler

I led the design of People magazine's responsive mobile website last year, worked with Ethan and Karen on it.

Take a look at this latest news area. Lots of headlines.

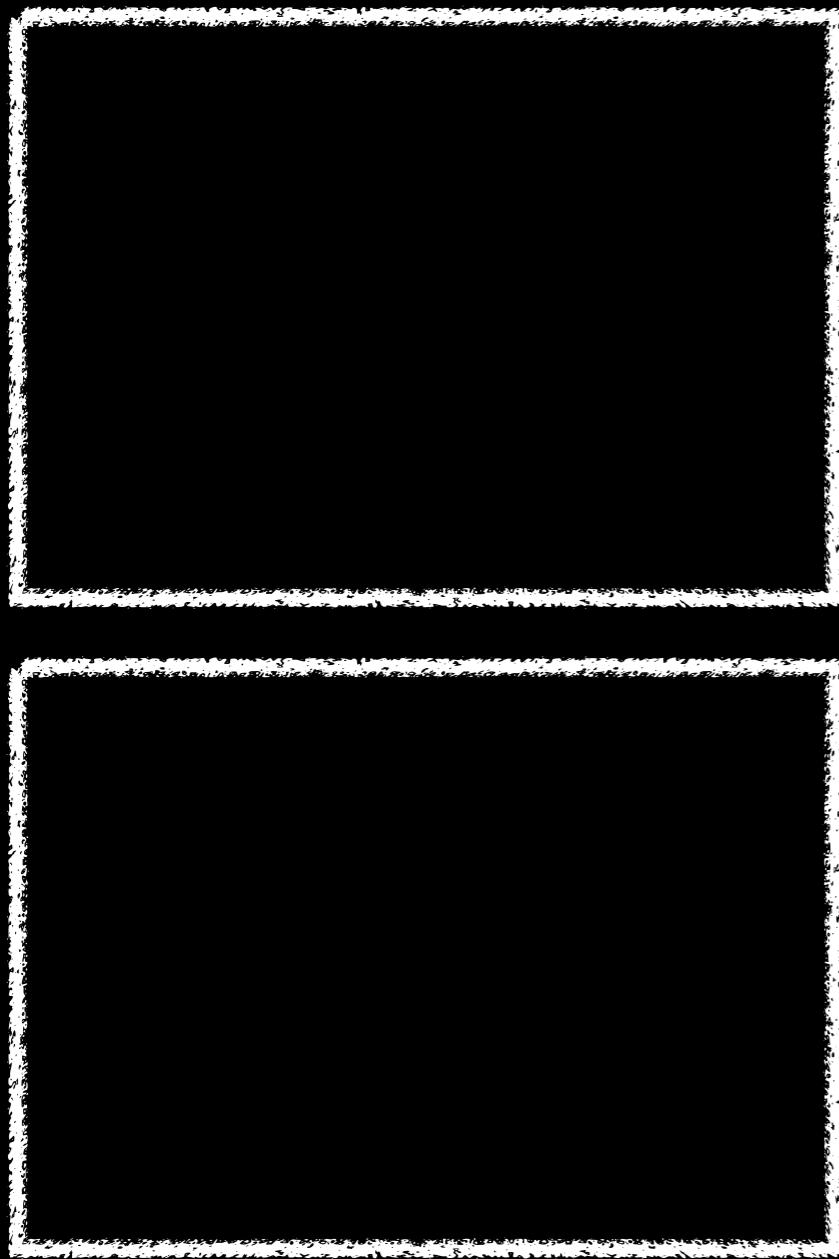
[next]
As it compresses we condense those headlines into a carousel.

Balances content density with quick ergonomic and cognitive scanning.

Carousels are great for showing panels of several content elements; a read-more short cut inside the page.

They're bad for featuring one item at a time, where you hide the content and make it so that it's not findable.

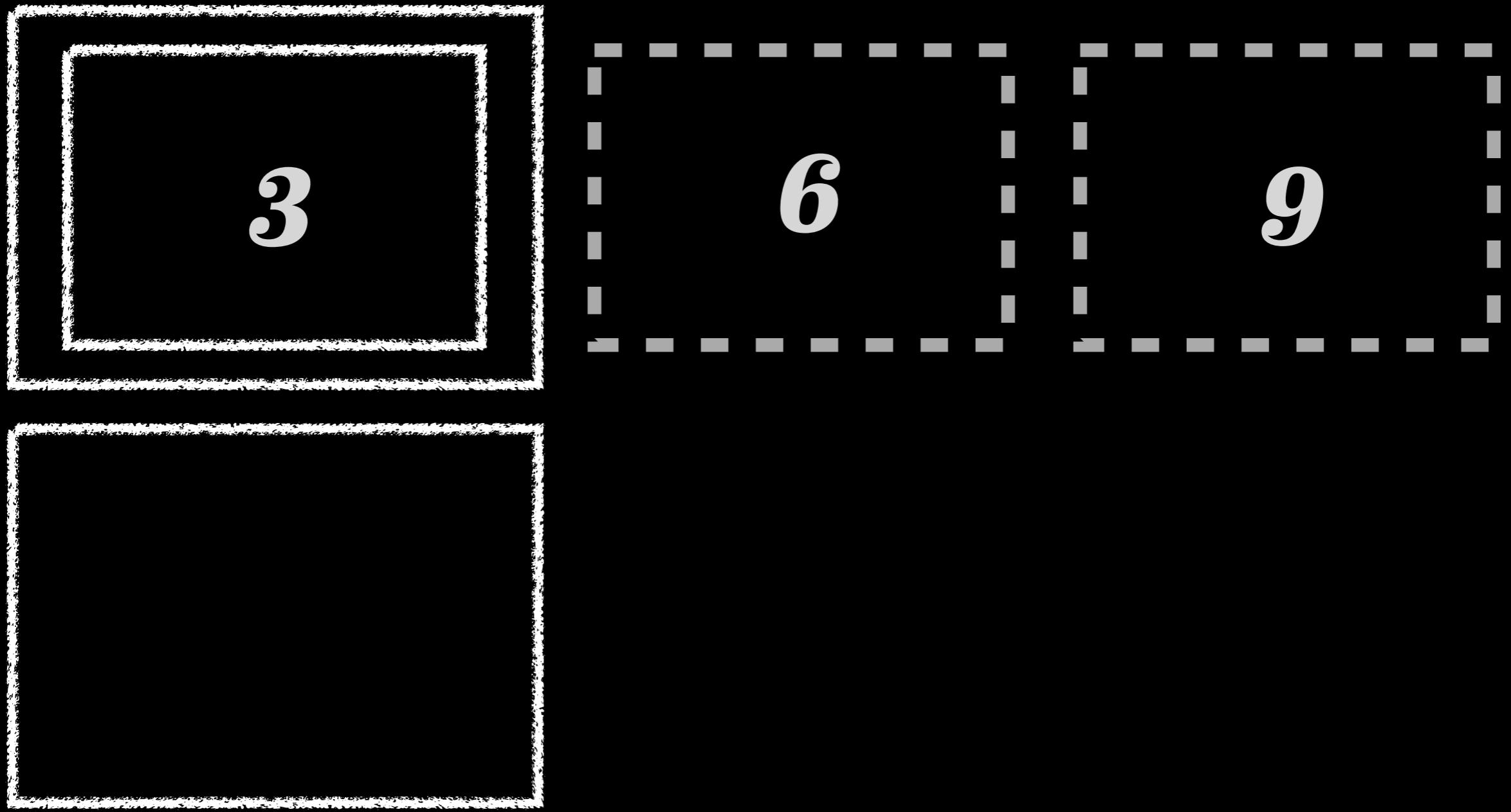
But panels of a few items at a time are great for this purpose.



Stack sections....

And then we have these carousels, which are visually hidden and fly in from the side.

This of course takes JavaScript. So what we've done here is enhanced the content experience with a browser-specific feature. JavaScript support.



Stack sections....

And then we have these carousels, which are visually hidden and fly in from the side.

This of course takes JavaScript. So what we've done here is enhanced the content experience with a browser-specific feature. JavaScript support.

speed kills **LONG SCROLL**

...that means that it should also bump aside other considerations.

Speed should eliminate certain interface conventions in touchscreens.
Let's see what speed kills when you design for touch.

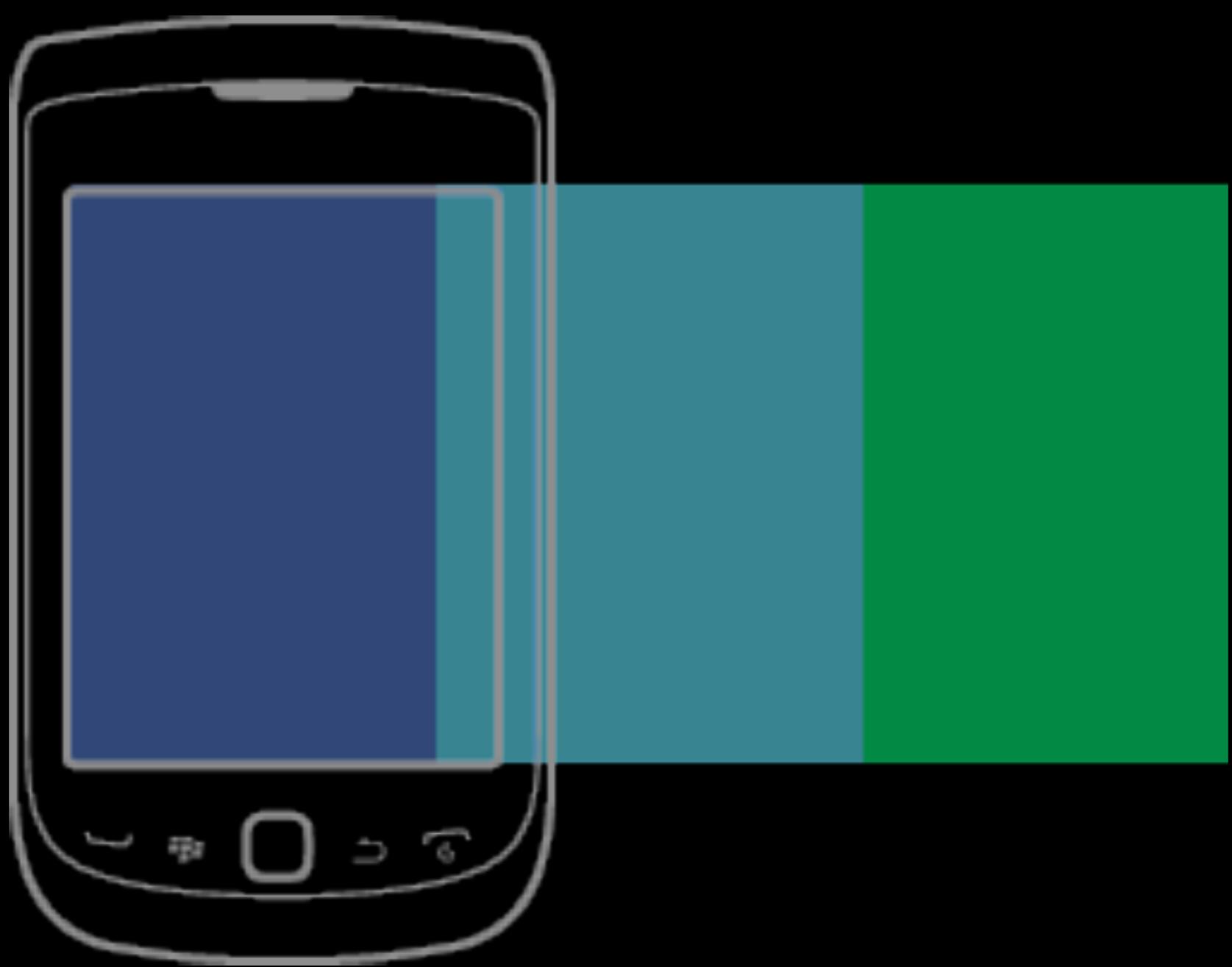


Luke calls these off-canvas patterns.
Idea is pretty straightforward:

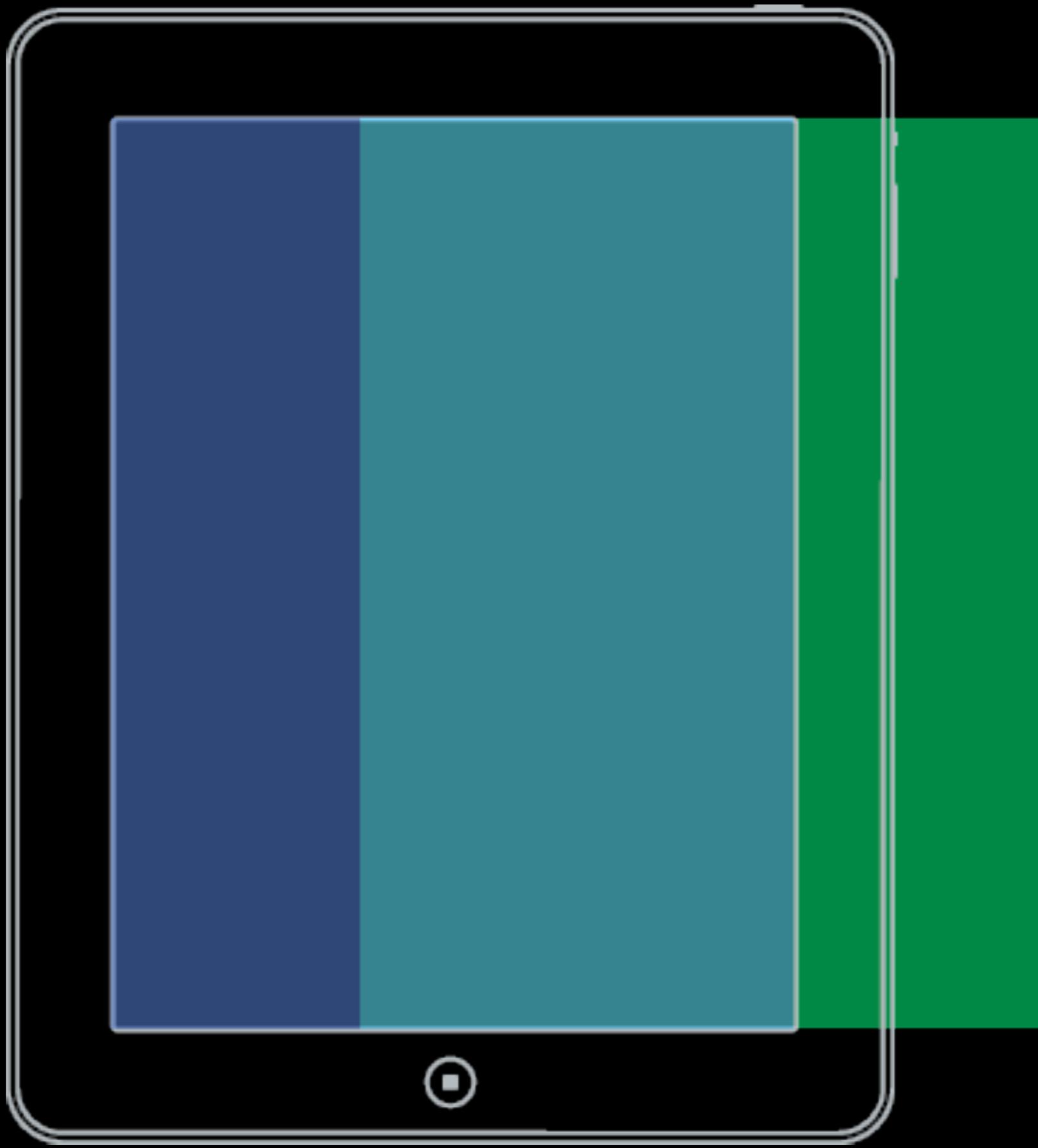
Instead of stacking your columns into one long column,
push some content offscreen until it's needed.

Secondary content is pushed a screen away,
summoned with a tap or a swipe.

You might do it like this...



or like this...



or like this...

the
BEST TOUCH
interface

is sometimes
NOTOUCH
at all

I've realized that the best touch interface
is sometimes no touch at all.

How can we save the user from tapping into the screen at all?
That's the point of barcodes, of computer vision,
of speech recognition.

Touch is just one of an emerging set of interactions.

Touch matured first, but speech and natural gesture are set to pop, too.
Facial recognition.
All the ways we communicate as humans, starting to come through

All of this stuff is still a little unreliable.
Siri is in beta.
Kinect great for games, but wouldn't want to run a nuclear power plant with it.

These are the things that we're going to have to start designing
interfaces for. For speech, for gesture, for facial recognition.

As we think about designing for tablets and phones,
we have the opportunity to push interaction off the screen
and into the environment around us.

Sensors let us do this. The superpowers on board these devices.
Think about camera vision, about shazam-like audio processing.
About GPS. Where the devices can make smart inferences
and do the input on our behalf.

More on this at the end of the day.

Kill extra fields

Kill select menus

Kill confirmation buttons

Kill detail views

Kill carousels

Kill the long scroll

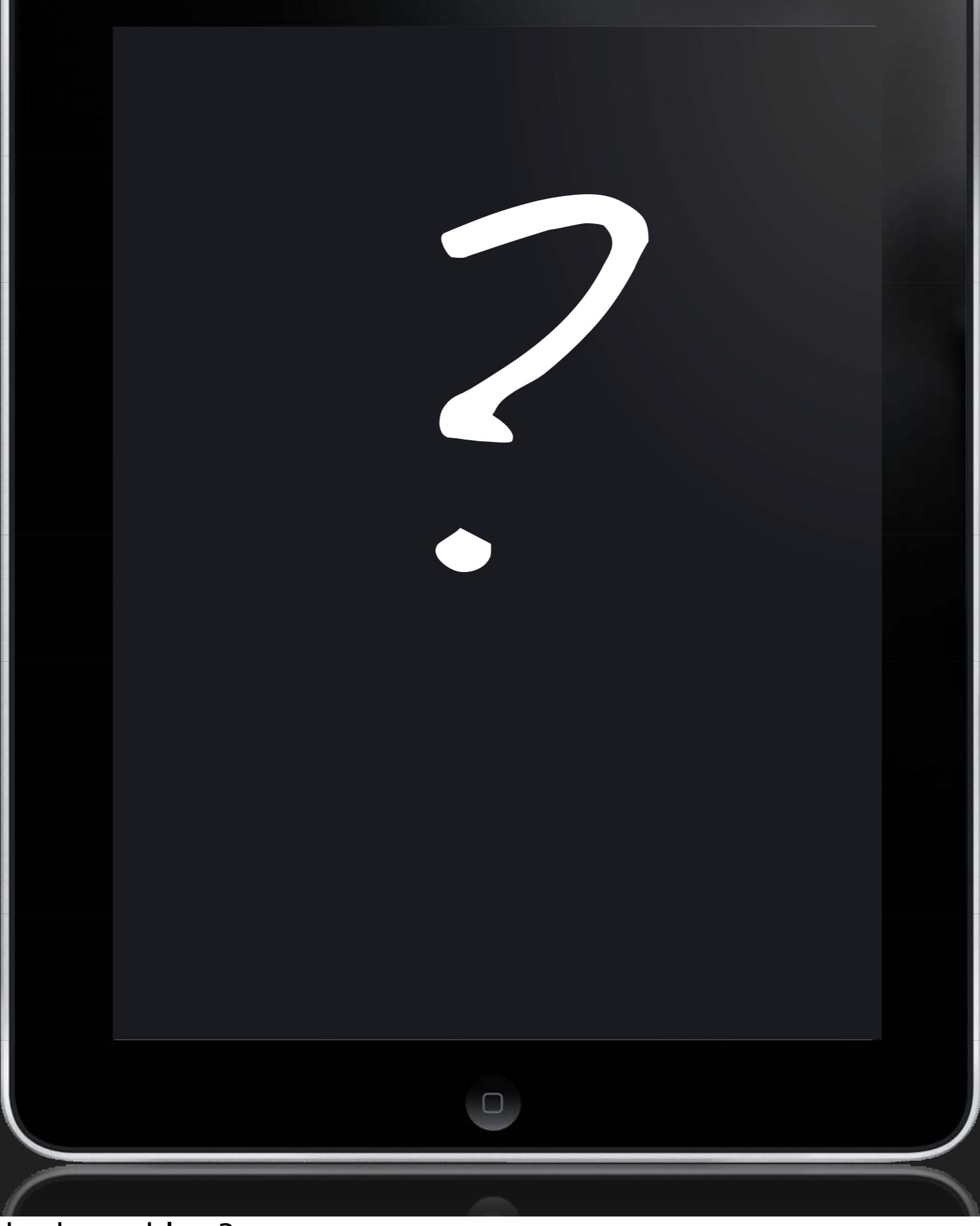
Kill touch itself?



How you doing?

We've been talking about phones a lot for touch.

And that's just because that's where the mainstream knowledge and experience with touch comes from, for both designers and consumers.



What about iPad and other tablets?

Unlike phone, iPad doesn't have a conventional grip.
Phone has three grips.

iPad: Hold it in all different ways.
Much of that depends on stance.
Standing, desk, couch, bed.

In general: two handed, side, medium to bottom grip.
You'll hold it higher if standing, lower if resting it on your lap, and so on.

But across the bottom is bad for controls.

- * Rarely going to hold it at the bottom. Floppy.
- * Out of reach of thumbs
- * Out of your sight line. Unlike phones, not at a glance.
- * And for me, a more pressing problem:

Barcalounger with bag of cheese puffs.

Screen bottom thumb zone for phone doesn't apply.
But thumbs matter. You still want to optimize for thumb use.
They just fall in different place.



Back to basics: avoid encouraging covering content.
Generally want to avoid putting controls above content.

Here's The Daily, News Corp's iPad-only daily newspaper.
There's this scrubber control at the top...



And you can drag scrubber left and right to move through the pages.

Trouble is, hand blocks the thumbnails you're browsing.

Danger of putting controls at the top center of the screen.
Never put controls immediately above the display.



Instapaper.

Here you see controls at the top of the screen.
Closer to desktop standards we're used to.
More visually available at the top.

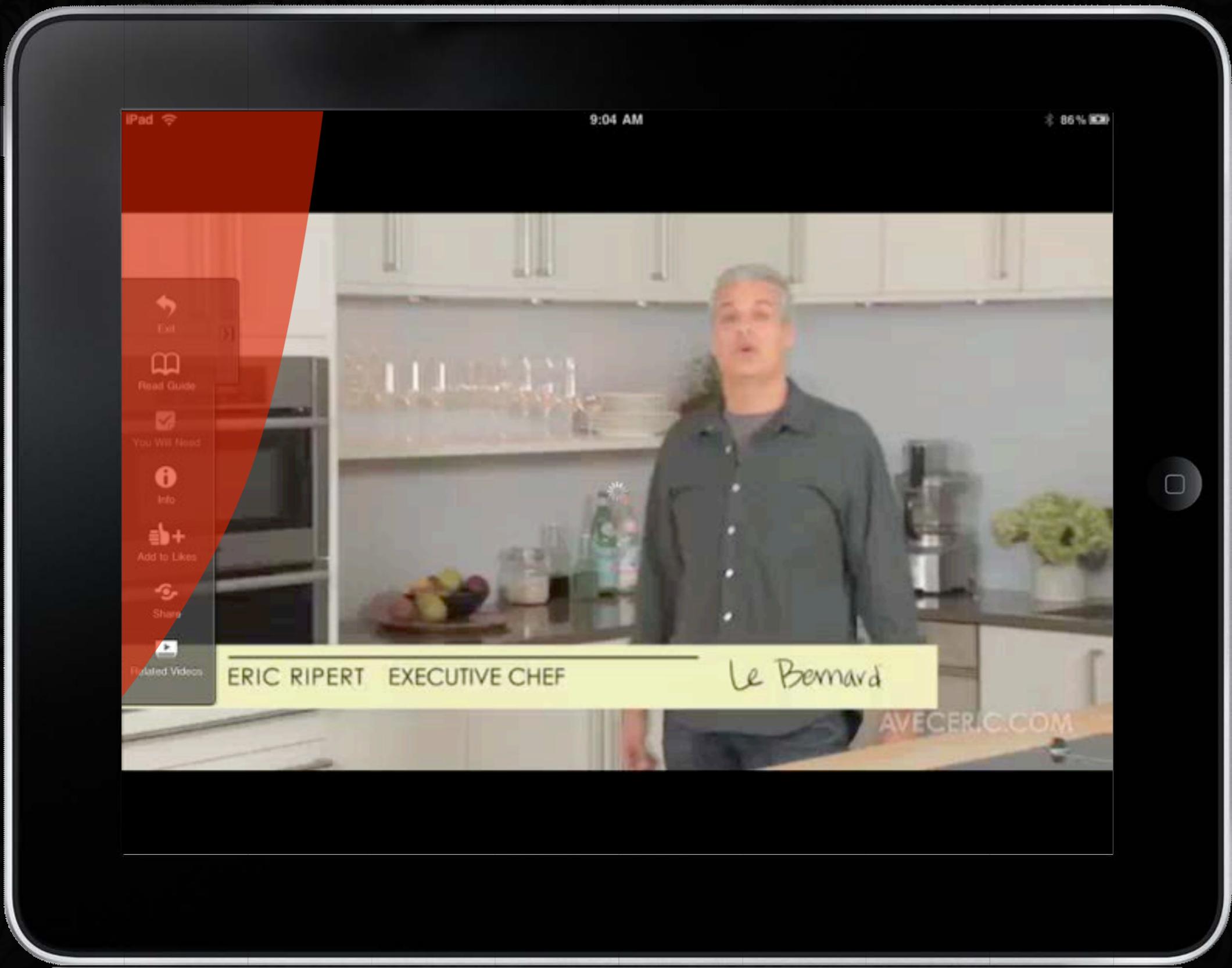
Turns out it's better ergonomically, too.

[next]

In general, your grip will tend to be around middle of screen,
so thumbs at top 1/3.

You want to avoid putting controls at
center where your hand roams over the content, obscures it.

Instead, put those controls in reach of where thumbs come to rest.
Don't make me haul my giant meat pointer.



Howcast. Content optimized for landscape viewing.
For landscape, consider controls at side,
where you'll be holding it, and you have plenty of room.



Our Choice app.
Some bottom of page stuff is fine,
especially when you're working on something
that will change the content in the main frame.

Not ideal for quick access to tools, or frequent taps.

But when you need a control
to do browsing or action on a screen, bottom works well.

iPad and other large tablets
Favor sides and corners

Avoid top center

**Use bottom to see
effect in canvas**



All good?
We're just getting started. Because friends...



"THE HYBRIDS"

Now we're onto something at once thrilling and awful.
The greatest horror our screens have ever experienced.

Oh yes, friends, it is a terrifying combination indeed.







Oh yes, an unholy alliance.

Touchscreen AND keyboard.

Sometimes touchscreen detachable to make it a tablet.

Sometimes fold it back to make it keyboard free.

Other times it's always attached.

All combine keyboard and touch at some point.

40 models of touchscreen laptops and ultrabooks on the market now.

And more to come.

Intel has announced it's require all ultrabooks using its latest chips to include touchscreens.

How long before that happens to laptops, too?

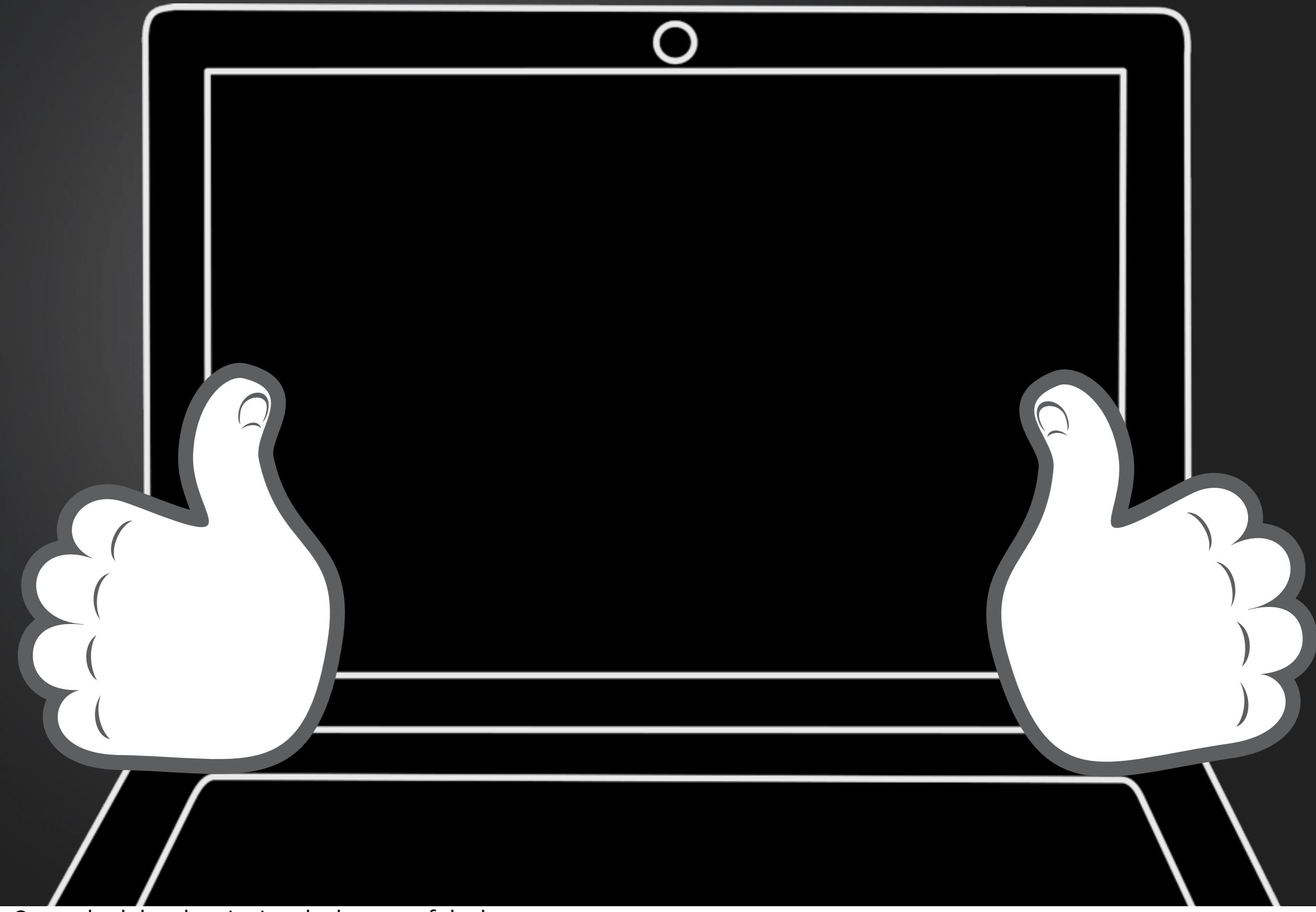
We'll see if this proves popular but a TON of these are becoming available, more on the way.

Similar devices have been around for a while, but not in large numbers, so research and design practices are a bit rare.

That said, some ergonomic behaviors are already clear.

1. Mouse/trackpad use drops way off.
2. You get people touching directly almost all the time.
3. Scrolling, selection, even form fields.

People accustomed to tabbing between forms switch, touch fields directly even if less efficient.

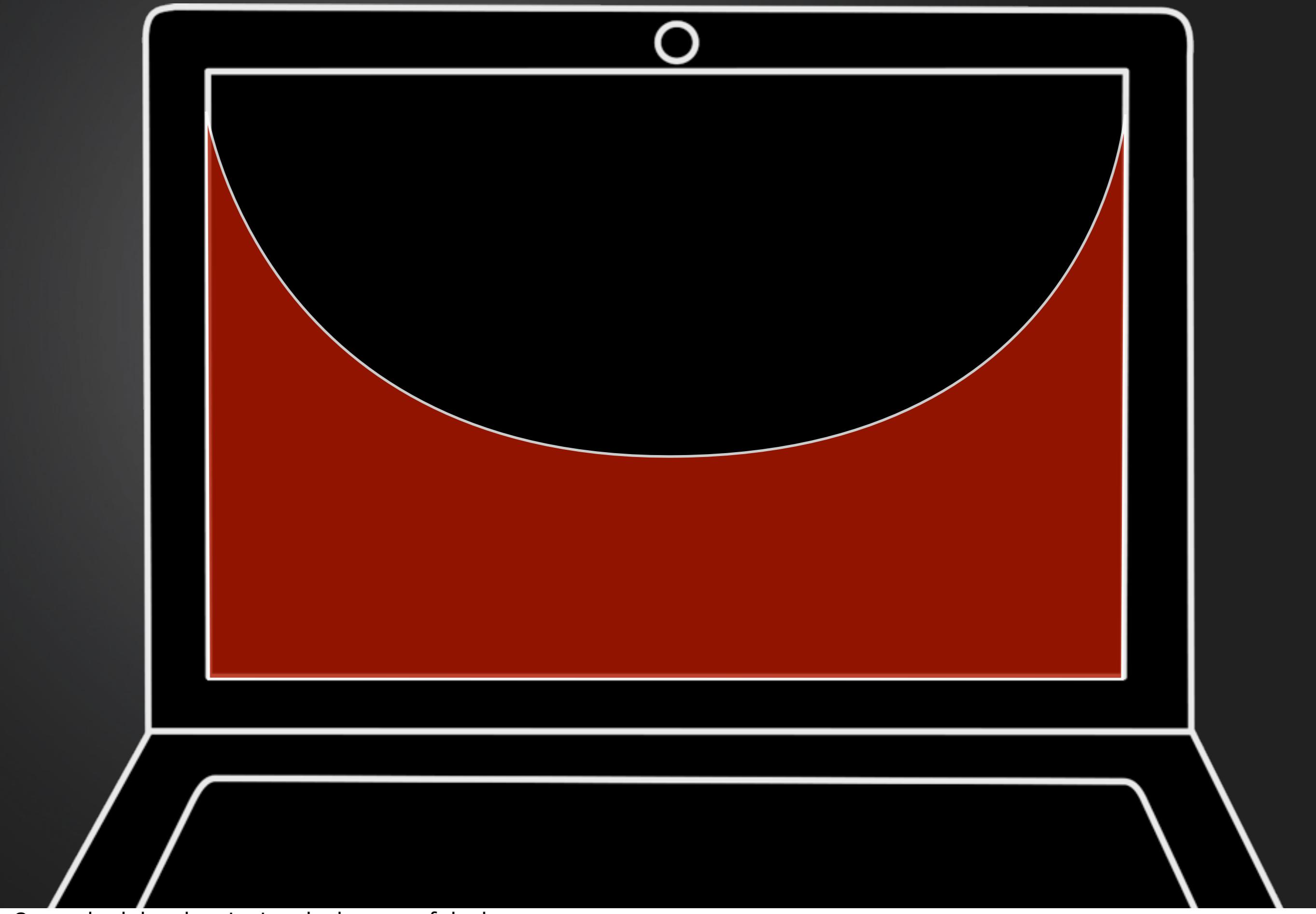


One or both hands gripping the bottom of the laptop.
If one hand, using the other to tap or scroll with index finger.

Support for floppy cover.
So this is the hot zone.

This is why in Windows 8 you have these gestures
to swipe toolbars in from the right side or from the bottom.

Extremely comfortable for thumbs in this position.

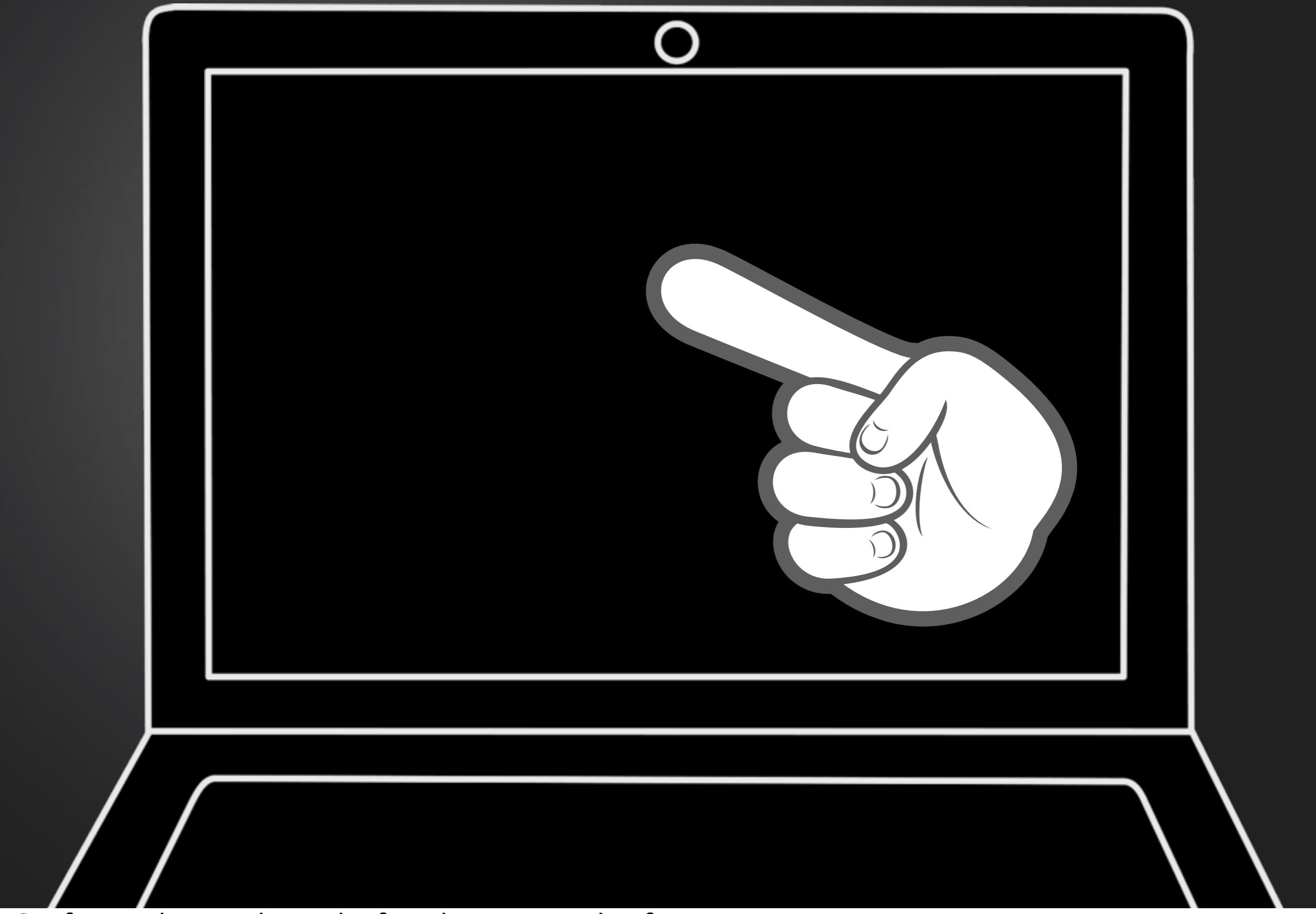


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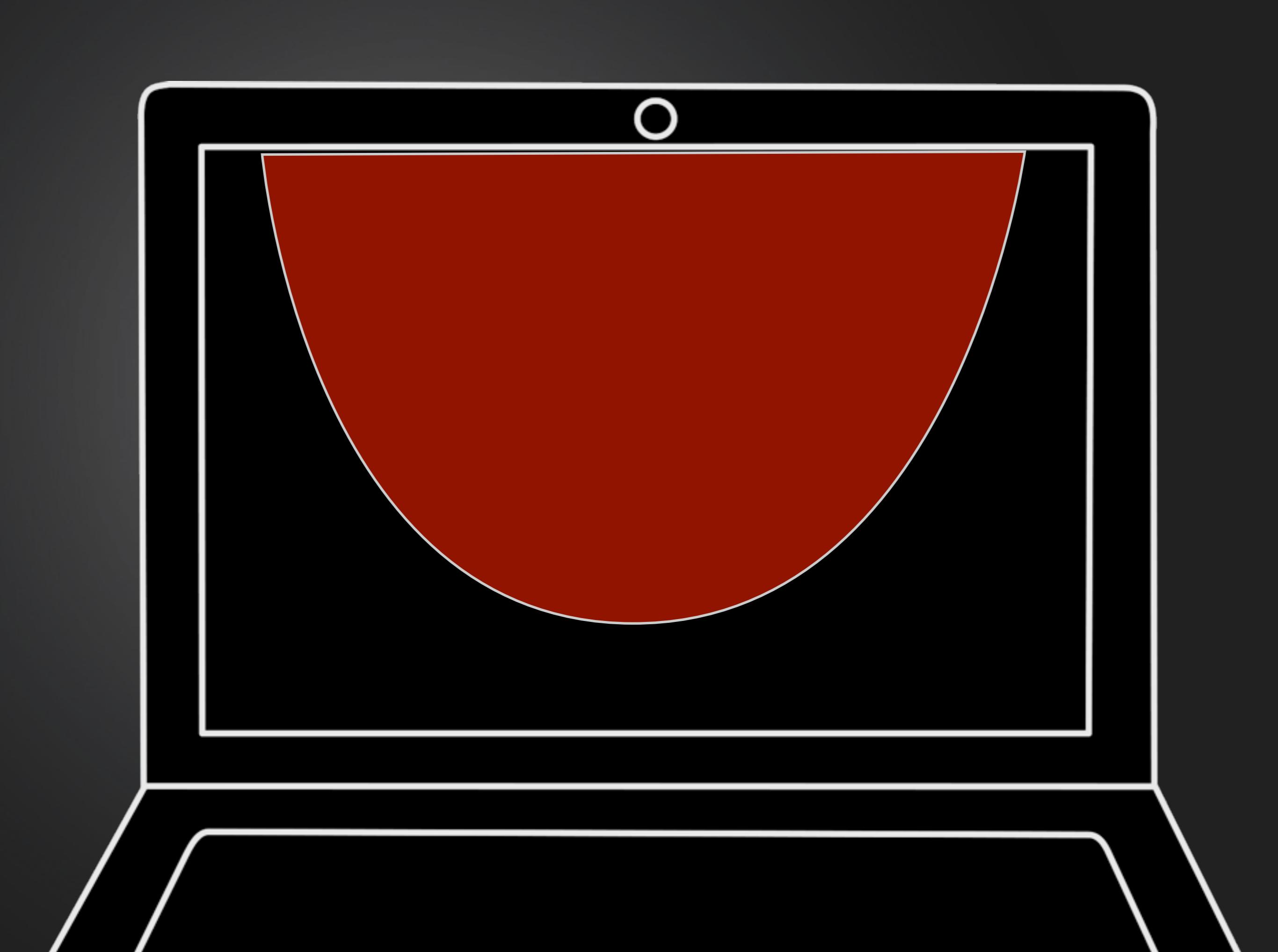
Extremely comfortable for thumbs in this position.



Confusing things a bit is the fact that using index finger
to work the heart of the canvas means this is the thumb zone.
Corners are tough.

EXACT OPPOSITE OF THE THUMZONE.

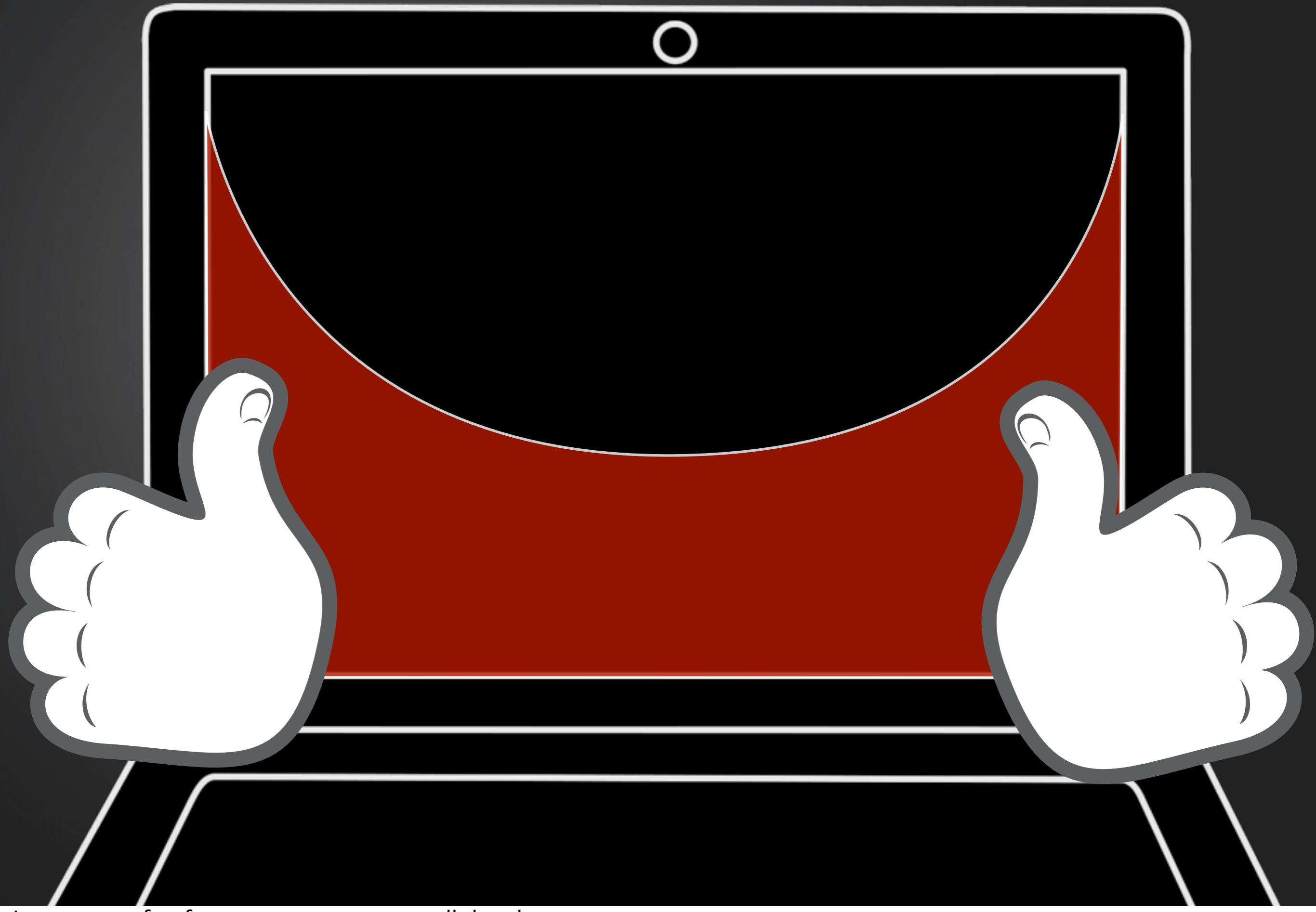
So what to do? navigation and controls at bottom and sides,
or at top and middle?



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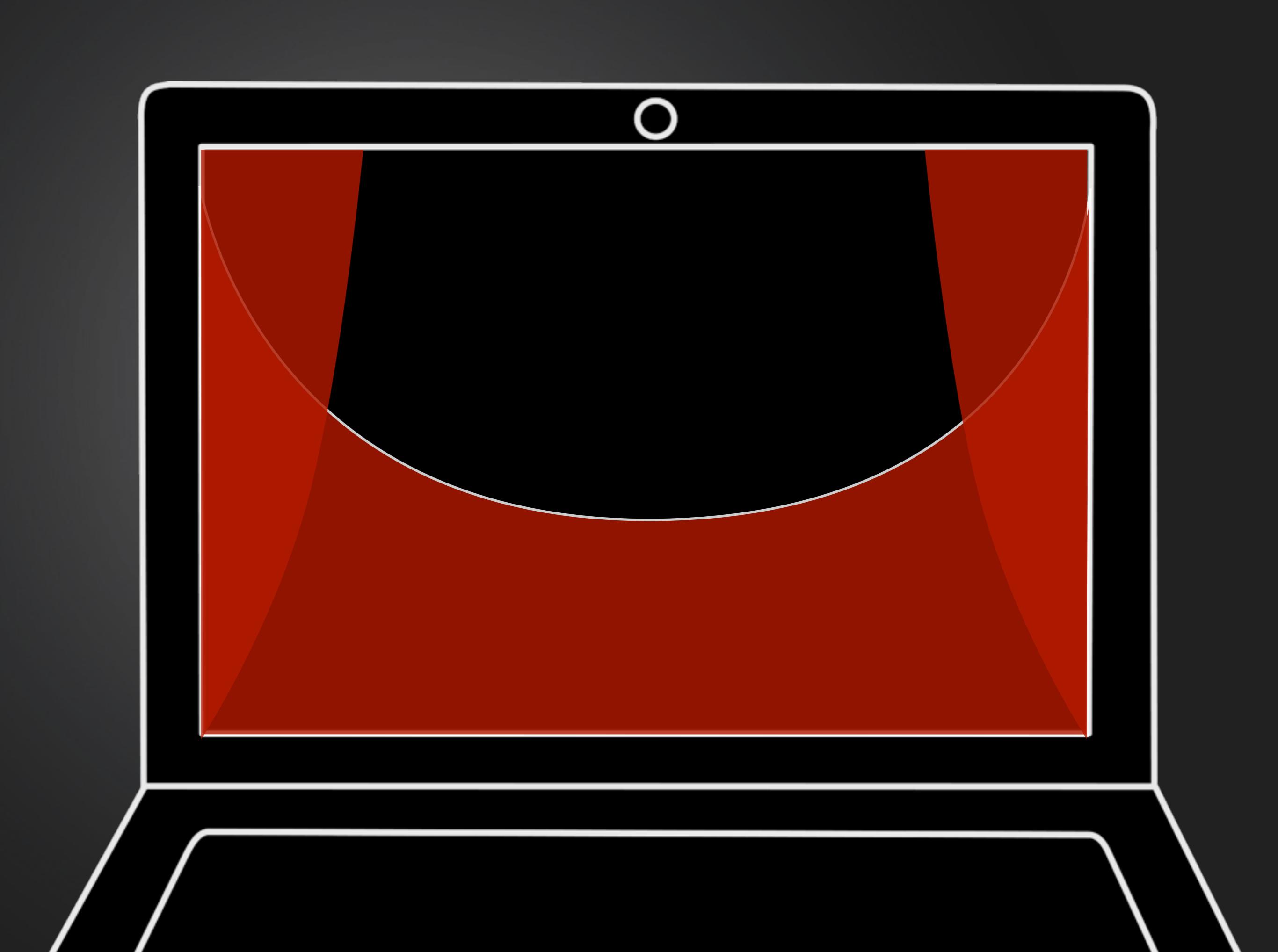
So what to do? navigation and controls at bottom and sides,
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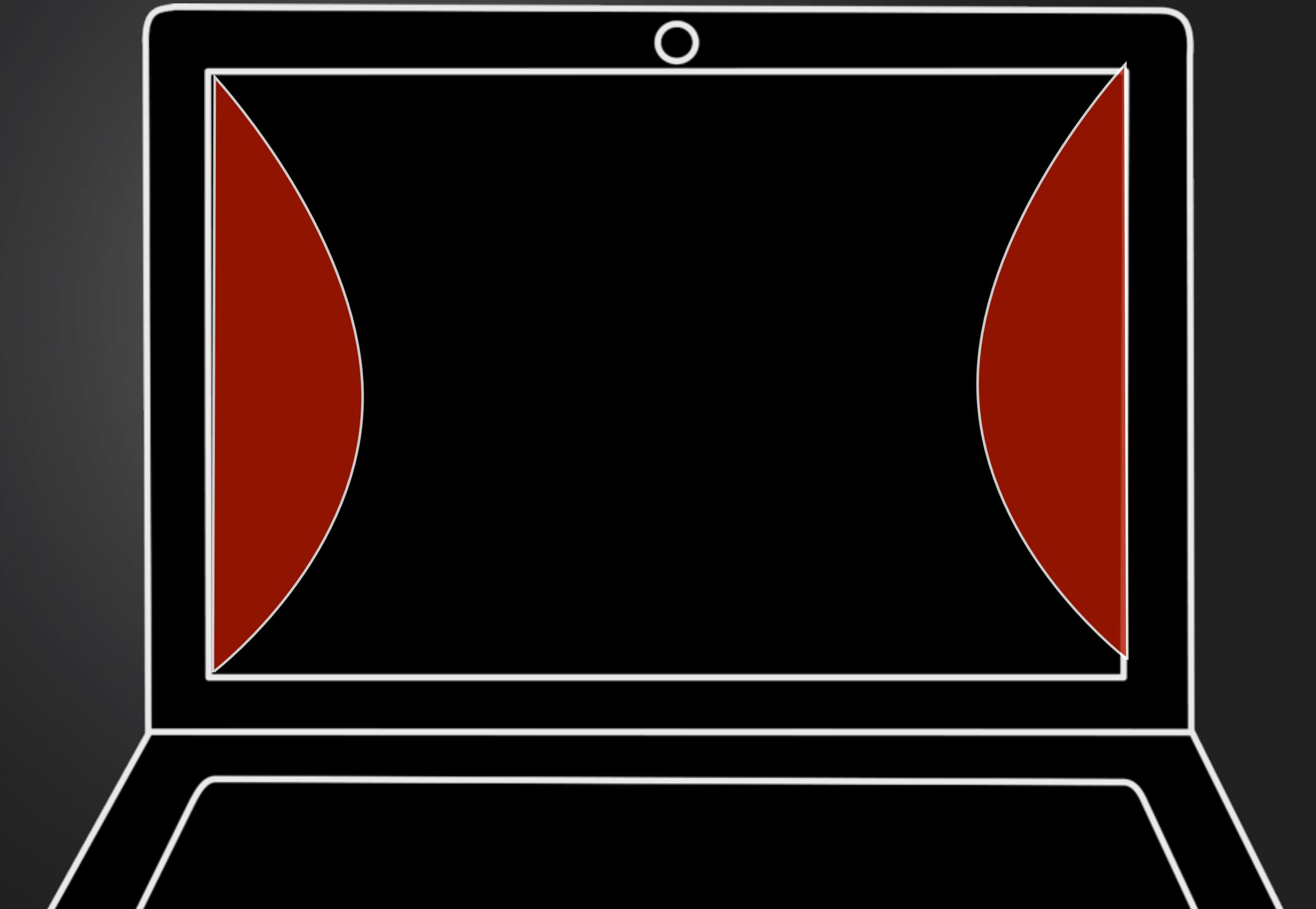
It turns out after frequent use, start to go all thumbs.
Use thumbs for all taps, stretching in.

The thumb dance.
Do that crazy dance, little guys.

So this thumb pattern tends to be ideal for frequent controls.



How does this compare with a tablet's hot zone?
If you overlay the two...



You get a common area that looks like this.

So the most touch-friendly zones for layout
—addressing both tablet and desktop—
are the sides.

I don't know about you...
desktop designs I've built haven't optimized for these areas.

We generally optimize for top or middle of screen, right?
But top middle is actually most hostile
to this thumb zone.

Getting the picture?
For all of these form factors, not about making finger-friendly
But THUMB FRIENDLY.

All right.

Like I said earlier: we typically focus on the visual.
It's not yet in our industry's DNA to consider
physicality and environment in our layouts

That's why:
many look at their legacy desktop layout on iPad:
yep, that works. Roughly the same size.
IT LOOKS OKAY.
But that rarely means it's also touch-friendly.

Tiny menus,
hover events,
eensy weensy tap targets,
bad ergonomic position.



A headache for responsive design

This actually reveals a flaw
in the way most of us have handled responsive design.

Its whole purpose is to present different layouts for different screen sizes.
It's a visual device, a layout device.

But we've also been using it as a way to detect touch.
Small screen: touch
Big screen: cursor

Screen size is a *lousy way* to detect a touchscreen.



YOU GUYS:

Screen size is a lousy way to detect the presence of a touchscreen.

It was a bad assumption to start with,
but it's getting worse as touch spreads to bigger devices.

So what, then?

Turns out: there's no reliable client-side way
to detect
if it's a touchscreen,
a keyboard-and-mouse,
or a hybrid.

Could use javascript to detect a touch event object,
but not all touchscreen browsers have touch events.
Strange but true.

So for now, we're just guessing.
Might be a touchscreen. Might not be.

[twitter]Faulty thinking: it's a big screen, so it must be mouse/cursor, not touch. But that's how we operate now.[/twitter]



But!
We've got our best men on the problem,
and there's already some stuff cooking for CSS 4.

Oh yes, CSS 4.

CSS4 media queries

`@media (pointer:coarse) {`

`}`

But even that doesn't get us there.

What about devices like Microsoft Surface, which have BOTH touch and a touchpad?
What does that even report?

So even here we'll have uncertainty.

For now, though, since we can't know whether a device is touch or not,
we have to assume it is.

We have to support the lower-resolution pointer, the finger.

As far as I'm concerned,
that leads to a pretty sturdy principle going forward.

[twitter]CSS4 will introduce a “pointer” media query to detect touch vs cursor UI. [http://j.mp/151PWIr\[/twitter\]](http://j.mp/151PWIr)

CSS4 media queries

```
@media (pointer:coarse) {
```

```
    input[type="text"] {
        min-height: 44px;
    }
```

```
}
```

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[twitter]CSS4 will introduce a “pointer” media query to detect touch vs cursor UI. [http://j.mp/151PWlr\[/twitter\]](http://j.mp/151PWlr)

All desktop designs have to be touch-friendly.



That's what Windows has done for Windows 8.
Have to.
Huge challenge for Windows: designing for every possible input.

Need to rethink some "settled" design patterns.

[twitter]All desktop designs have to be touch-friendly now: <http://j.mp/Tt4h87>[/twitter]



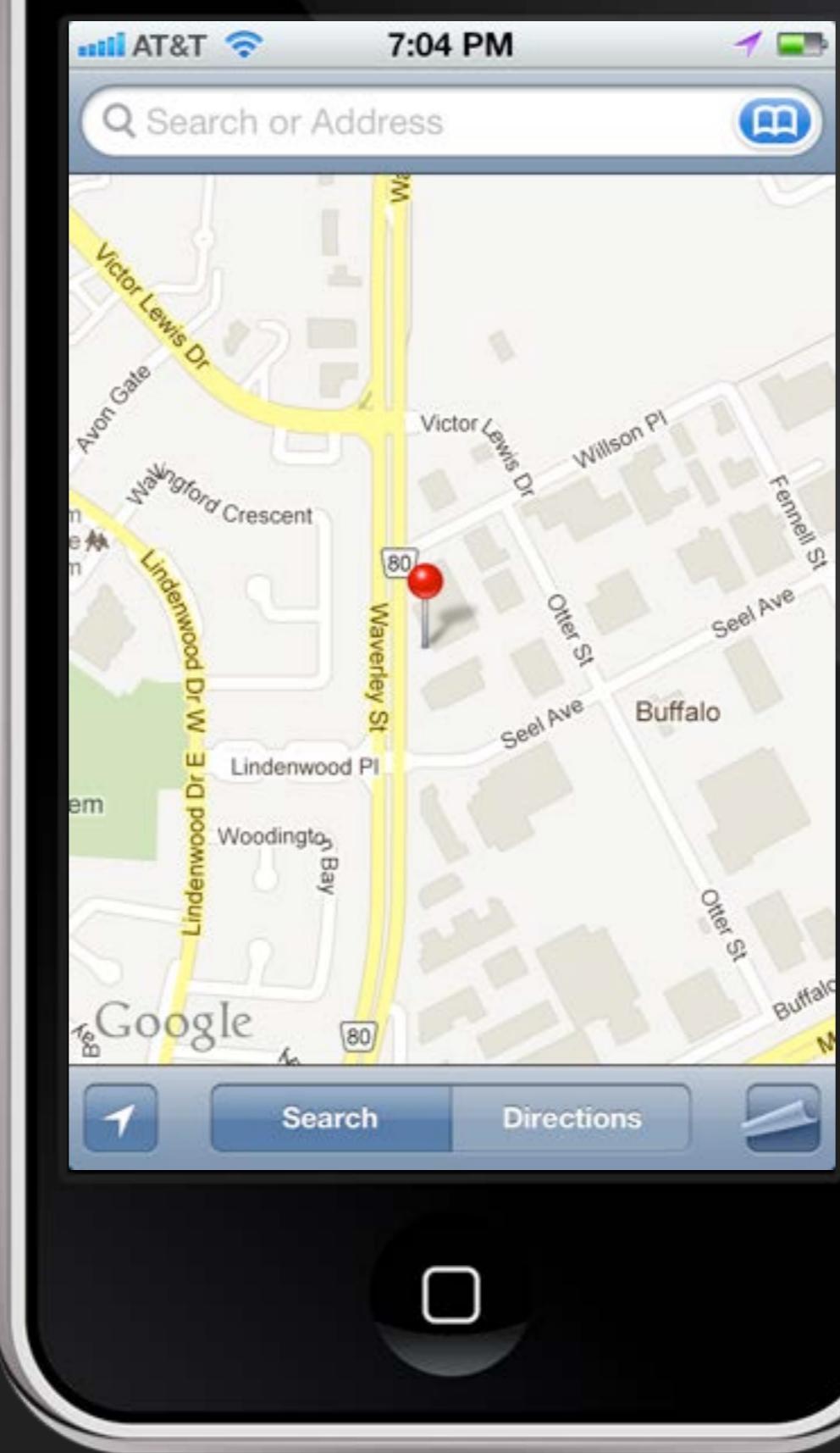
So we're going to have to do a little mind transfer.

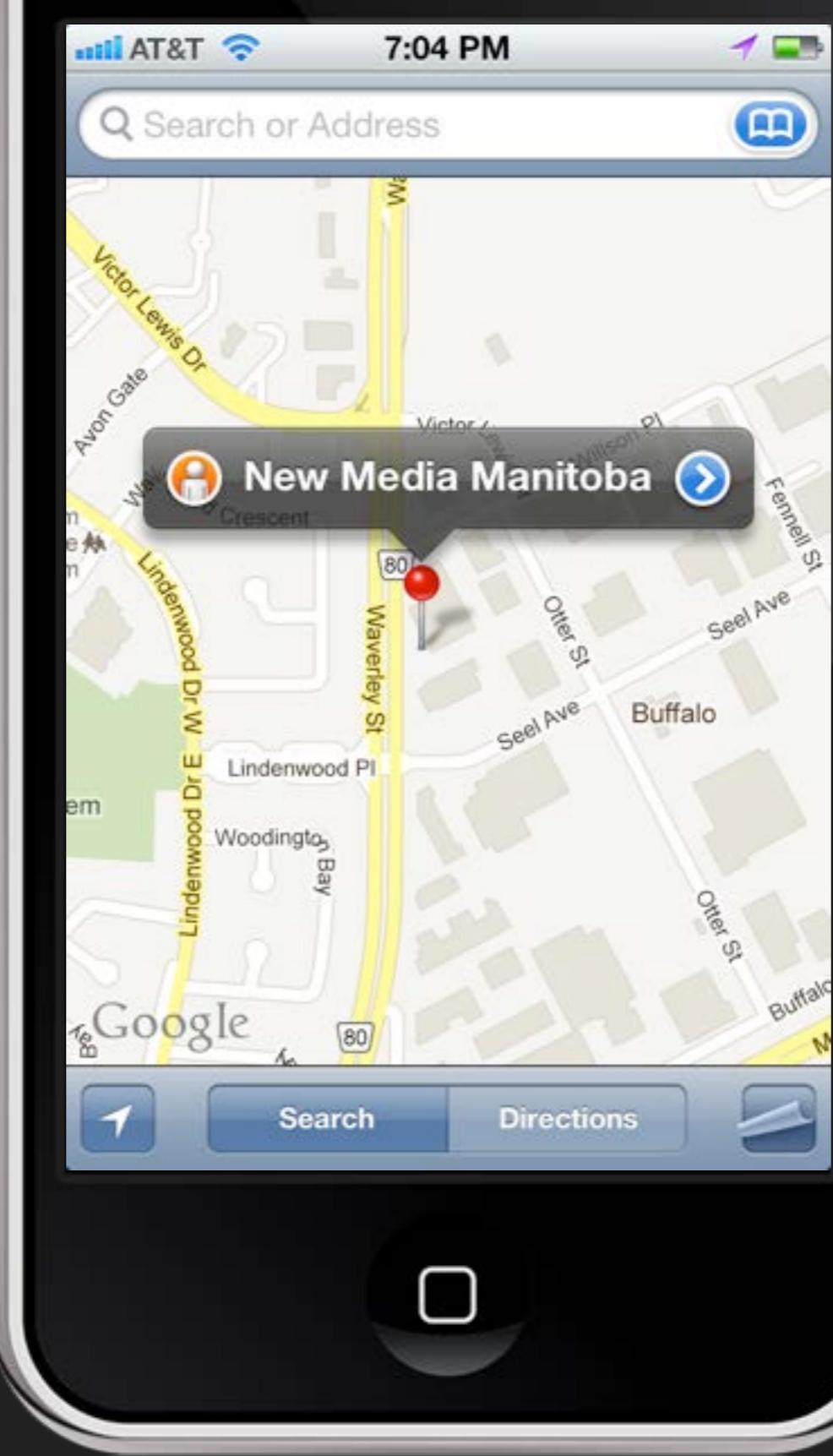
Shift some perspective that we've developed for phones and tablets over to desktop interactions, too.

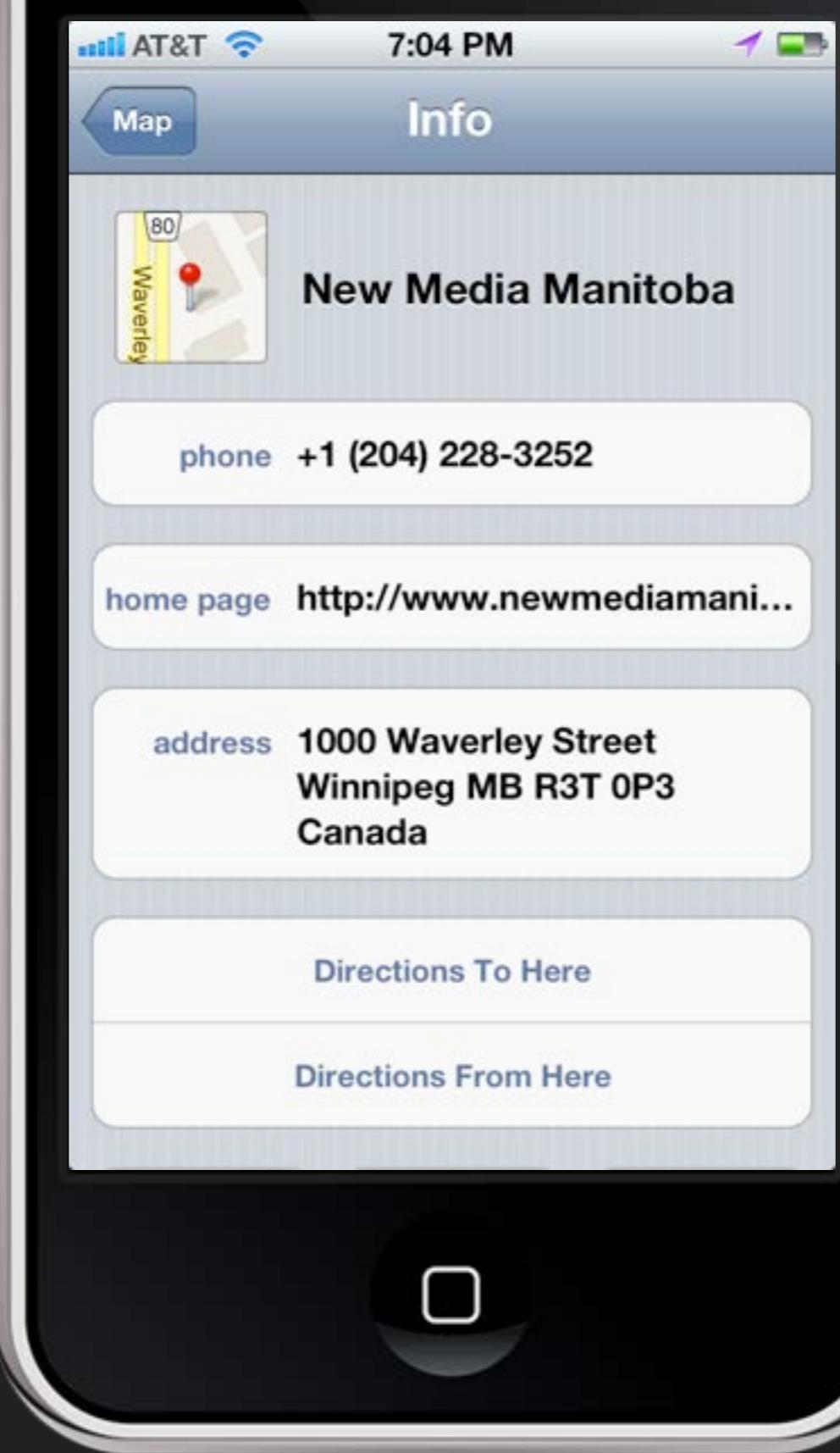
Rest in peace, hover events



Rest in peace, hover.
We're retiring you, at least for crucial tasks.
When you design for touch, you have to treat hover as an enhancement.
It can't be the only way to get at content.







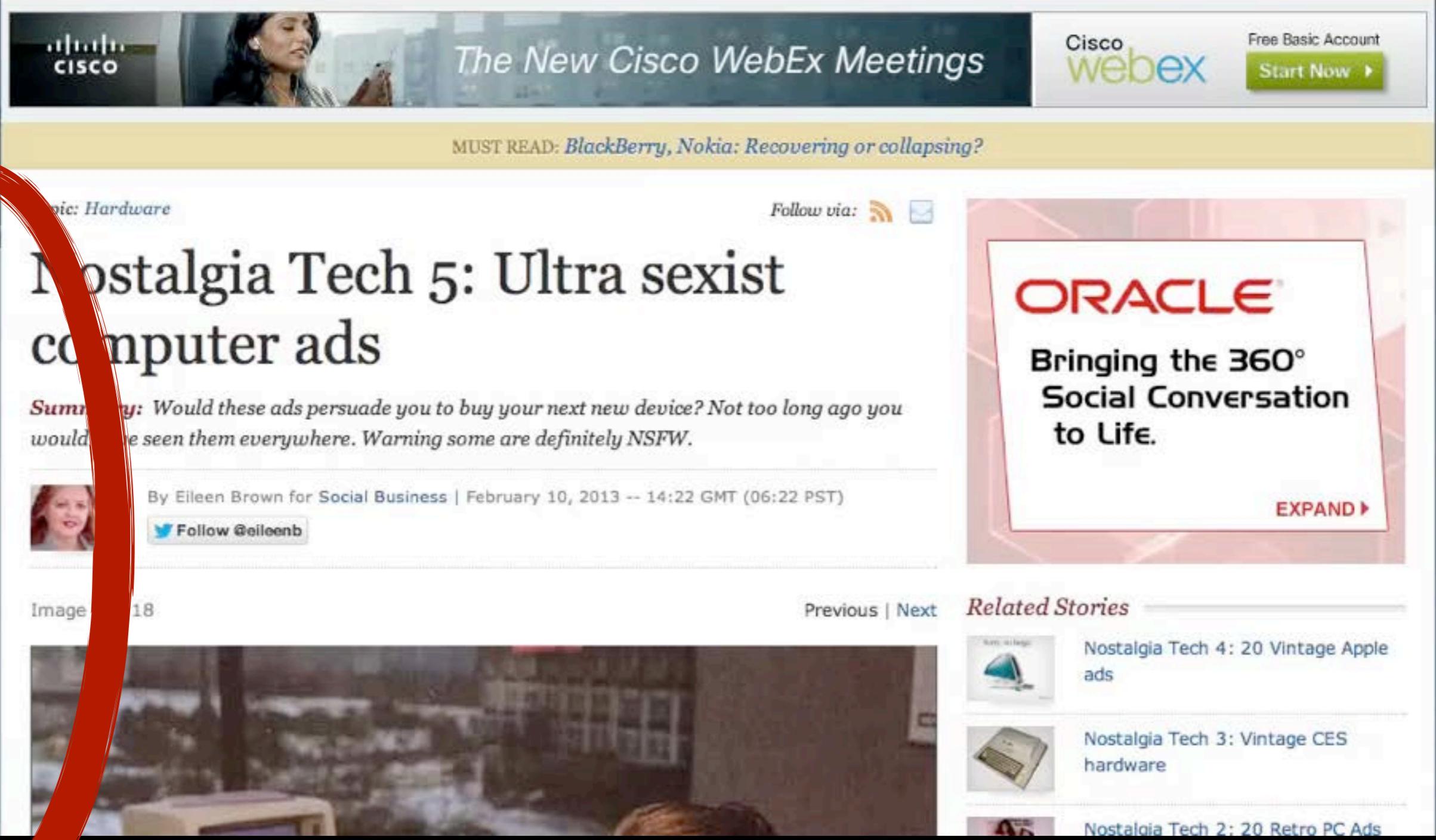
Thumb controls

at left side



Left side because that's where right-handed users will support the device.

We're beginning to see some patterns that are kind to fingers.



The screenshot shows a ZDNet article titled "Nostalgia Tech 5: Ultra sexist computer ads". On the left edge, there is a vertical bar containing social sharing controls: 11 Comments, 0 Votes, 12 shares, Like, Tweet, Share, and more+. A red circle highlights this sidebar area. The main content area features a headline, a summary, author information, and a large image of a vintage computer monitor.

MUST READ: [BlackBerry, Nokia: Recovering or collapsing?](#)

Topic: Hardware

Follow via:  

Nostalgia Tech 5: Ultra sexist computer ads

Summary: Would these ads persuade you to buy your next new device? Not too long ago you would have seen them everywhere. Warning some are definitely NSFW.

By Eileen Brown for Social Business | February 10, 2013 -- 14:22 GMT (06:22 PST)

[Follow @eileenb](#)

Image 18

Previous | Next

ORACLE
Bringing the 360° Social Conversation to Life.

[EXPAND ▶](#)

ZDnet offers these share controls and always keeps them in view when you scroll.

Very thumb friendly position right at the left edge.

This is the pattern I recommend:
put frequent controls at left of the screen

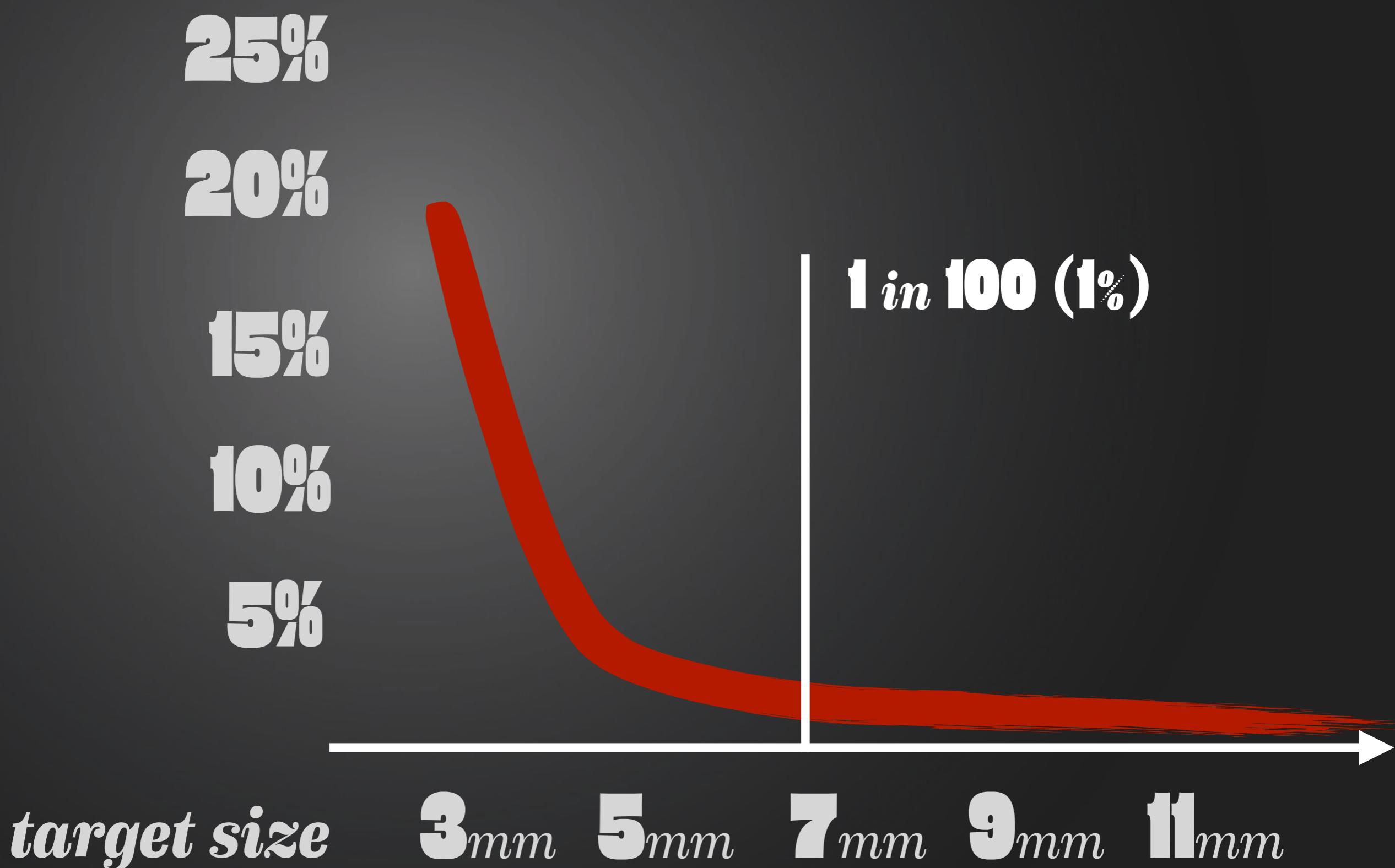
For right-handed users:
grip with the left hand, jab with the right.
Means your left thumb always there.

NOT main navigation.
Put something there that people actually use.
Usage patterns bear out the fact that:
NAVIGATION MENUS ARE A MISERABLE LAST RESORT

We slouch over to main navigation only when the rest of the page has failed us.
when we can't find what we want in the main canvas.

So it's fine to keep main navigation in that hostile top-of-screen.
Instead, concentrate on the controls that people actually, frequently use.
Actions people want to take on the page.
Share buttons a good pattern here for content sites.

missed taps



<http://msdn.microsoft.com/en-us/library/windows/apps/hh465415.aspx>

Microsoft did some research for Windows—for both desktop and phones—and found very consistent results.

So 7mm pretty good for everyday, 9mm if you're being super-cautious.

I don't know about you.
For me, mm isn't exactly my standard css unit.
So how do we specify this size?

Well maybe standards can help us out here.

[twitter]How big should touch targets be? Microsoft study: 7mm good, 9mm to be safe. <http://j.mp/UzDGfZ>[/twitter]

<http://msdn.microsoft.com/en-us/library/windows/apps/hh465415.aspx>



pixels

Boom.
Forty-four pixels, friends: that's the new hotness.

7mm in most touch browsers.

Now. Most of us don't work in pixels any more.



Boom.

Based on the 16-pixel default size,
2.75 ems should give you a good touch target.

[twitter]For the web, 44px is a sturdy minimum size for touch targets, or 2.75 ems.[/twitter]

New desktop design guidelines

Hover is an enhancement

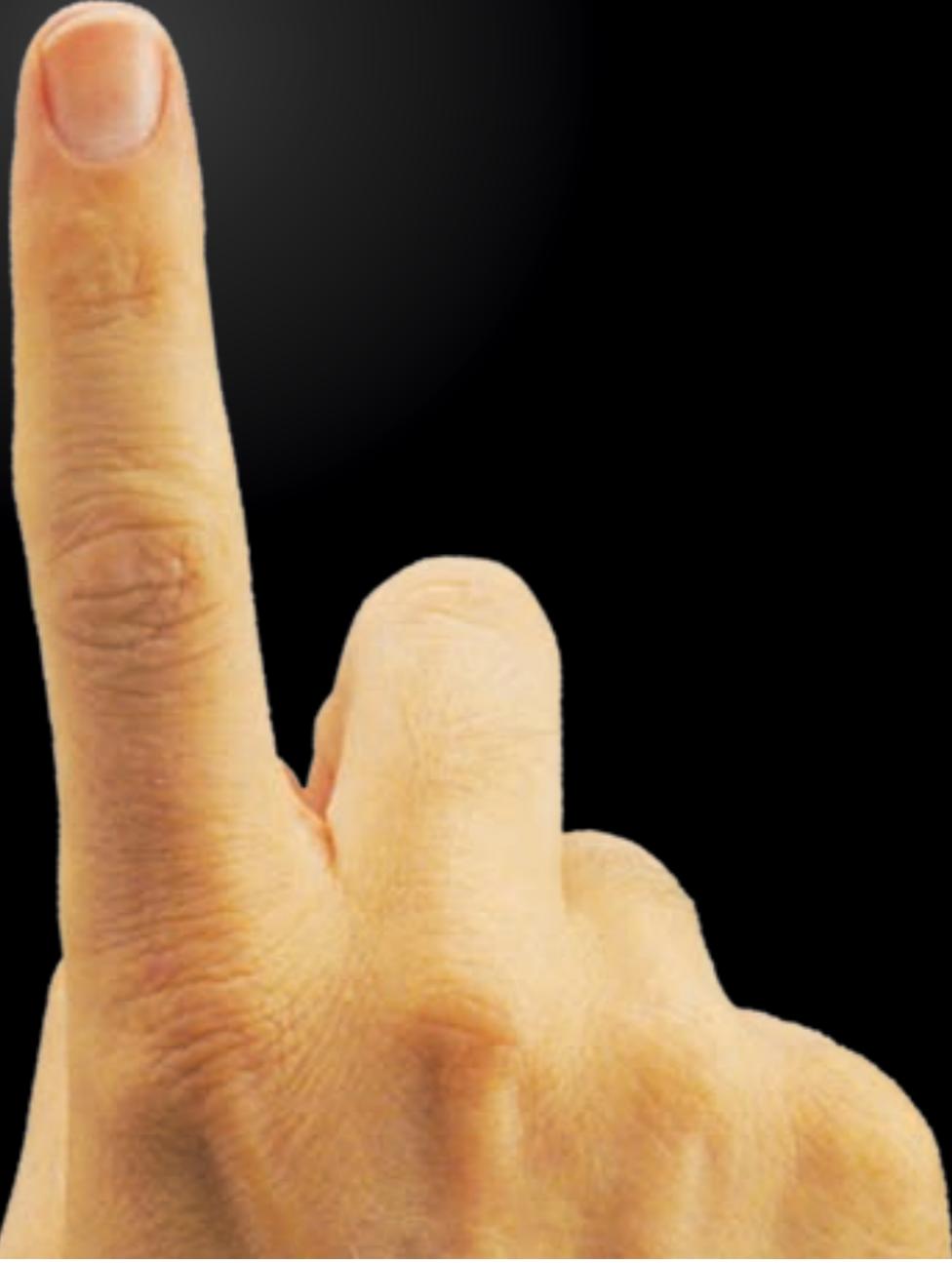
Bottom left for controls

Big touch targets

44px rhythm

Progressive disclosure





Super excited about possibilities of touch interfaces.

I believe forces—or should force—important,
FUNDAMENTAL changes in how
we approach the designs of these interfaces.

Touch will help us sweep away decades of
buttons—menus—folders—tabs and administrative debris
to work directly with the content.



When you remove this thing—the cursor, and the mouse, too,
these prosthetics we've pointed at stuff for 25 years—
all that remains...

[next] is you and the device, or better...
[next] you and the content.

Or that's the illusion we're able to create.
Changes the experience when it feels like you're
working directly with content and objects.

It cuts through complexity to interact directly instead of
pumping buttons.

Buttons do add complexity. It's a problem we always confront as designers.
The more features you add,
the more interface comes along with it.
If we're not careful, we start drowning in interface chrome.

It's even in cars.

Content



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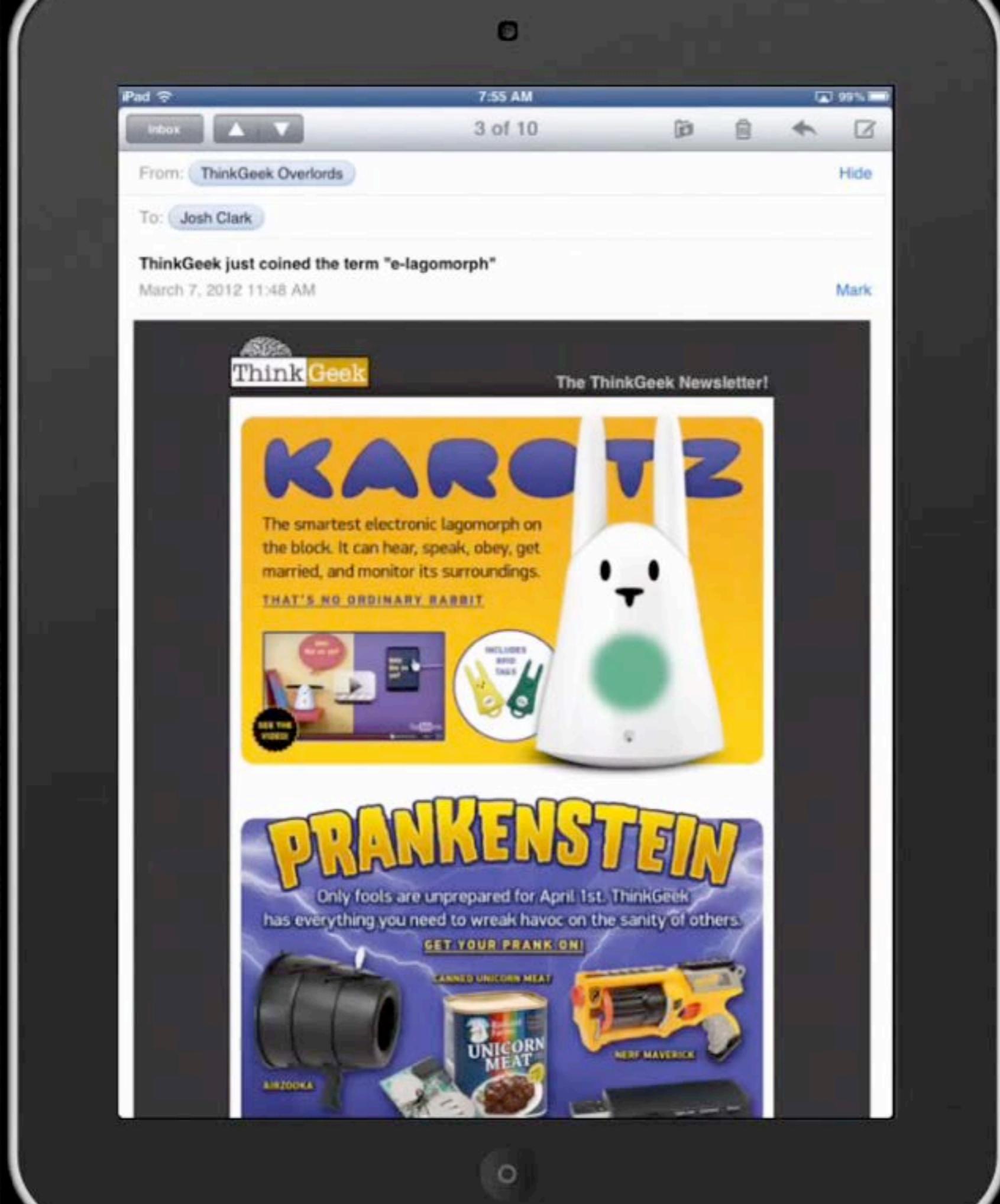
<http://bit.ly/civic-buttons>

<http://www.youtube.com/watch?v=Y7cXNOZw5YE>

We're adding more complex
—and frankly inept—
interfaces to cars, often touch interfaces,
AND IT'S DANGEROUS.

There are real consequences to complex or cluttered interfaces.

But let's start with a more modest and less serious example.
One that shows how traditional controls and buttons
don't work very well on touch screens—
especially as those touch screens become larger.



Traditional controls feel confining on larger touchscreens like iPad.

Tiny button in the top left of iPad apps not easy enough to hit,
yet I'm asked to hit it all the time.

Lots of iPad apps follow pattern you see in mail app.
The split view for navigating layers of content.
So I'm reading this riveting email from Facebook.

[one tap]

But I want to pop out to my sent mail.
I have to hit this tiny target,
navigate this series of buttons.

Big expansive screen, but I'm constantly required to
peck at this tiny little patch in the corner.

I hate the iPad's back button with the heat *of a million suns*

Even though iPad UI buttons same size as phone,
takes more effort/concentration to hit them.

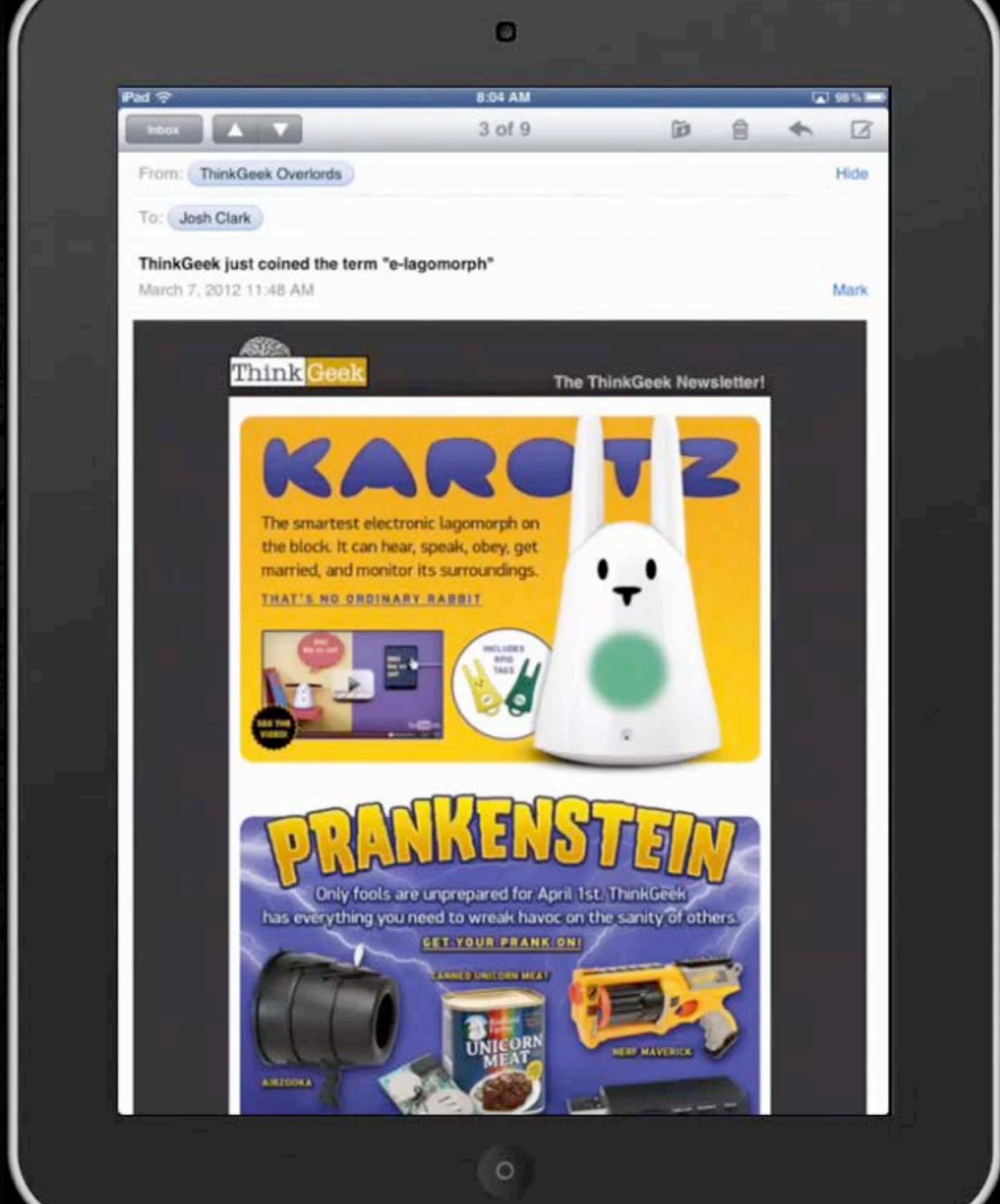
Enormous screen
Peck at tiny block of pixels in top left.
UI split view pattern = constant pecking
Meat pointer.

Let people be lazy

This should be our mantra as designers.
Let me be as lazy as I wanna be.

Coarse gestures,
not fine-tuned pecking.

Do you even need buttons at all?
Or can you at least provide an alternative?



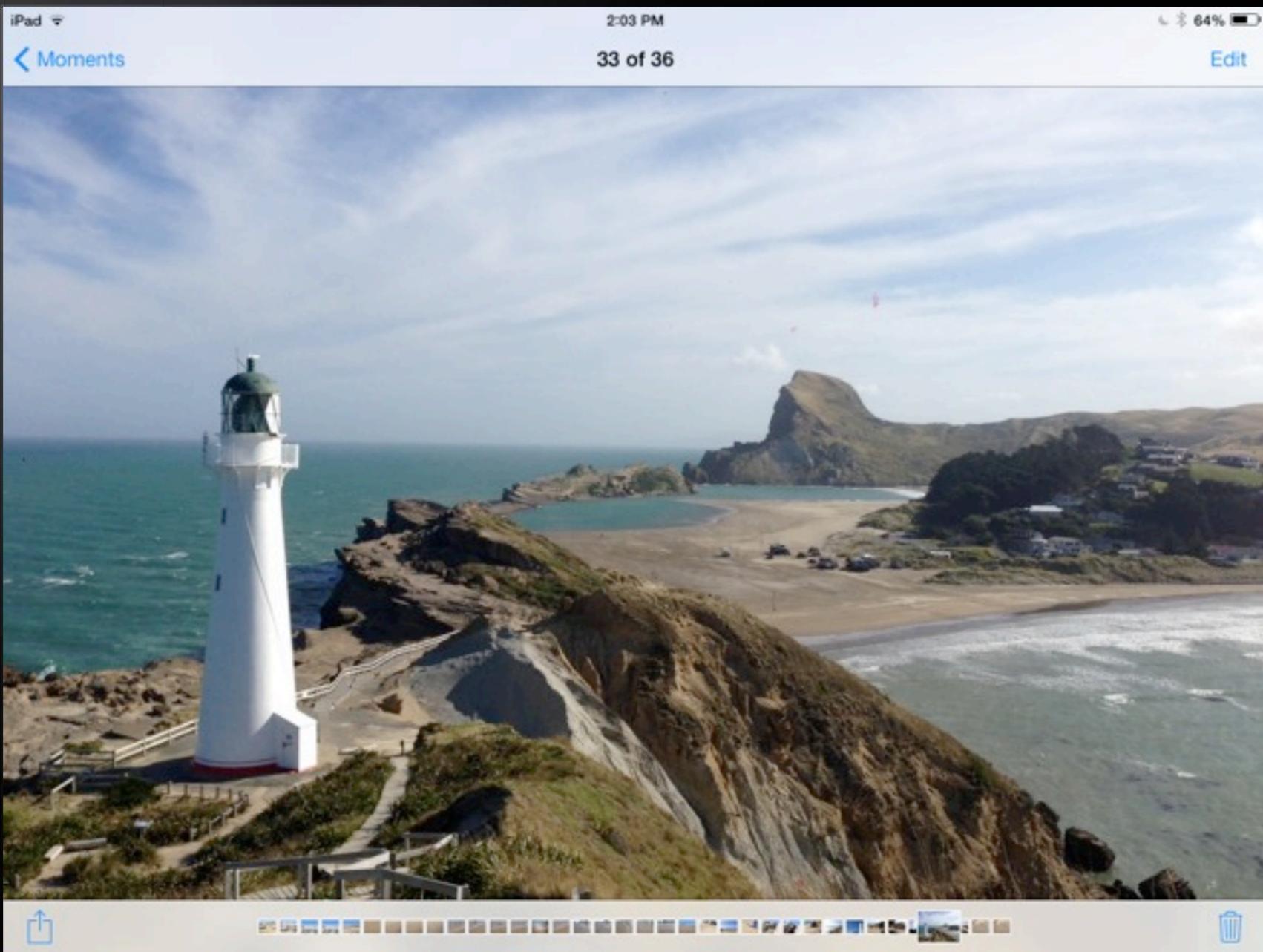
Instead of hitting that inbox button to see split view.

Swipe anywhere on the screen to pull out gesture.
A supplement, an alternative to button.

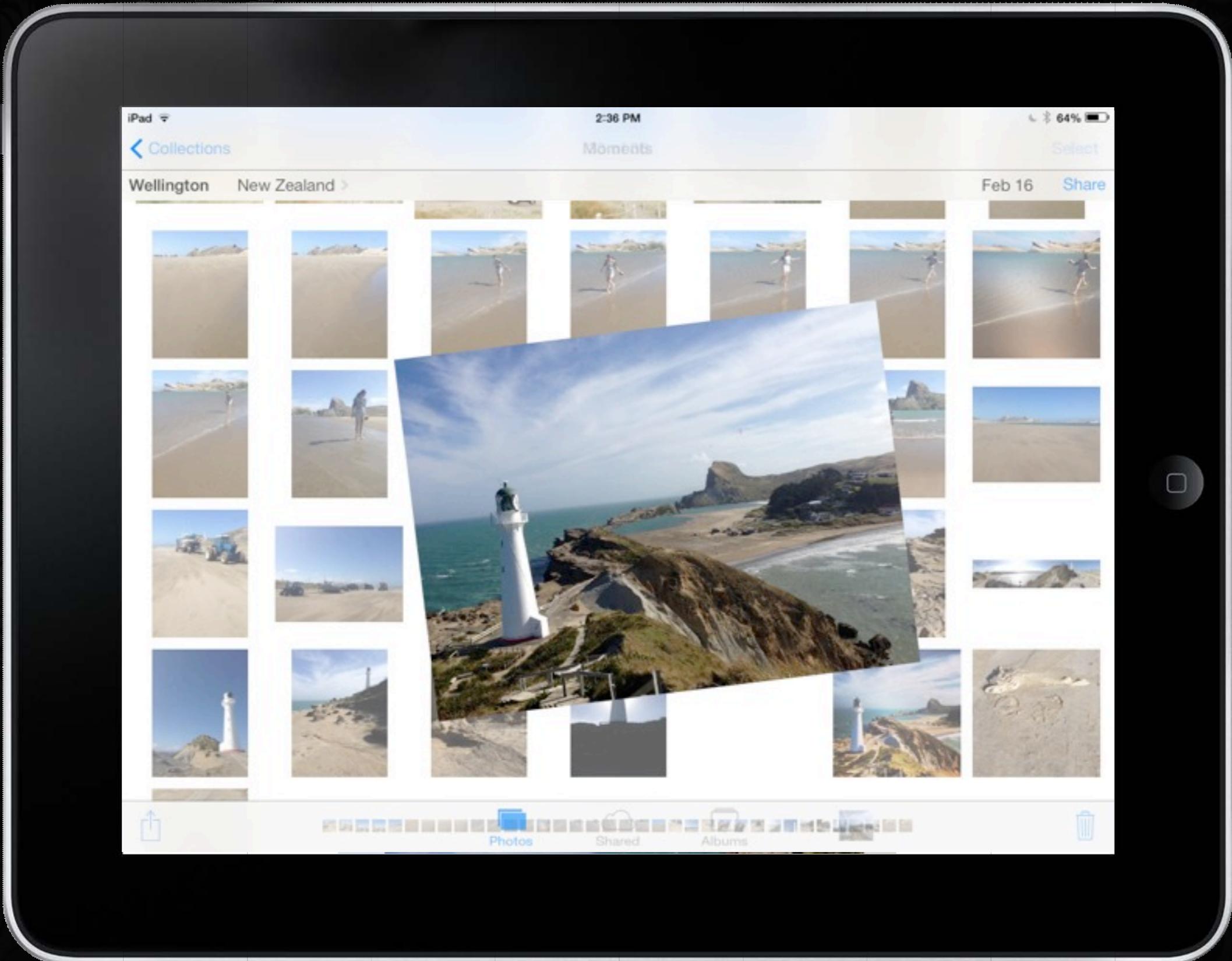
Gestures are the *keyboard* **shortcuts** of touch

Gestures are the keyboard shortcuts of touch.
Often supplements to old-school buttons.

What makes them shortcuts?
It's the timesaving aspect is that you can just slap at the whole screen.
Again: coarse gestures instead of fine-tuned tapping.



iPad Photos app



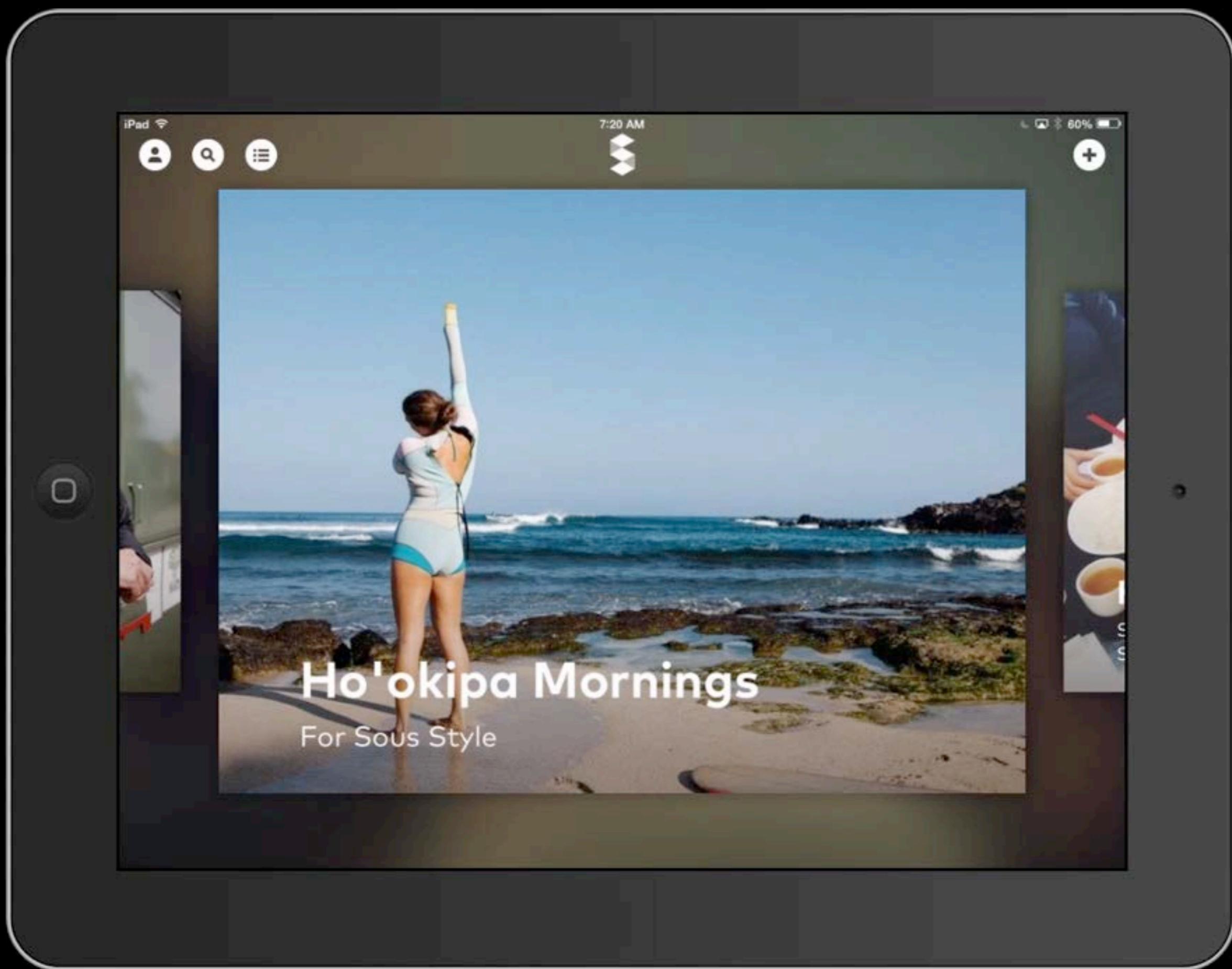
Pinch and spread being used not just for physical zooming, but for navigational zooming. Moving up and down the hierarchy.

Still has back button. But...
Do you even need that back button at all?



Storehouse

Storehouse, a storytelling app for iPad, share photos and text.





Free 1-Day Shipping for App Purchases!



Accessories

Women Men Girls Boys



HATS



GLOVES



TECH ACCESSORIES



HANDBAGS



TIES

Home



KITCHEN



BATH



WINDOW TREATMENTS



SCARVES



BELTS



HAIR ACCESSORIES



LAPTOP BAGS



BEDDING



OFFICE & SCHOOL SUPPLIES



IRONS & STEAMERS

Semantic zoom. All over Windows 8.
Zappos app shows how it works pinch to zoom out...



Free 1-Day Shipping for App Purchases!



Clothing



Bags



Accessories



Home



Eyewear



Jewelry



...to a bird's eye view of the store's departments.

Imposing physicality on information.
Not in a "looks like" but "acts like" way.

BIG SCREENS

invite big gestures

The value of coarse gestures. But also:



Twitter

Twitter for iPad managed to eliminate back button entirely.



Tap the content, slide these views around.
Paw thru your history.
Each slide is a representation of the content.
You're sliding the content back and forth, like cards.
No back button needed.

Key bit to designing for touch is imagine:
how would data objects look and behave
if they were suddenly physical? slips of paper on my desk.

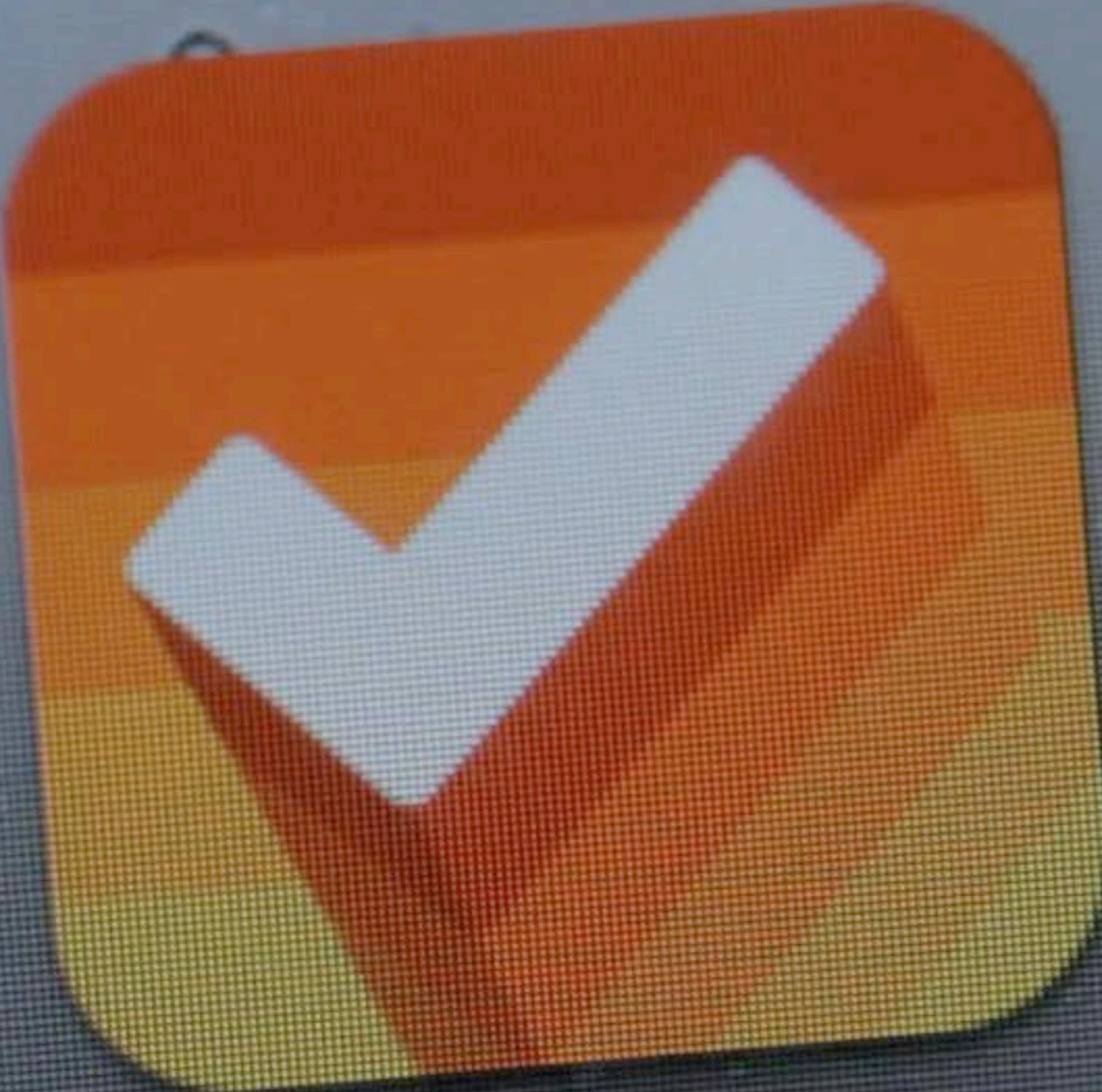
present data objects as

PHYSICAL OBJECTS

ACTS LIKE

is more important than

LOOKS LIKE



<http://bit.ly/ios-clear>

Apps like Clear and Paper
show how interfaces can be reimagined to create illusion of physicality.

Only buttons are the keyboard for typing.

Clear is a crummy to do list.
NEEDS some buttons for more advanced features.
Great proof of concept.
Changes the way you approach the interface.

This is exactly the way we need to start moving,
not to blow up all UI conventions outright,
but to question them and ask:

In light of direct interaction, do I still need that button,
or is there a better way to do it?
If this data were a physical object, how would I stretch and change it?

More like an instrument that you play than tool that you use.
Intent fluidly transferred to action.

Buttons are a

FACK

In the real world AND in software, buttons are abstractions.

Work at a distance on the primary object.

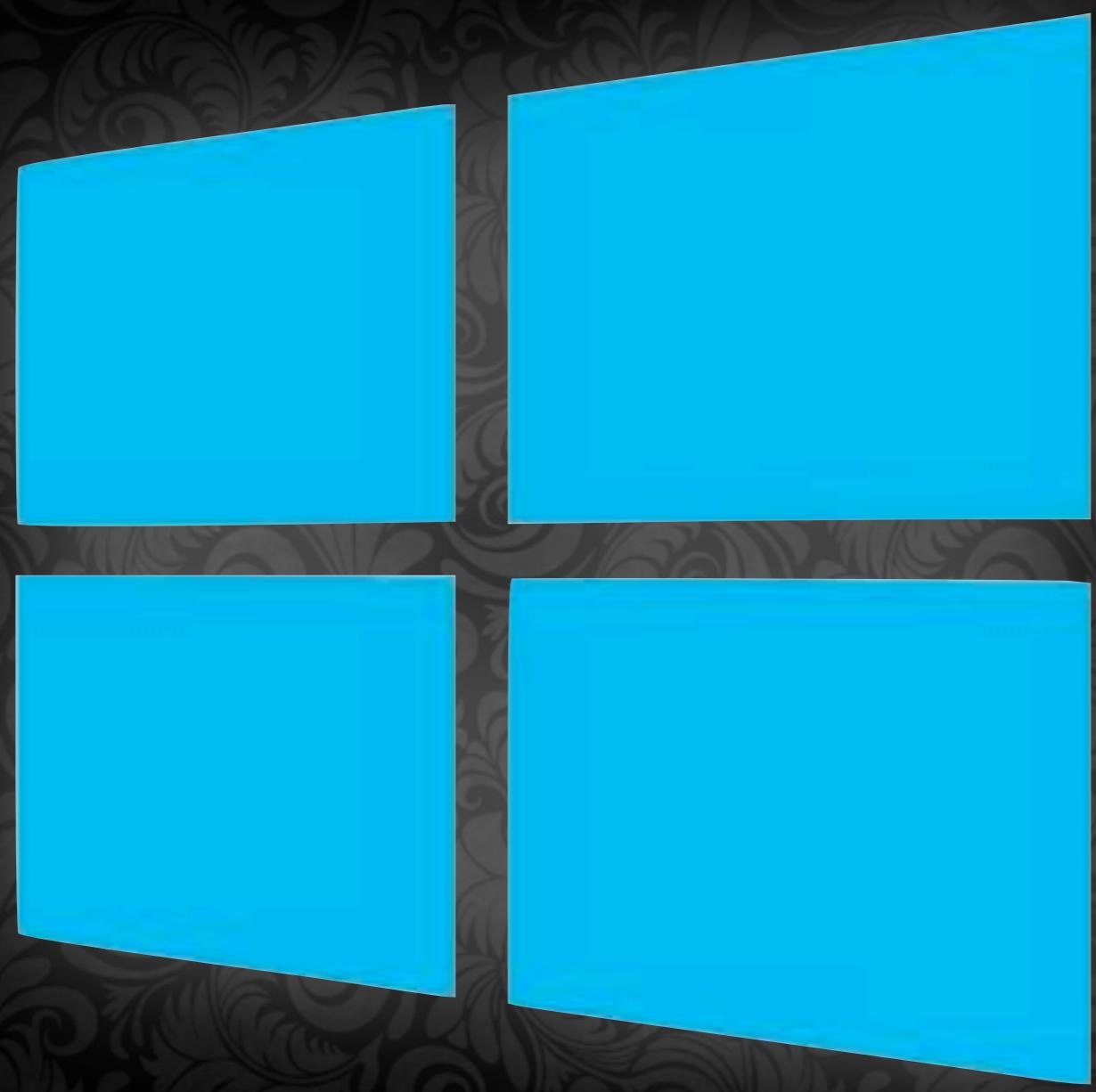
Often necessary, the best available solution

Light switches.

Operate at a distance. Add a middle man, an extra layer of complication.

Touch: get rid of visual abstractions
to work with content directly.

Not saying they're evil or bad.



Windows® 8

Microsoft obviously got this religion, with their flawed Windows 8 OS.
A lot of great ideas, but less than the sum of their parts.
“Do more with less”
“Authentically digital” (natively digital)



Zachary Face

[Switch to password](#)



<http://bit.ly/win8-login>

Whither the Web?

Before I go much further, I want to talk about where the web stands in this new wave of interface innovation.

This new class of devices creates interaction expectations that browsers frankly aren't very good at.

Jen and Luke both showed us emerging APIs that will make browsers much more capable. Lots of great access to device.

But when it comes to touch gestures, have a long way to go.

Two big barriers here.

It's hard to code gestures in JavaScript

touchstart
touchmove
touchend

First, real support for gestures.
Because out of the box, JS coders have really weak broth to work with.
Look at this bullshit.
[next]

Are you kidding me?
These are the events we get.
Coders forced to start w/most primitive elements.

2-finger touch? Code it from scratch!
Detect the touch, location, motion... design entire gesture.

And that's for the browsers that even support it.
Windows Phone: no touch events
Symbian: sorry.

WebKit and Opera Mobile, that's it.

We should have better, more abstracted gesture events
to easily get at pinches, at multi-fingers touches and swipes.

So one job we have is to agitate for better gesture support.
Challenging enough to design complex gestures on native SDK.
Far worse to have to cook it from scratch with these bland ingredients.

[twitter]Overview of coding multitouch for the web: <http://j.mp/wk87qC> The building blocks still primitive, but they're there.[/twitter]

The browser hems you in

tap

swipe

Second thing. The browser itself gets in the way of your gestures.
Because it has its own gestures.

A double-tap, a pinch, a tap-and-hold long touch.
All have meaning to the browser itself.

When you build a web app, you're running in an emulator
called the browser.

The browser has reserved these building-block gestures,
you can't use them yourself. Long tap. Pinch/zoom.

But, in terms of familiar conventions for gestures,
gestures you can actually expect people to use and find,
you're basically limited to just two:

[next]
tap and swipe

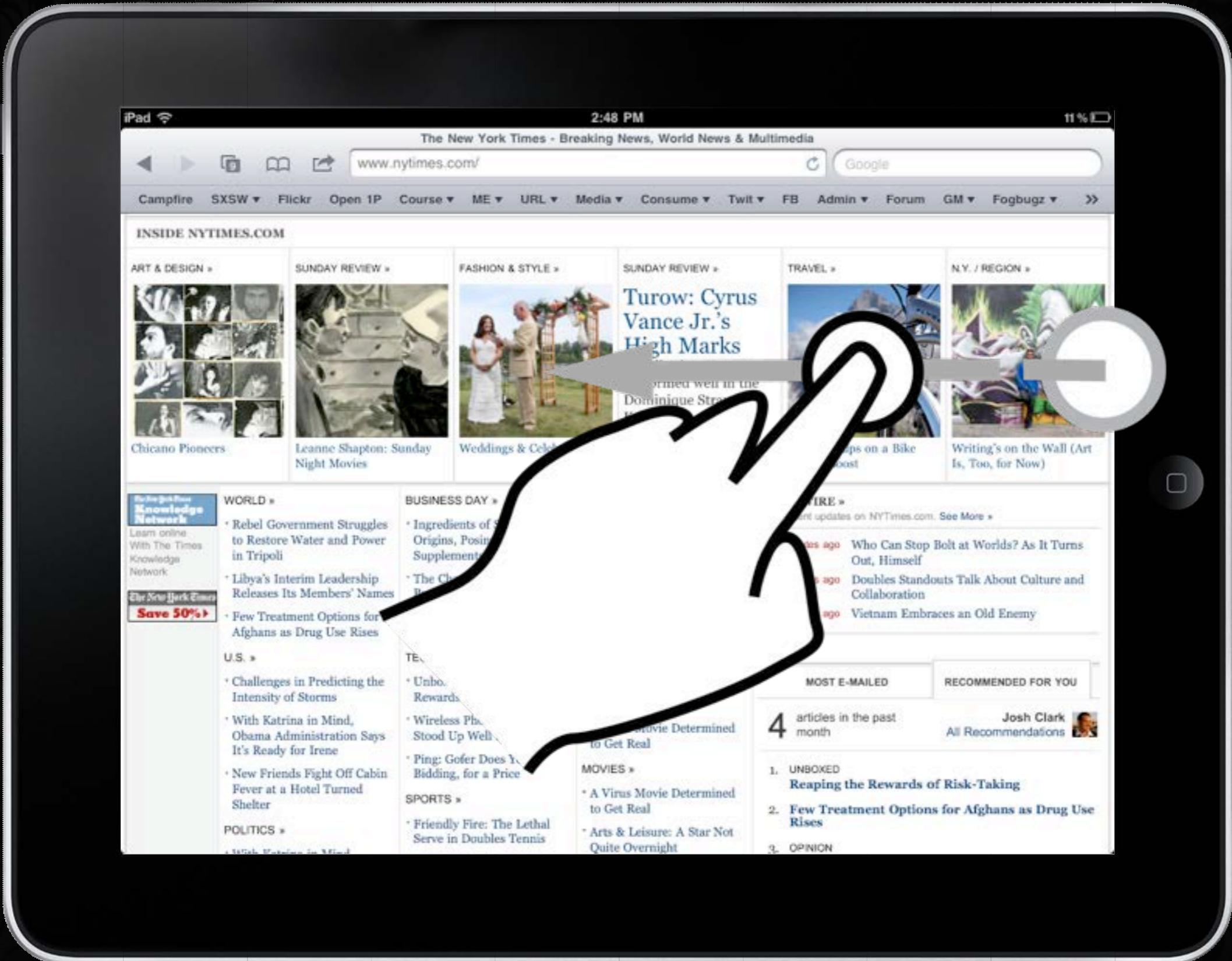
Hopefully this will change as we start seeing more WebGL
interfaces on the web—makes the browser UI fade to background—
saw some of it in Jen's talk yesterday.

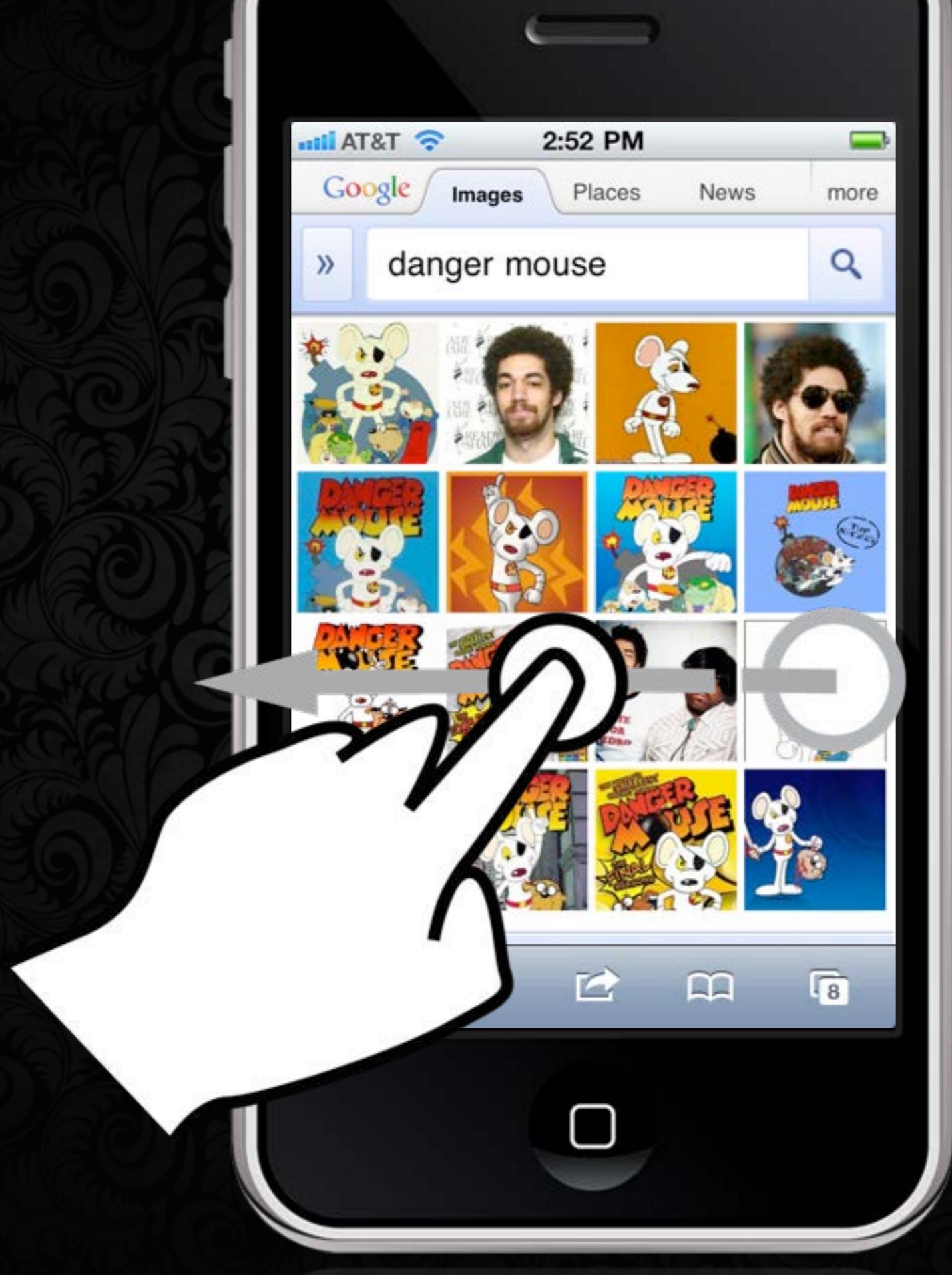
For now, though, really limited.

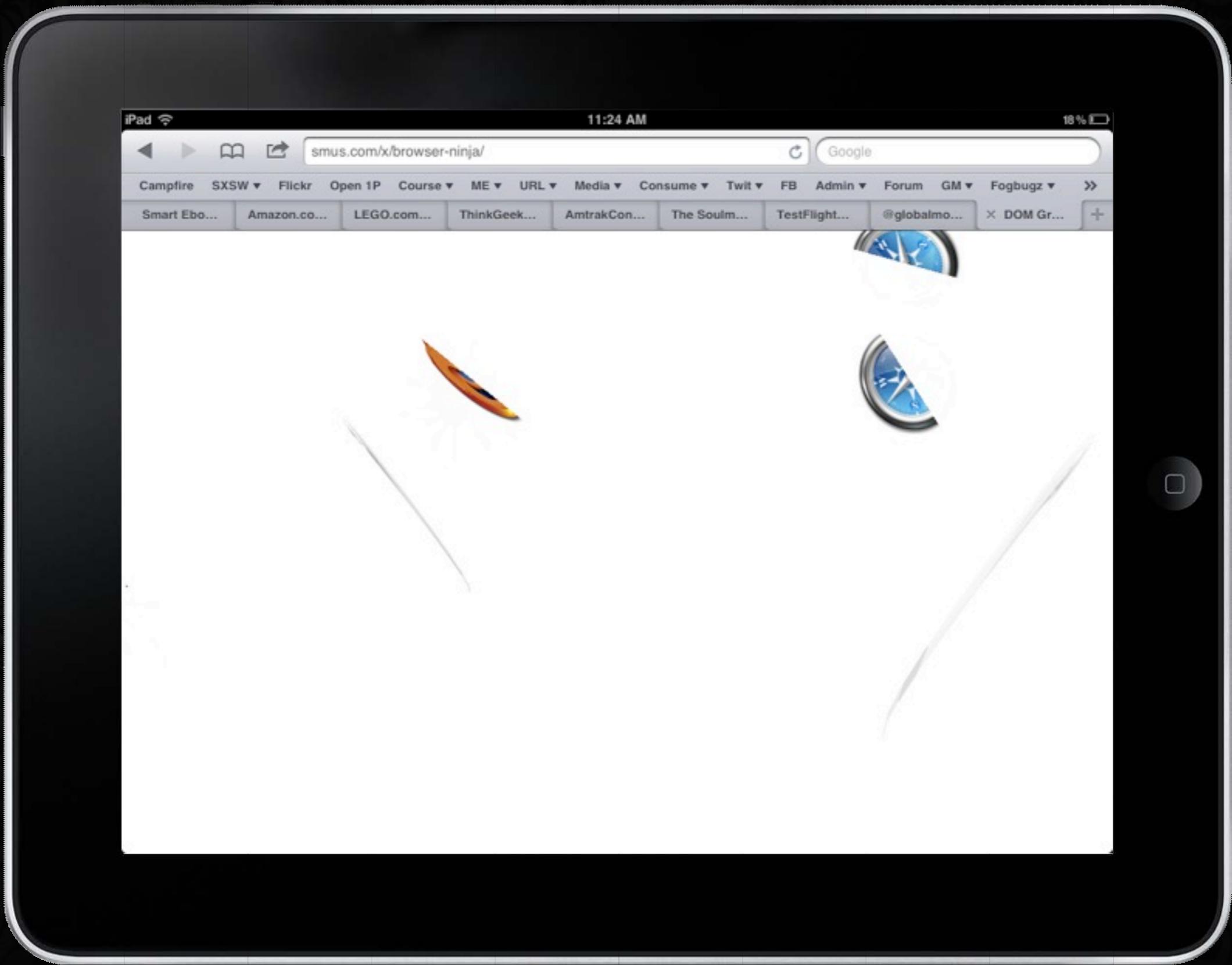
But wait, so if the browser sucks at this stuff,
why are we even talking about this here?
All the signs say: this is a conference for people who make websites.
So what am I even doing here?

[twitter]Web gestures must sidestep built-in gestures in browser and OS. Apple's OS gestures make it worse: <http://j.mp/pqBXV3>[/twitter]



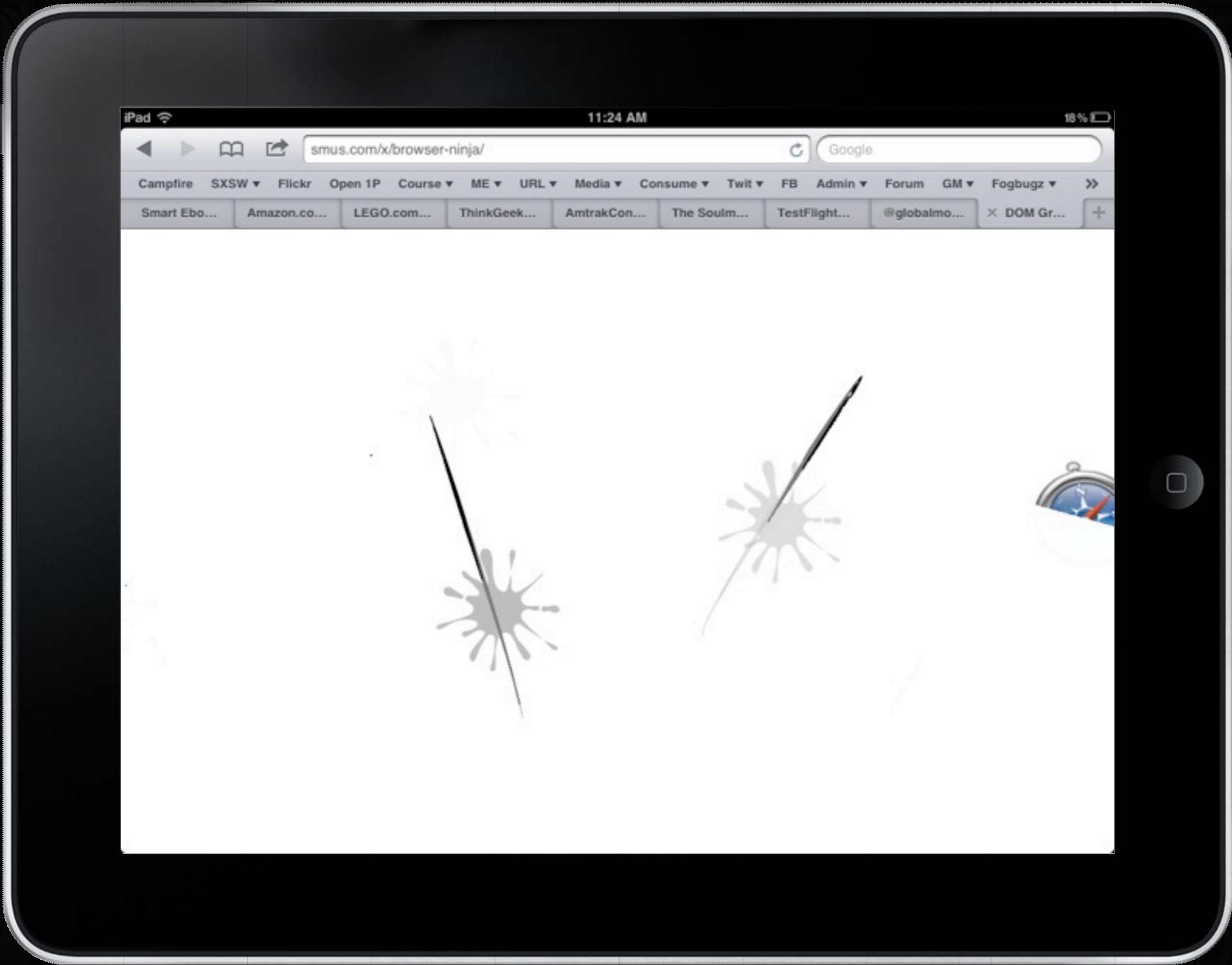






<http://bit.ly/browser-ninja>

Browser Ninja is a clone of the game app Fruit Ninja, where pieces of fruit (or, in this case, browser icons) fly up in the air...



<http://bit.ly/browser-ninja>

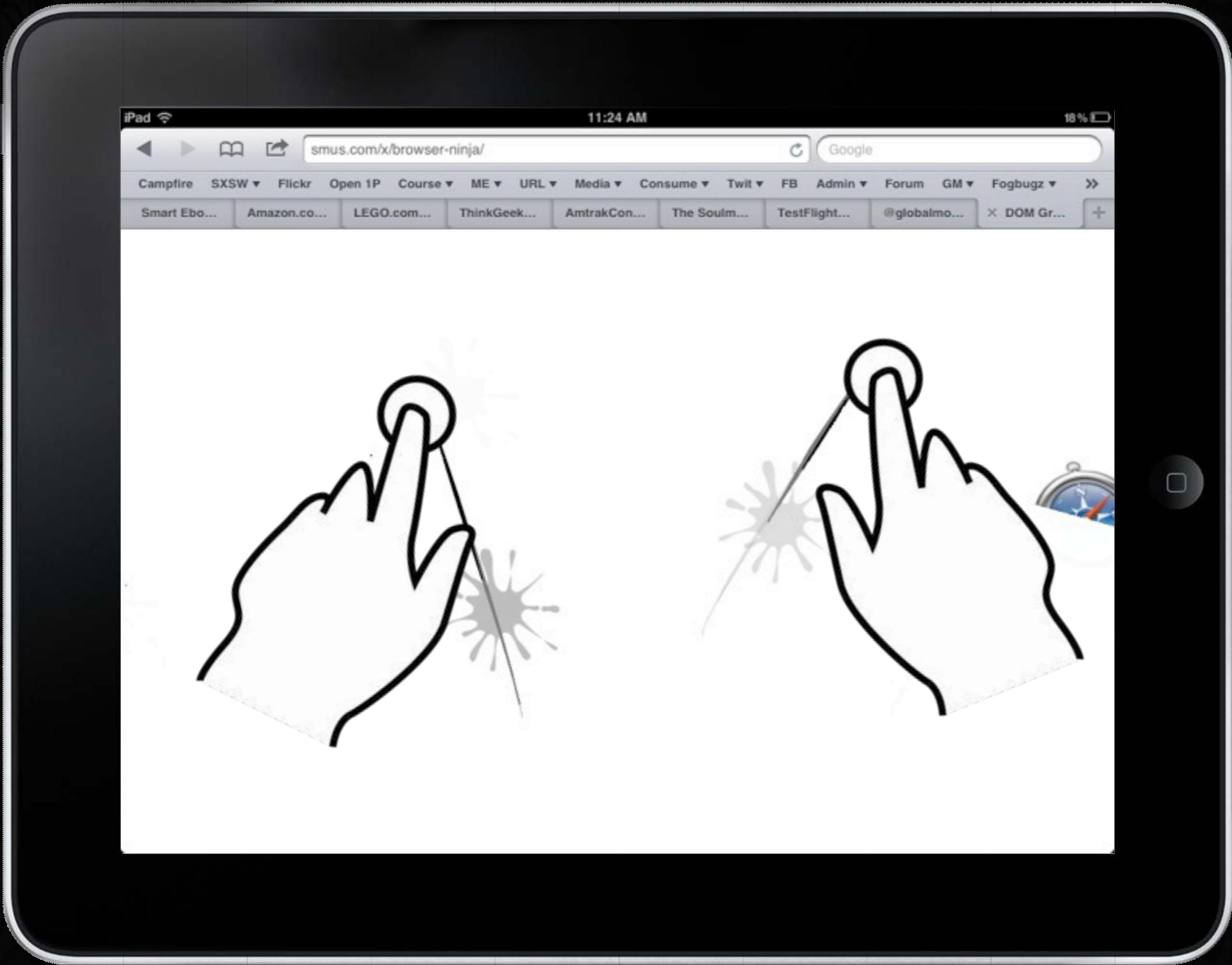
and you slash them by swiping through them.

So you can also detect multitouch gestures for the browser.

But again, it's not exactly easy to go beyond simple taps and swipes.

That's why, in terms of interaction design,
we're seeing the first generation of really innovative
gestural interaction happening in apps.

So let's look at a few examples.



<http://bit.ly/browser-ninja>

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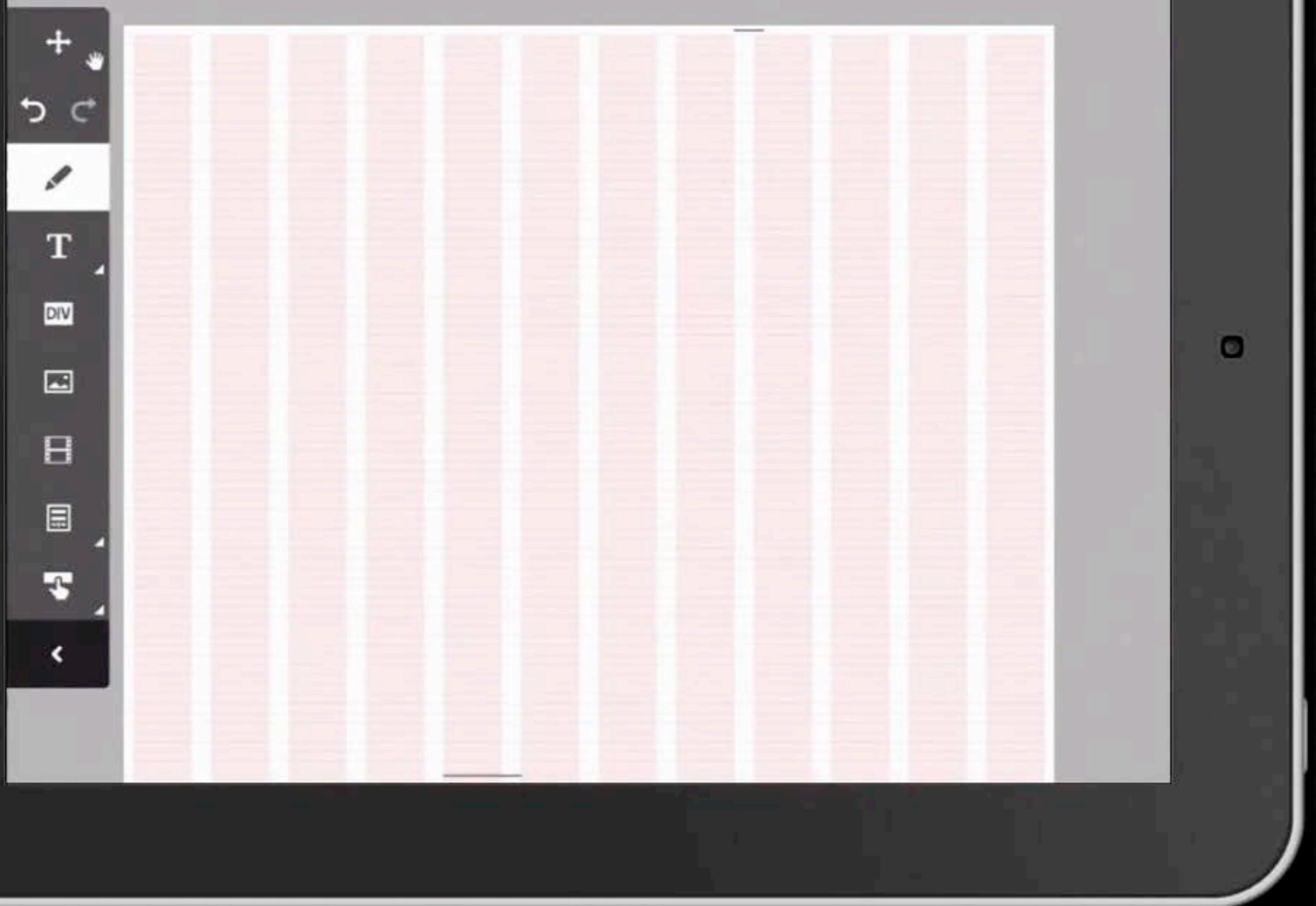
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So let's look at a few examples.



Adobe Proto



I want to talk about Adobe Proto.

Likewise, new ways to do things, but here leveraging old familiar ways.

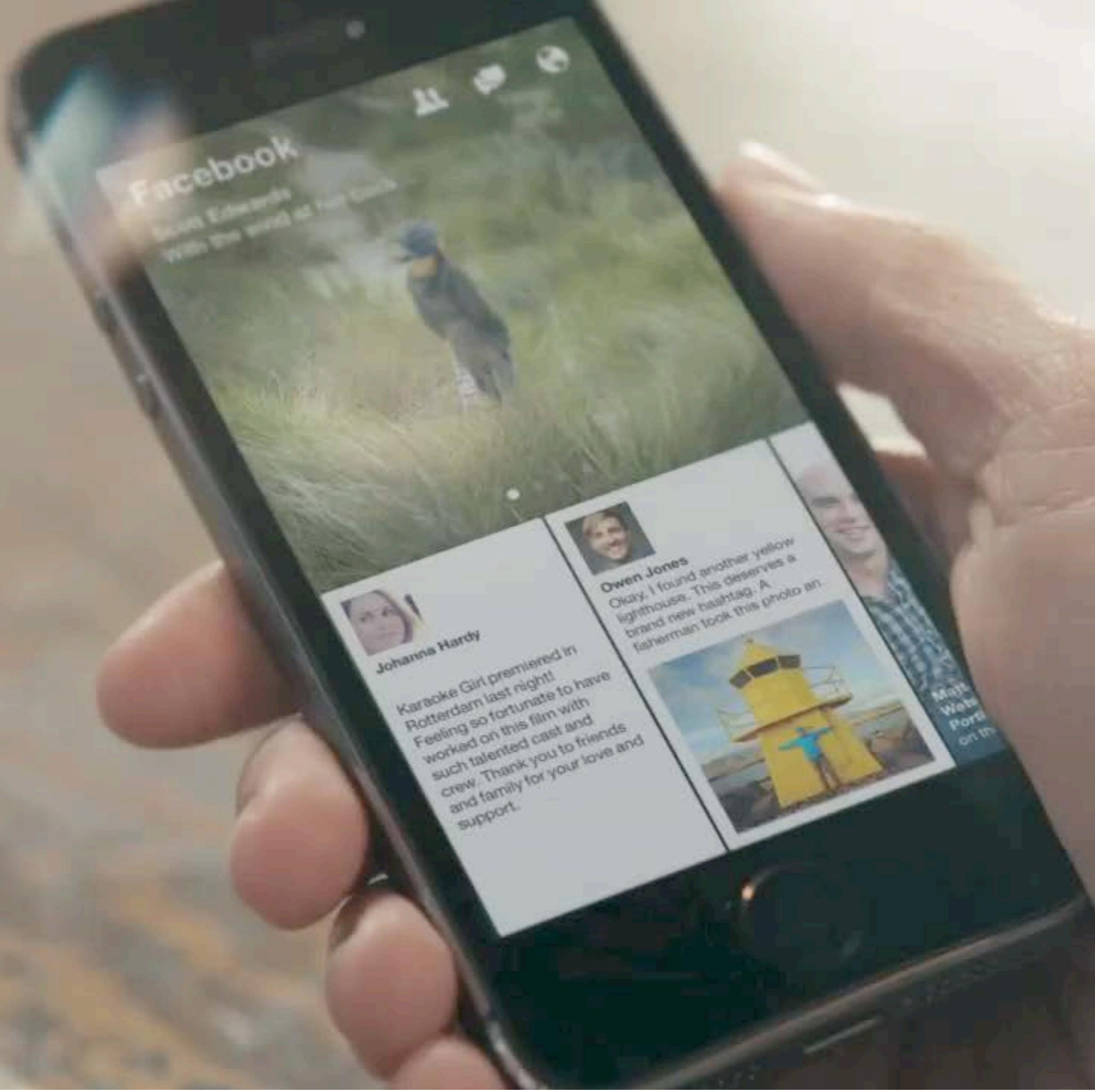
In this case, for drawing wireframes. The first phase of that is literally sketching. All gesture based. Check this out.

This takes a familiar physical model—sketching,

applies it as-is to new format. And it's cool.

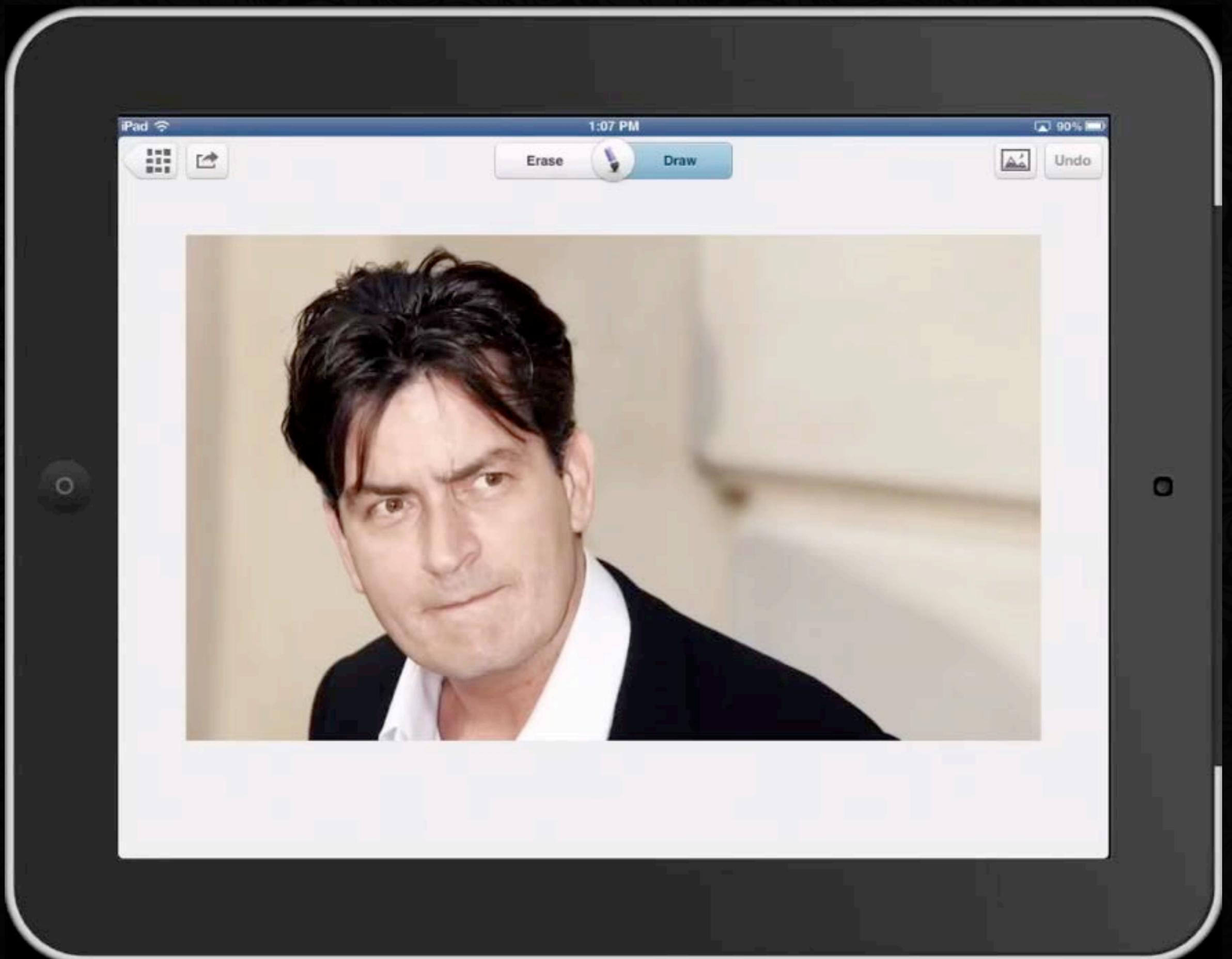


Facebook Paper





TouchUp



As we embrace these new interfaces, also have to give up old abstractions and mental models that we associate with desktop controls.

TouchUp: Draw filters or effects on photos.
Brush these effects on, drawing them with your finger.

[next] What if you want a smaller brush?
Traditionally you'd have a slider or some brush selector.
But the thing is, you have a brush, and it doesn't change size.

A setting to change my finger's touch footprint
to double or half actual size
would just be confusing, hard to get my head around.

Instead of changing the brush size,
you change the canvas size. Pinch to zoom in or out.



And then draw your next stroke.
Finger always keeps its same physical size on the screen.
It's the canvas that changes size.

When you deal w/touch, have to rethink these familiar abstractions.

Finding What You Can't See

How do you find out about these gestures?
Gestures unlabeled. Invisible. Rely on visual clues or past experience.

Less a gesture resembles physical action, more difficult to find.
More abstract gestures tend to go overlooked.

People will figure out stuff that works from
physical or mouse-driven experience

Newcomers DO discover tapping twice zooms in.
Double-click training from desktop computers kicks in.
But NEVER find two-fingered single tap.

Train people by using conventions they already understand.
One way to do that, as we'll see, is creating realistic, physical interfaces.

But understand that with a little help,
people will learn to work your interface sight unseen.
We do this all the time.

We use interfaces daily that are essentially invisible, or at least in the dark.
Too many of us can even hit that snooze button in our sleep.
It's muscle memory, like typing.



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One way to do that, as we'll see, is creating realistic, physical interfaces.

But understand that with a little help,
people will learn to work your interface sight unseen.
We do this all the time.

We use interfaces daily that are essentially invisible, or at least in the dark.
Too many of us can even hit that snooze button in our sleep.
It's muscle memory, like typing.



<http://www.flickr.com/photos/37996588780@N01/346360988/>

Most of us here no longer look at the keys when we type.
Studies: ask professional typists to write down order of the keys,
can't do it
Muscle memory, not part of conscious knowledge.

We do it without thinking.
Access that subconscious knowledge faster than conscious.

The trouble with both of these examples:
had to learn clock and keyboard before you could do this.
Layout of the alarm clock before snooze in dark.
Hunt-and-peck characters before touch type.

Nearly everything we know has to be taught, learned, observed.

So before we get to helping people find INVISIBLE gestures,
I want to talk about the importance of visual cues.



We rely on cues in environment to help until we obtain mastery.

Cutting board for obsessive-compulsive chefs
Precise length and width of julienne vegetables for example.
Means you don't have to rely on memory, or muscle memory.
It's a cheat sheet, a reference.
This is where we always start. Some kind of physical reference.

Surrounded by these little hints all the time,
some a conscious set of tools or personal organization...
but others are softer reminders, often social,
and not entirely in our control as either designers or consumers.



<http://www.flickr.com/photos/blackcountrymuseums/4385115536/>

Don Norman's new book Living with Complexity is a terrific read.
And in it he talks about salt and pepper shakers.
Which is salt, and which is pepper?
[next] right is pepper? right is salt? who has no idea?
[next] Don Norman: actually doesn't matter which is correct.
All that matters is what the person who fills them believes.

Arbitrary. Socially defined. Not evenly understood by all.
[slow] Social signifiers only work if everyone knows them.
Cultural understanding is messy.

So we have uncertainty. Forced to proceed with caution.
Test shaker to see if salt or pepper. Slow down. Lose confidence.
Our job is to give users confidence that they understand the system,
move efficiently and confidently to their goal.
Which should always be salty food as far as I'm concerned.

Cindy yesterday, compared us to hosts at a dinner party.
A good host makes people feel at ease.
As designers, we are the hosts filling the salt shakers.
To say, "anyone who doesn't know which one is salt is stupid" isn't enough.
Social understanding is not so neatly synchronized.

UI conventions are social constructions.
We can't give machines perfect intelligence about user expectations,
but we can at least give them good manners.



http://www.flickr.com/photos/ella_marie/3142159351/

To help prevent confusion among our guests.
So we need to provide signals to prevent errors, confusion.
Good design makes the problem go away so that these questions aren't asked in the first place.

Labeling is one solution.



<http://www.flickr.com/photos/smi23le/2420961722/>

This is even better. No labels at all, just instant intuitive understanding. I know what it is, because I can see it.

The content itself is the label.

Want salt? Grab the salt! No middle man involved. No processing of labels or signs.

Who needs a control when you have the content itself?

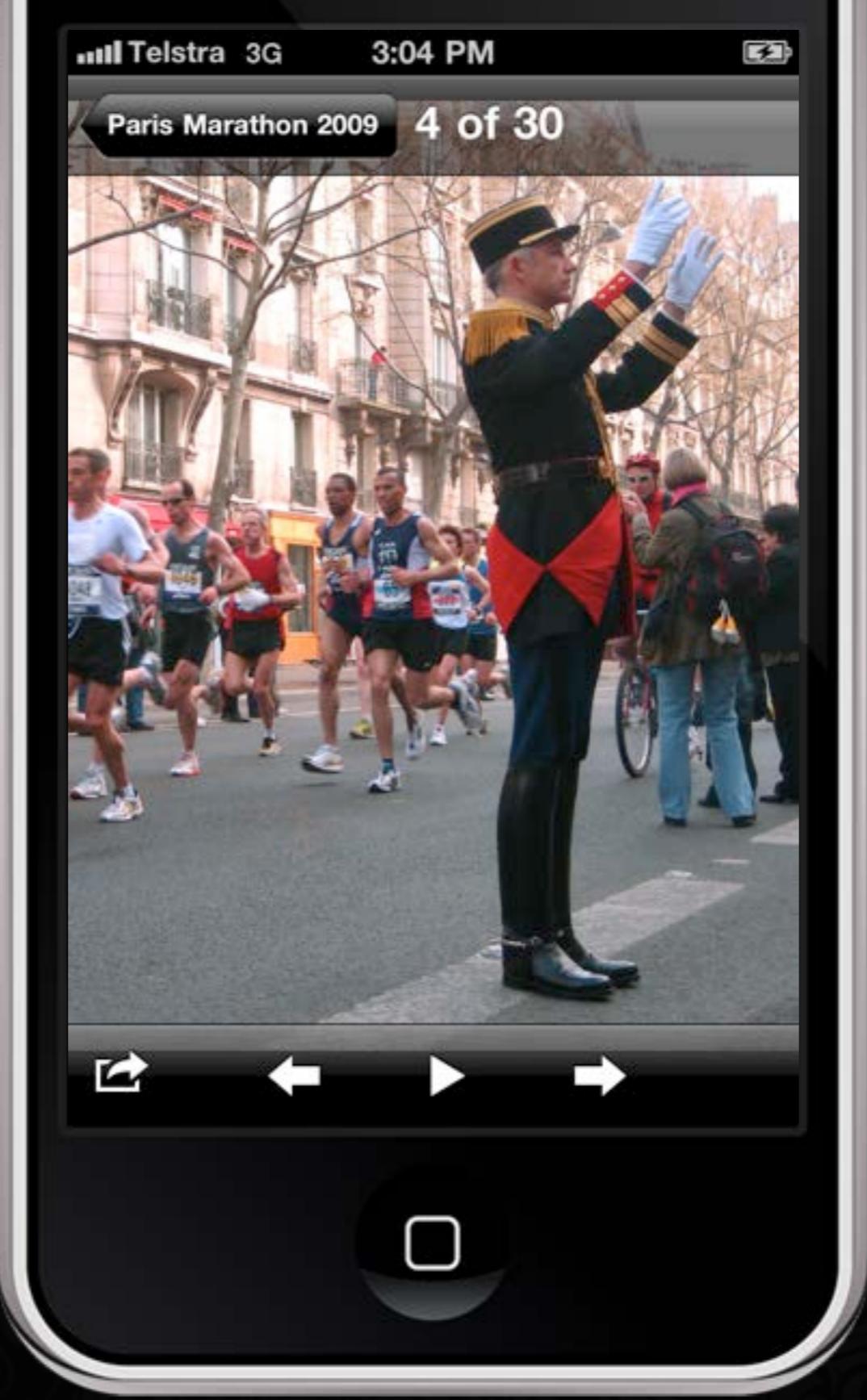


Touch interfaces allows direct interaction with content itself.
Don't touch a button, touch content you want to work with.

Photos app uses content as navigation.
Information as interface.
There's no chrome here, just lots and lots of content.
Tap the photo to see it.
[next]

How can I let people interact with actual content
instead of buttons,
instead of gray interface controls?

This isn't about change for the sake of change.
It's not gratuitously changing interaction.
Because the interaction should be invisible.



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This isn't about change for the sake of change.
It's not gratuitously changing interaction.
Because the interaction should be invisible.

The *medium* is the *message*

Marshall McLuhan:
the medium is the message.

I think we may finally be moving to a place where...

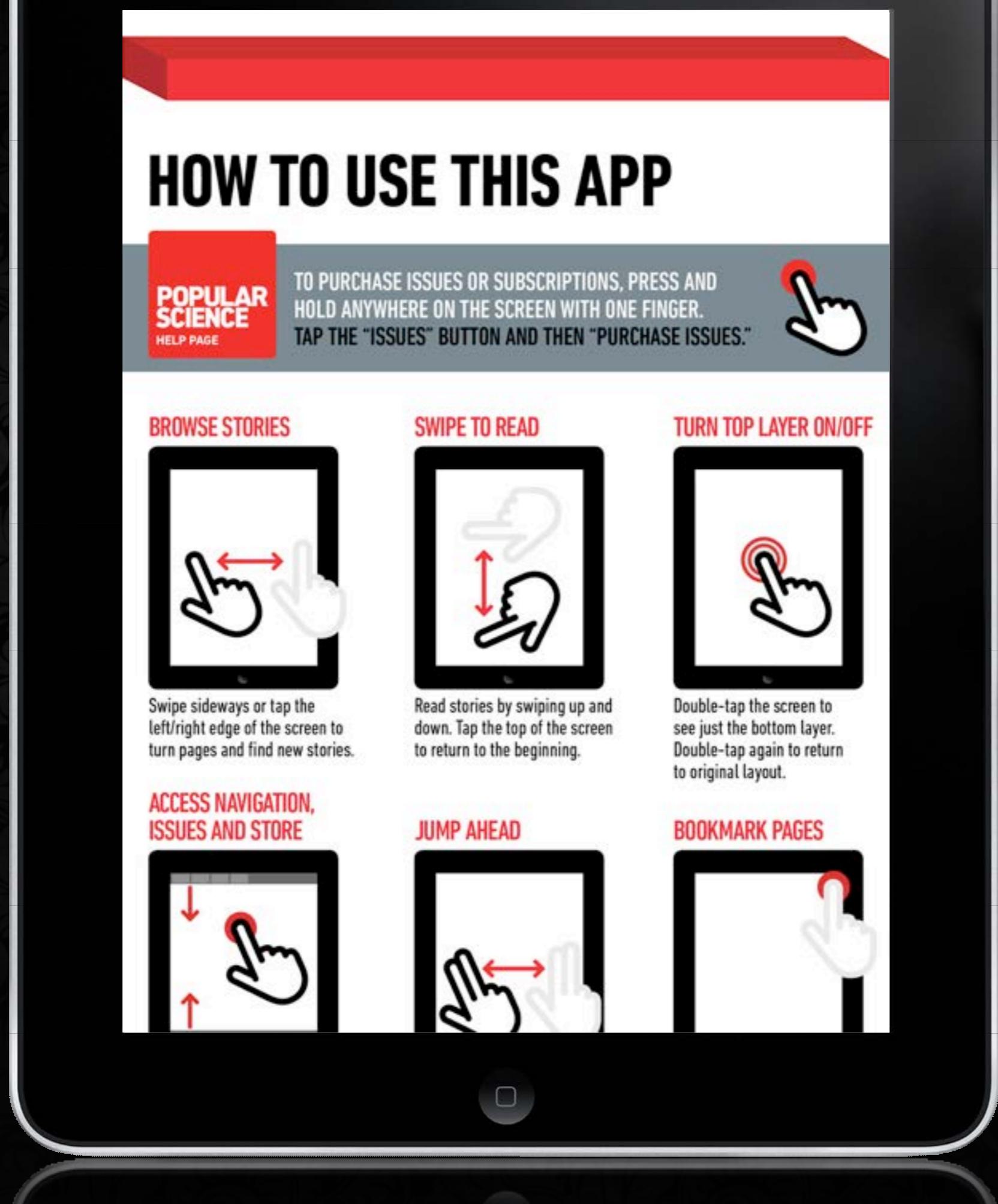
The *message* is the *medium*

The content is the control.
The information is the interface.

You can have lots of features and complex information
without having all the chrome.

But glass salt shakers and photo thumbnails are obvious visual cues.
Evident calls to action.

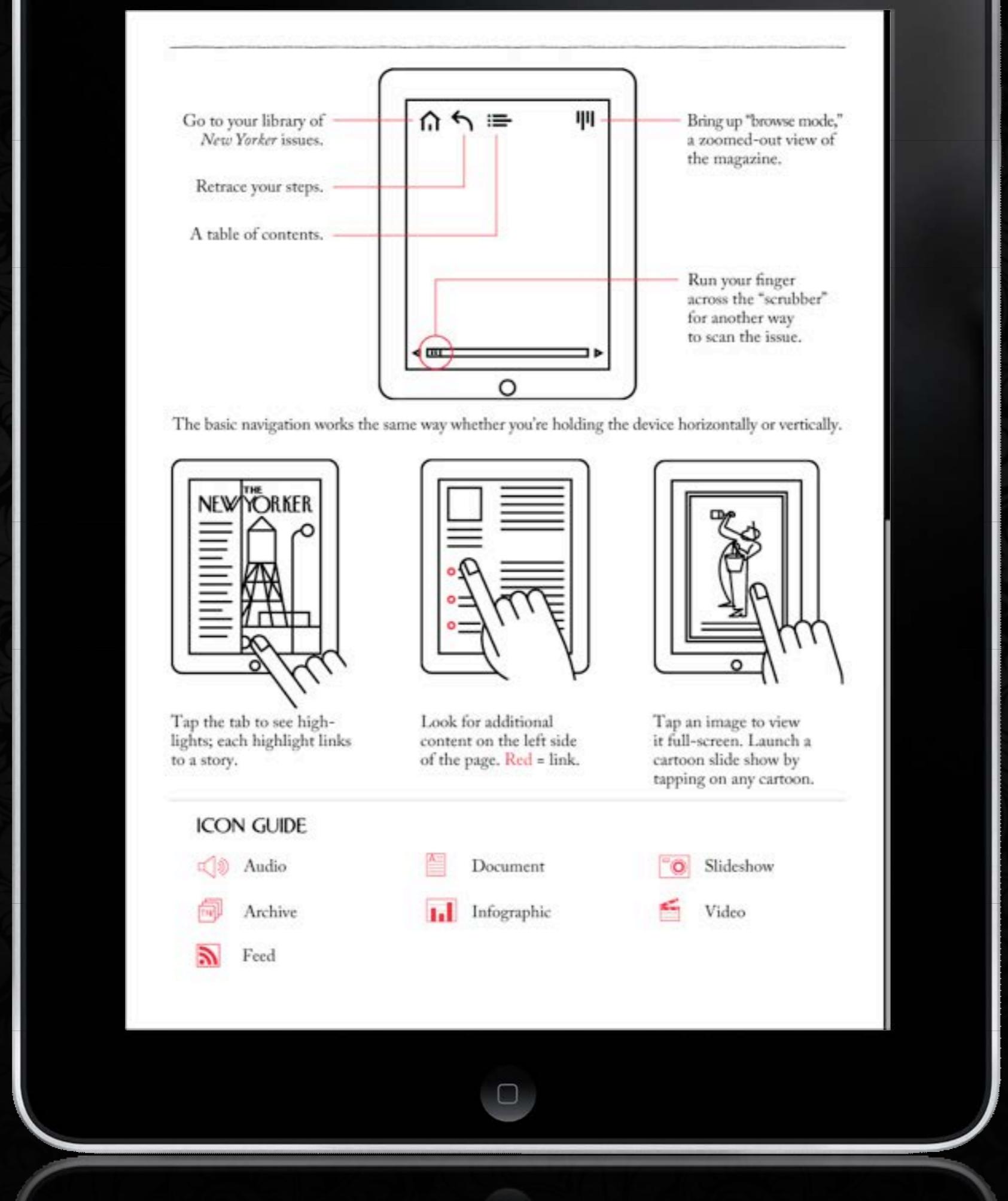
What about more abstract gestures,
pinch gestures we saw earlier or a 3-finger swipe?



This is where we often start.
Instructions.

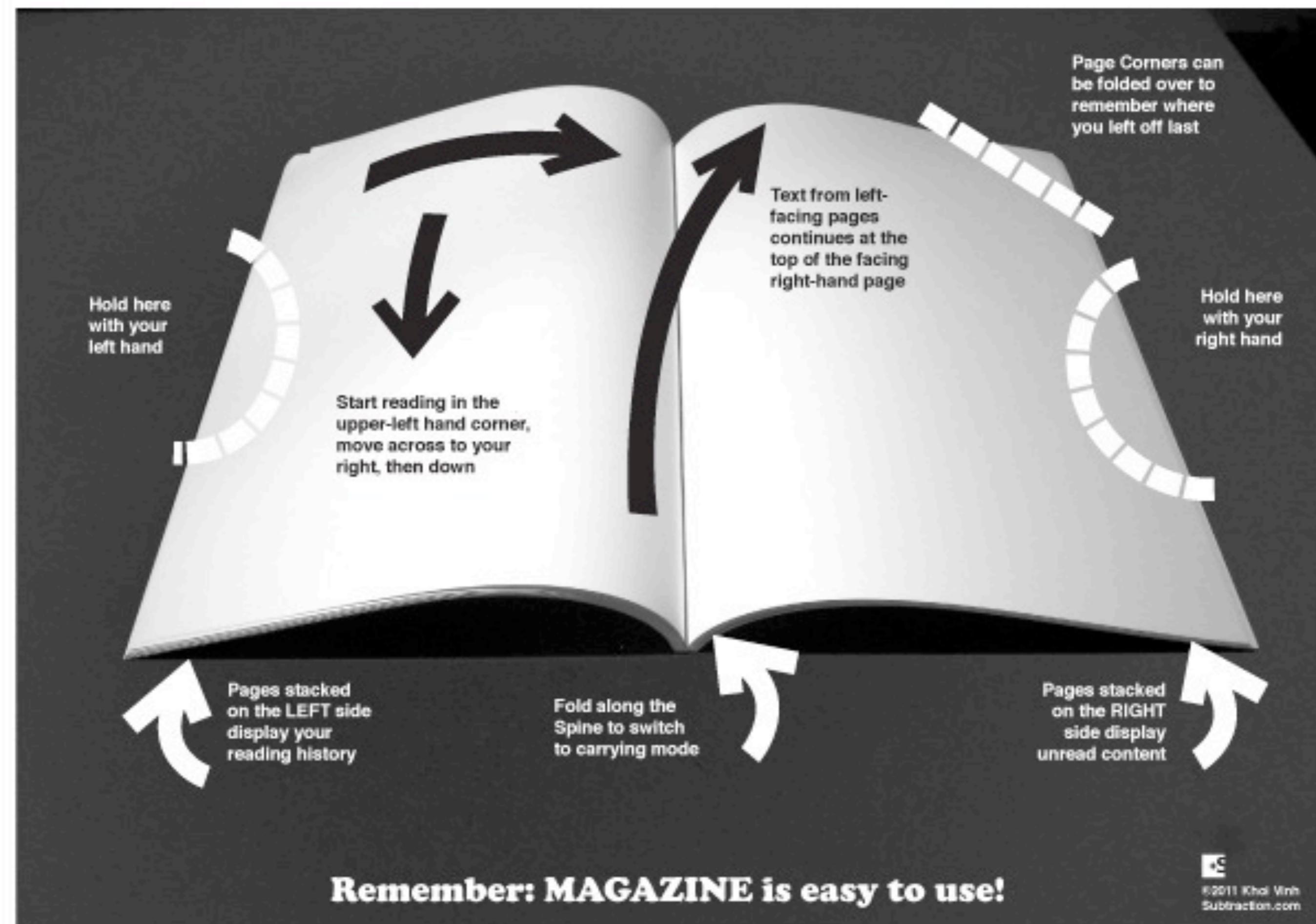
Make people read a manual before you get started.
This is where you start
when you use Popular Science app for the first time.

Slog through all the controls before you get to step one.



New Yorker does the same.
LOTS of apps do this,
asking you to read about how to work every bit of the app,
before you even understand what it can do for you.

This is not only premature,
but it also makes it feel more complicated than it needs to be.



Khoi Vinh, former design director for NY Times Digital, poked a little fun at this trend in iPad magazines. Here's his cheat sheet for using a magazine.

Pages stacked on the right side display unread content.
Pages stack on the LEFT display your reading history.

Pokes fun at just how overwrought this makes the experience.
Instead of making it easier,
up-front instruction manuals make it seem more complicated than it is.

<http://www.subtraction.com/2011/03/28/an-illustration-for-stack-america>



**When you're used to paper rolls it takes some time to convert
to turn the pages of a - beek.**

Norwegian TV had a comedy sketch many years ago
Medieval Help Desk.

Even if he COULD read the manual, he wouldn't read it.
Nobody reads the manual.

All of us have only incomplete knowledge of tools we use everyday.

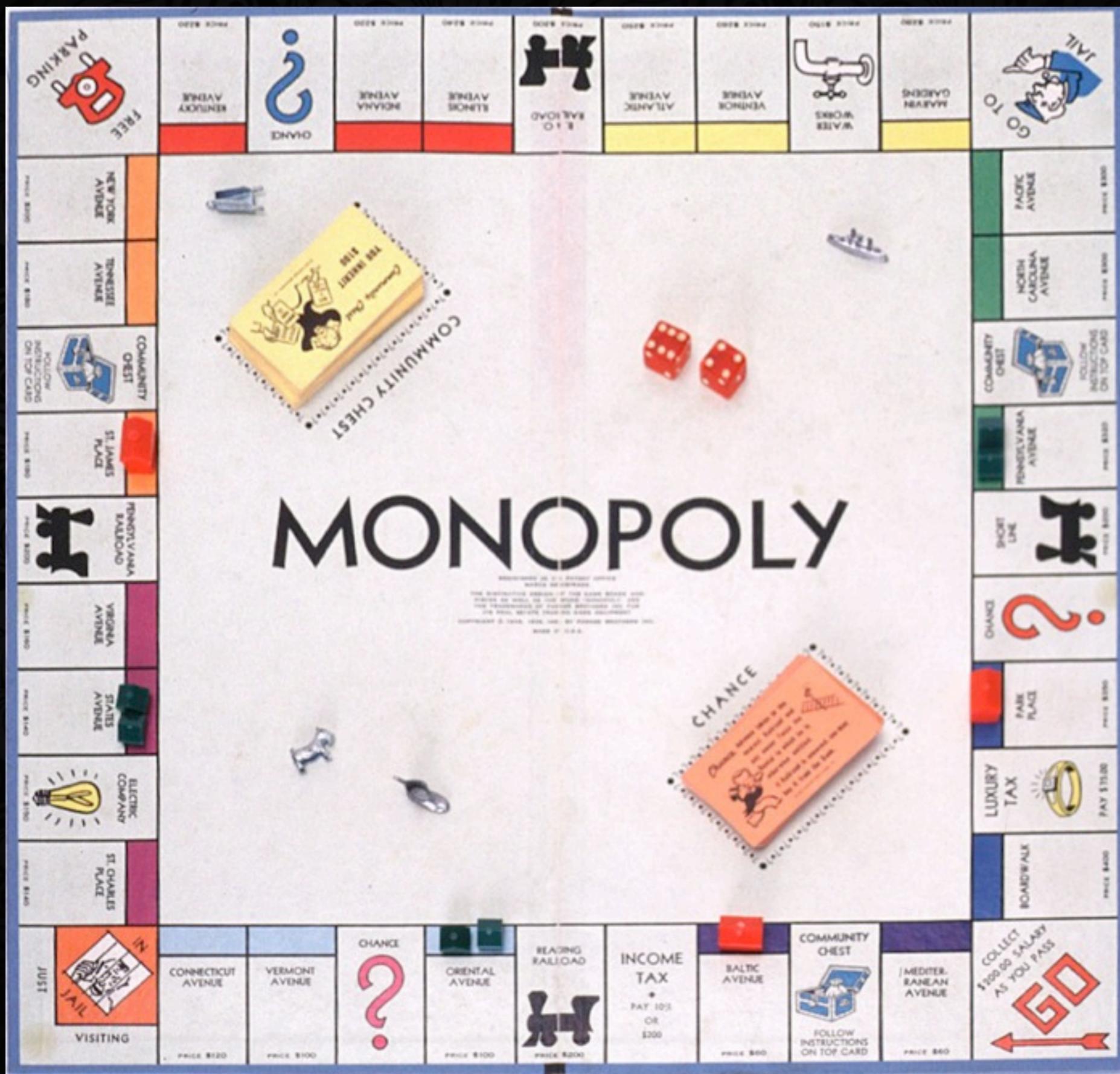
Why don't we read manuals? We're impatient.
We have a goal when we're using a product or software,
and instructions seem like a diversion from that goal,
even when they could actually get us there faster.

Doesn't mean you shouldn't have
complete reference for power users,
but you should treat it as just that: a reference, not a primary learning tool.

Because nobody will use your manual that way.

Since we can't get people to read, we often try show and tell instead.

Medieval Helpdesk: <http://j.mp/rdlctL>



So most people have only partial understanding of their tools.

It's also why most people think Monopoly is a long, tortuous game that never ends.

Because people don't play by the rules.
When people actually read the instructions and play by the letter, the game actually goes pretty quickly.

HOW TO PLAY MONOPOLY

1935 Rules

THE GAME consists of a board showing streets, railroads, utilities, Chance and Community Chest, and Penalty spaces. Two Dice. Thirty-two wooden houses. Twelve hotels. Title Cards for every property, and sufficient scrip for six players.

IN MONOPOLY each player tries to invest 1500 scrip dollars to such good advantage that all other players are forced out of the game. A player who has lost his money is bankrupt and leaves the game.

SET UP YOUR MONOPOLY board on any convenient table, place COMMUNITY CHEST and CHANCE cards face down on their allotted places inside the squares; see that each player is provided with some TOKEN (Key, Ring, etc.) to represent him in his travels around the board, and give each participant 1500 scrip dollars in the following distribution: one 500, five 100s, five 50s, five 20s, ten 10s, eight 5s and ten 1s. If more than six desire to play, give each player 1000 scrip and a bank credit of 500 scrip. Any number of people can play. Four to nine seem to be the best number.

THE MONOPOLY BANK is a community affair; any one player can act as BANKER, keeping his personal funds separate, collecting fines, paying premiums, auctioning properties, allowing mortgages and selling houses, etc., for the BANK. We suggest a player be selected as BANKER who has a good sense of humor and who is a good auctioneer.

STARTING WITH THE BANKER each player in turn throws the dice. The player with the largest total has the honor of starting play.

THE STARTING PLAYER places his TOKEN on the corner marker "GO" throws the dice and moves the TOKEN in the direction of the ARROW the number of spaces equal to the total of the numbers exposed on the dice. After he has completed his play, the player to his left takes the dice and plays in a like manner. The TOKENS remain on the spaces occupied and proceed from that point when the dice come around to the player again. As each player passes "GO" he receives 200 scrip from the BANK as salary. Throwing doubles, retain dice and throw again.

LANDING ON JAIL is not a penalty unless the player has been sent there from the corner marked "GO TO JAIL," receives a card saying "GO TO JAIL" or throws doubles three times in a succession. Once in jail, a player is compelled to come out free if he throws doubles, otherwise he has the option of staying in his cell until his third turn with the dice, or purchasing a "GET OUT OF JAIL FREE" card from another player (unless he has already drawn such a card from CHANCE or COMMUNITY CHEST) or paying a \$50.00 fine to get out. He must come out with his third turn of the dice after his sentence and pay fine of \$50.00.

LANDING ON CHANCE OR COMMUNITY CHEST the player takes the top card from the deck indicated and after following the instructions printed thereon, returns the card face down at the bottom of its deck. The only exception is in the case of "GET OUT OF JAIL FREE" cards which are retained until used. These may be sold to other players. All bonuses are paid by the BANK and all penalties paid to the bank.

LANDING ON TAX SPACES, pay the BANK. INCOME TAX is 10 per cent of your total worth. It is figured on CASH ON HAND, MORTGAGE VALUE of properties, mortgaged or not and Cost Price of any buildings you may have. (The player may estimate his tax at \$300.00 if he so chooses.)

LANDING ON UNOWNED PROPERTY gives the player the OPTION to buy that property from the BANK at twice its MORTGAGE VALUE. If the player declines this option, the BANKER will offer the property for sale at PUBLIC AUCTION and sell it to the highest bidder, accepting scrip in payment and giving the buyer a TITLE

But god, this doesn't exactly promise an evening of fun.

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<http://bit.ly/our-choice>

Maybe using this guy.
He wrote a book called Our Choice, and it's been adapted into an ebook with a really smart, button-free interface. The interface largely self-explanatory, but Al took no chances and launches his app with this video.

[watch]

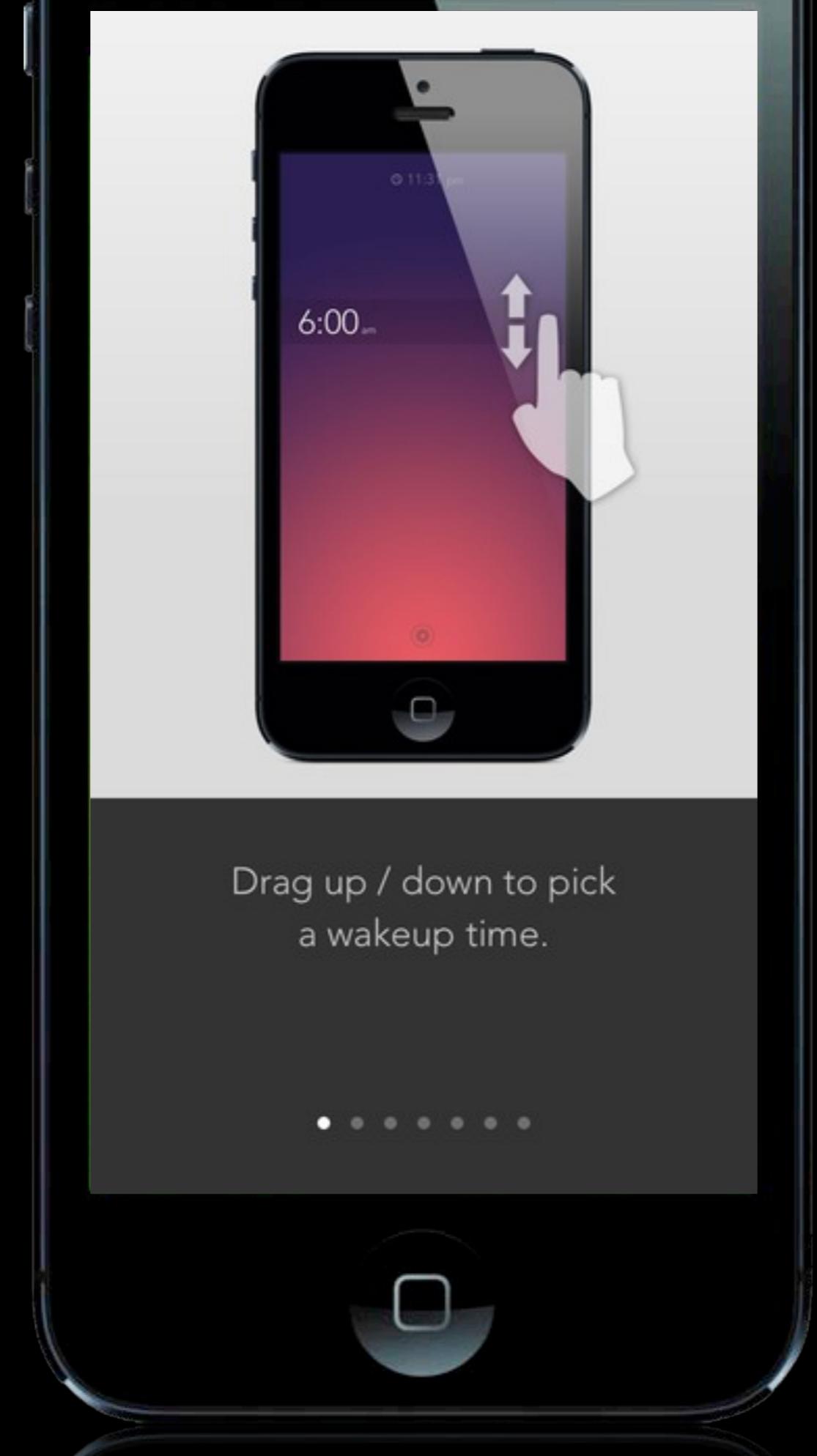
Well me, too, Al, because jesus, you really sucked the joy out of my first two minutes of this app experience.

Everybody does screencasts.
But friends, nobody watches them except us geeks.

Still, you can see from watching this one,
no buttons, no chrome, great interactions.

Complex actions will always require some instruction.
And as I've said we have to give visual hints
to let people know how to work your app.

But instruction can come in many forms,
not just a manual or a lecture,
though we usually fall back on those solutions.



Rise app describes gestures for setting alarms in the app.

This is the classic tutorial device.
And it's logical: show don't tell.
Better than a manual, at least it's in context.
Sort of.



Tap above / below time
to fine-tune it.



Pull left / right for easy alarm on.

• • • • •

Show. Don't tell.

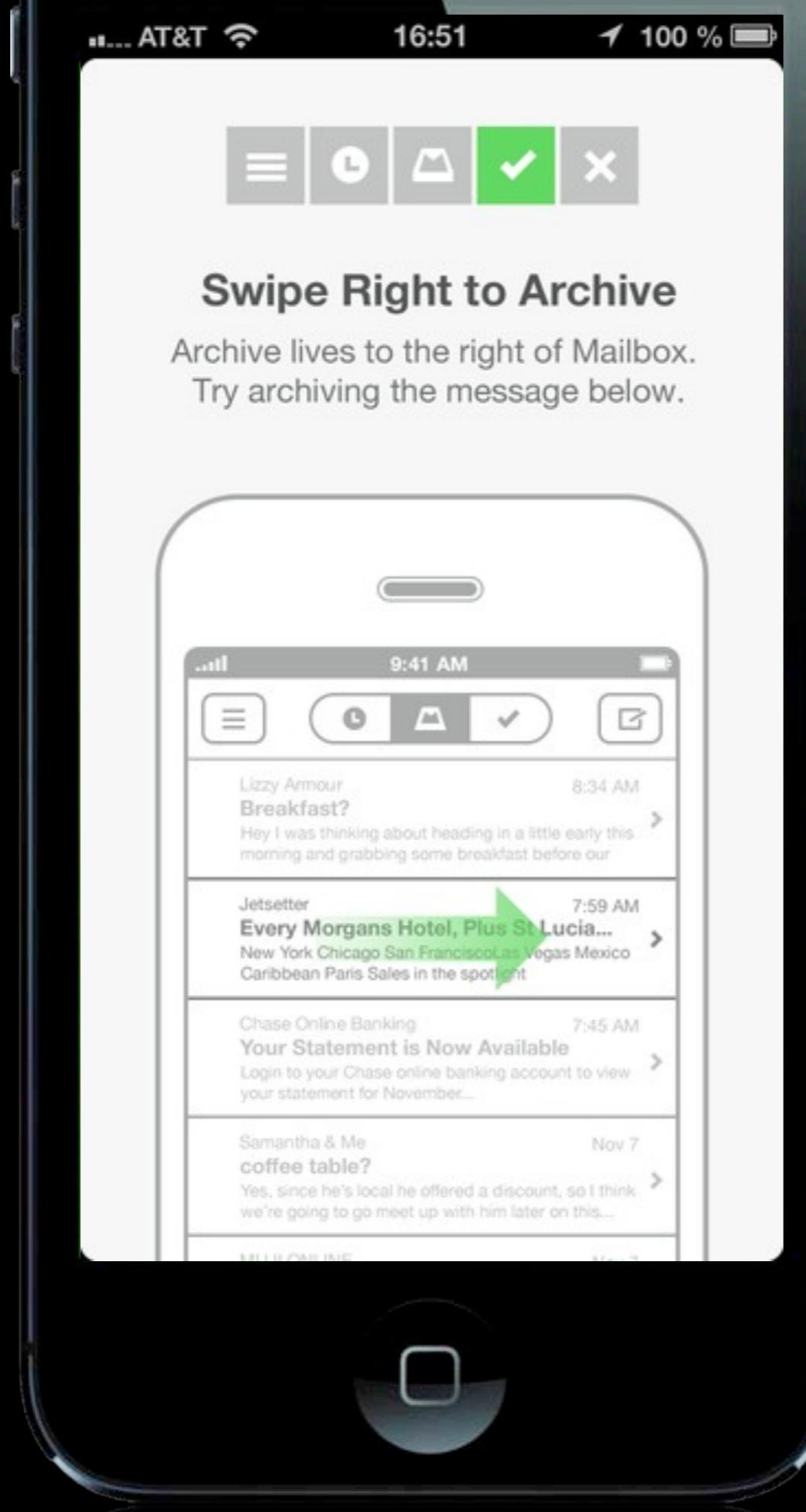
That's classic of good storytelling. But we're doing something more than telling a story, doing something more than DESCRIBING.

We want people to actually do this stuff.

Do. Don't Read.

This is their wont anyway. They dont' want to read or watch movies.
They want to do.

And it turns out we learn best by doing anyway.
So let's take advantage of that.



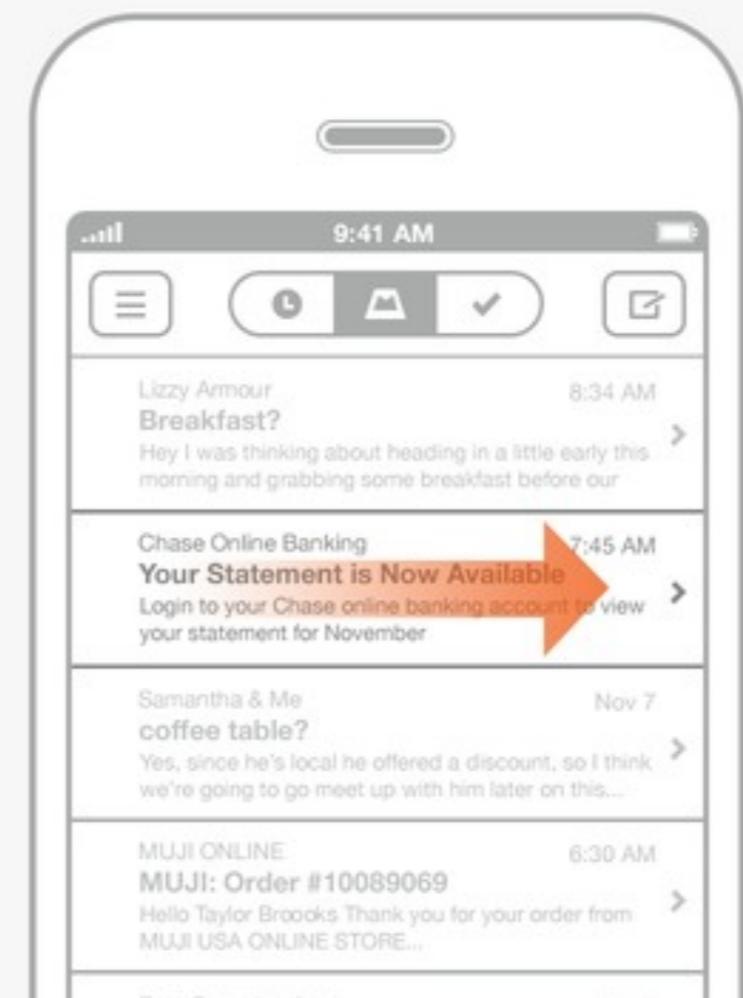
Mailbox app. Committing actions to muscle memory requires repetition of those tasks. The closer you can get people to the context of those tasks the better. In that way, the Mailbox app has a superior tutorial approach relative to Rise. In Mailbox, you actually interact with the tutorial to repeat the gestures it describes





Long Swipe Right to Trash

Now try swiping a message further to skip Archive and put it in Trash.





So there are some ways that instructions up front CAN be useful.
The closer to context the better.

It gets even better than that, though,
and we'll return to the best way to do tutorials in a moment.

Nature doesn't have instructions

The best interfaces, of course, require no instruction.
Nature itself doesn't have labels,
neither do most obvious and useful designs.

That's not to say that nature is easy.
Really difficult interface.
Look at toddlers, see how hard it is.
We've invested a lot of time in learning this interface.

So lean on that acquired knowledge in ways that don't require instruction.
If done right, realistic 3D interfaces invite touch.
Not just "ooh, I want to touch that,"
but hints about how thing works.

Texture & physicality give clues about what to touch.
Apple emphasizes in its interface guidelines: Make it realistic.

Have to do more than throw some photoshop textures at it.
Apple's own apps show the hazards.



Calendar:
ooh, a lovely datebook.

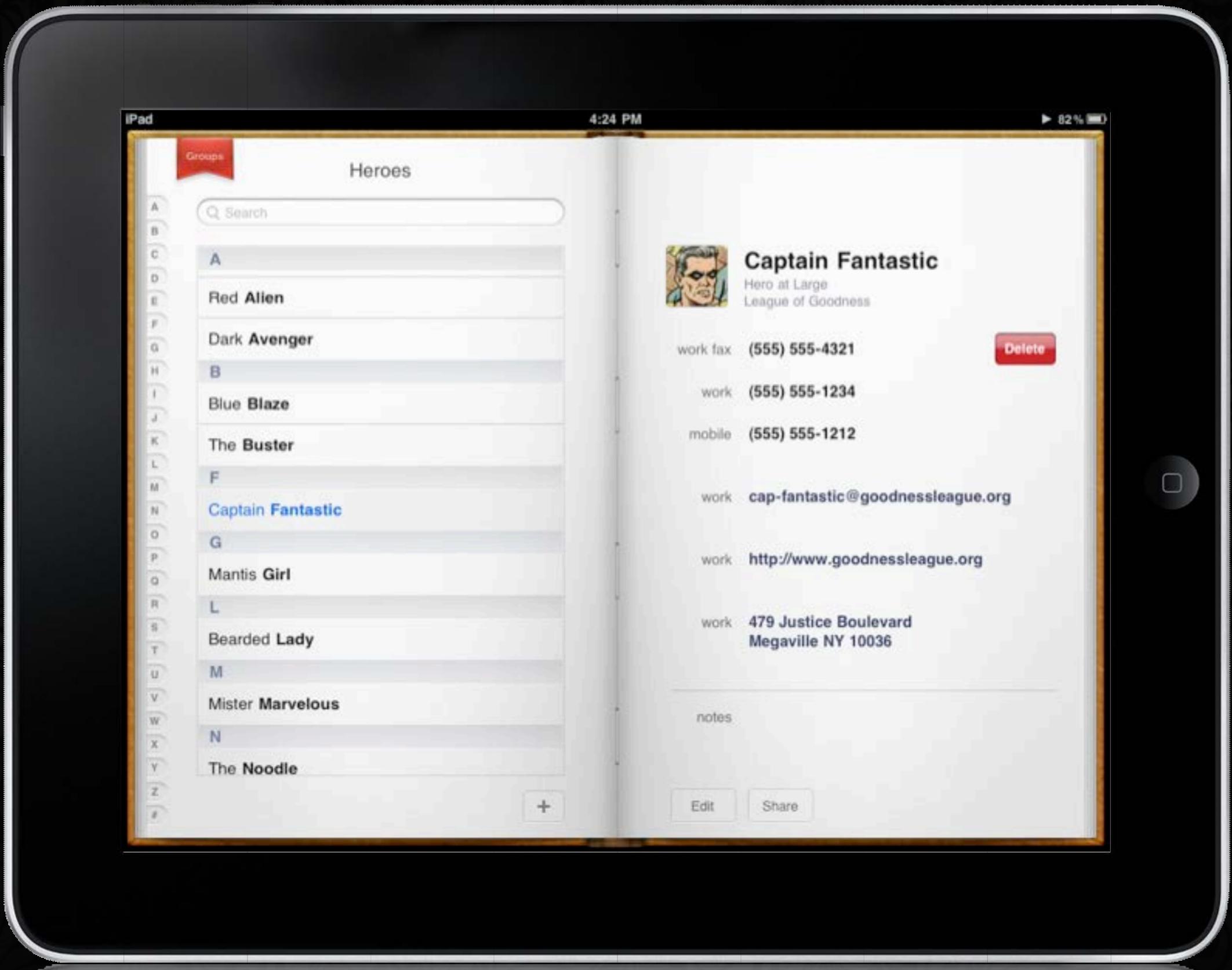
Very pretty, and of course...
you naturally know how to use it.
Just swipe to turn the page.

[next]

To turn the page, you have to use
one of these tiny buttons at bottom.

[next]

You have to embrace your interface metaphor.
If you're going to make it look like a book,
make it act like one.



Contacts: Tapping doesn't turn page
Swipe deletes

Your interface metaphor suggests how to use the app.
Here, the book metaphor is a confusing misdirection.
Creates expectation that works like a book,
but really through desktop-style buttons.

Love the one you're with

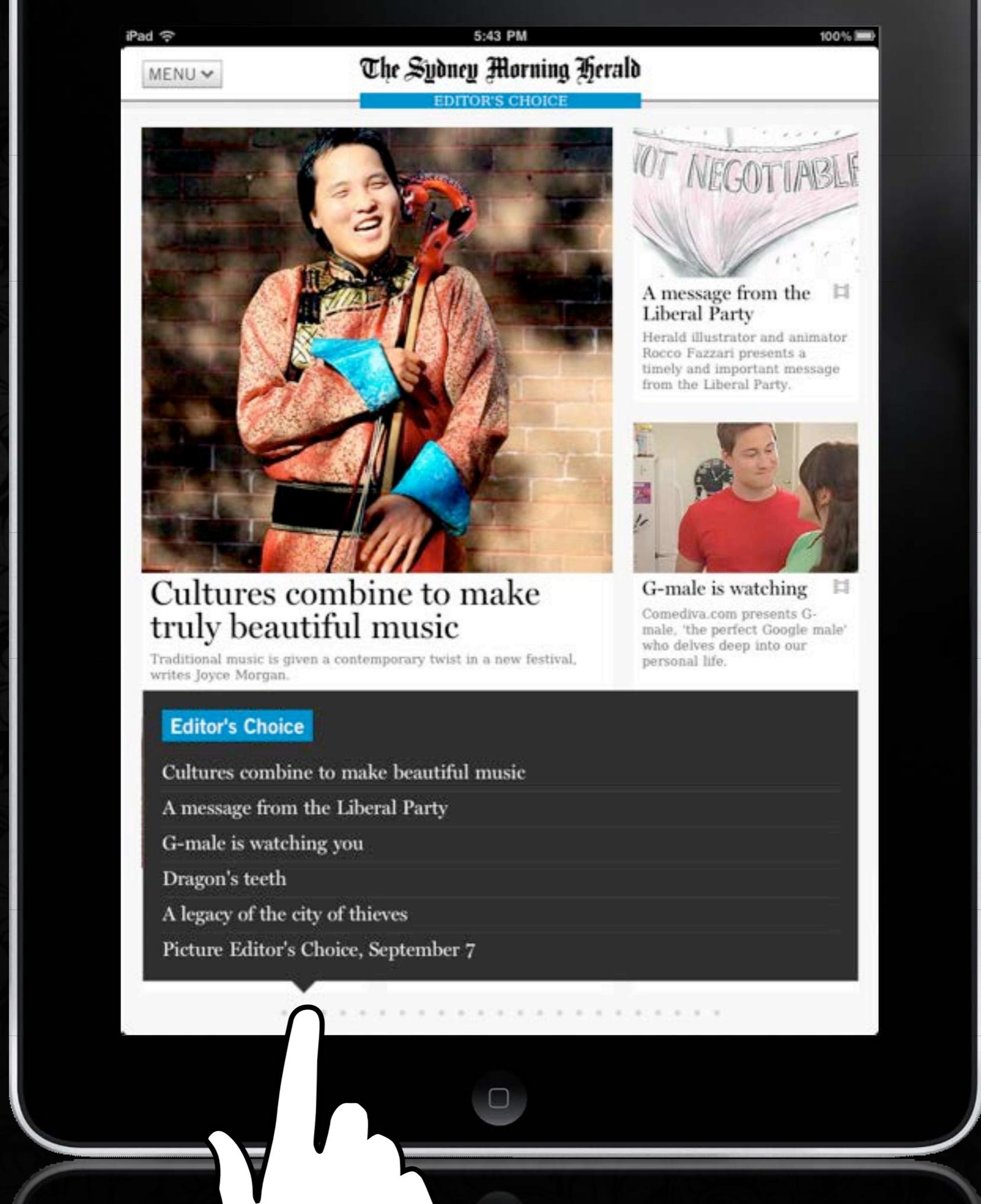
If you go this route of aping a physical object:
EMBRACE THE METAPHOR
Think hard about new interaction opportunities it proposes.

In user testing I see this all the time:
If it looks like a physical object,
people will try to interact with it like one.

Have to follow through.
Don't make me tap buttons if interface suggests otherwise.

Meanwhile, many magazine apps are TOO literal.
Very true to original print artifact.
Little more than PDFs. Clear exactly how to use
But difficult to find table of contents: no random access

As you embrace these realistic interfaces,
don't forget to enable what digital media can do best.
Unshackling us from linear reading experiences.



Here's an example of tweaking the real world to digital advantage. Met these guys last week in Aus. Sydney Morning Herald.

It looks like a newspaper, and you swipe through pages. Page indicator to show how. But even better, can quickly scan each and every article in today's edition.

Calendar and contacts: designers following their metaphor half-heartedly in interaction
Mags: too literally and they miss interaction opportunities

This is understandable: Tablets in particular a weird hybrid.

Not a web, phone, desktop, paper/physical interface. Yet suggests elements of all.

Great opportunities, lots of tradition to draw from. But have to be careful about mixed metaphors and misdirection.



Model your apps to help people learn
same way they learn in the real world:
Right from our earliest days,
we rely on physical hints about how something works
and then verify it through the feedback the thing gives us.

Watch how toddlers use iPad.
Amazing how quickly they get it: direct manipulation of content.
Tap content directly, drag content across screen, nudge views away.
They won't get your multi-level menu navigation,
but they'll get any physical metaphor.

Follow the toddlers. They're better at this than you are.
Toddlers haven't been poisoned by 30 years of desktop interfaces like we have.
Find a three-year old and make her your beta tester.
Think: would my toddler figure out this interaction?

Play more video games

This is your homework assignment.
Go to work next week, settle into your desk, and fire up some games.
Tell your boss you're doing research, because you are.

Video games are great at teaching unfamiliar controls, unfamiliar skills.

In many games, you start without knowing anything:
you don't even know your goal, let alone what you can do,
what abilities you might have, how to control them?

Sound familiar? That's the same problem we have with teaching touch.
So how do they do it?

[twitter]Want to be a better interaction designer? Play more video games.[/twitter]

1

Coaching

2

Leveling up

3

Power ups

Among other things,
video games use these 3 tools to teach us
with visuals and experiences.

Every modern theory of learning emphasizes
importance of active participation,
of active discovery,
supplemented by coaching and mentoring.

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Coaching involves simple demonstrations,
prompts to tell you what to do.

This is the game riding along with you,
pointing things out as you go.
We learn by doing. We learn best in the moment.
Telling people HOW not nearly as effective as coaching them thru.

Teaching HOW to do things is hard.
Consider teaching music, consider teaching a tennis serve.
Best taught by demonstration and learned by practice...



So help me in the moment. Show me. That's what games do.

The arrows overlaid on the hero in the first screen of iPad game Dead Space show you how to move.

Simple temporary overlays that tell you what to do in the moment can be super helpful.

The walkthrough

Games are great at walkthroughs.

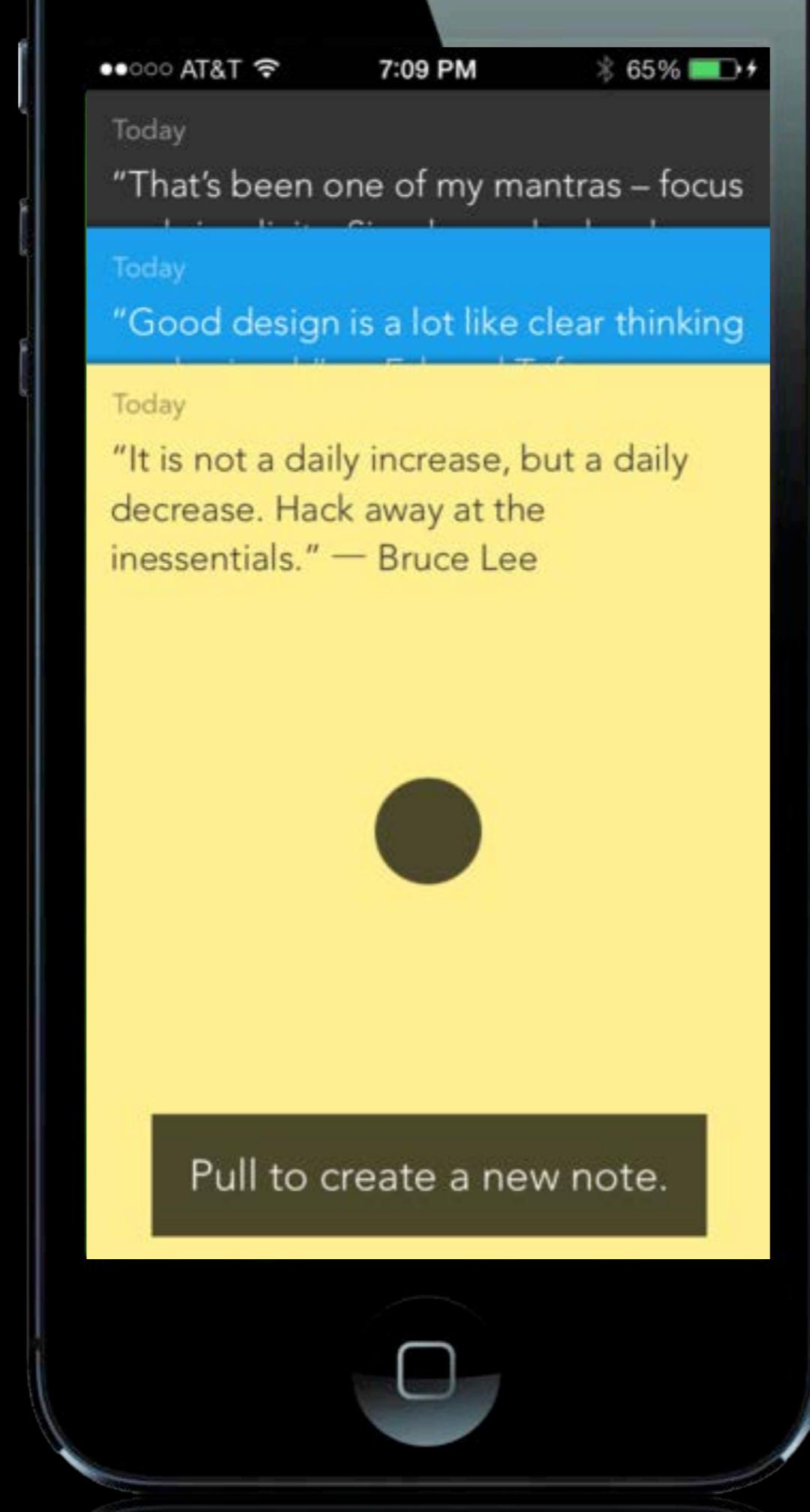
They're an improvement on the straight tutorial we saw with Mailbox and similar.

Tutorials are effective at teaching controls,
but they also feel like stilted lessons,
a series of hoops to hop through before you can use it for real.

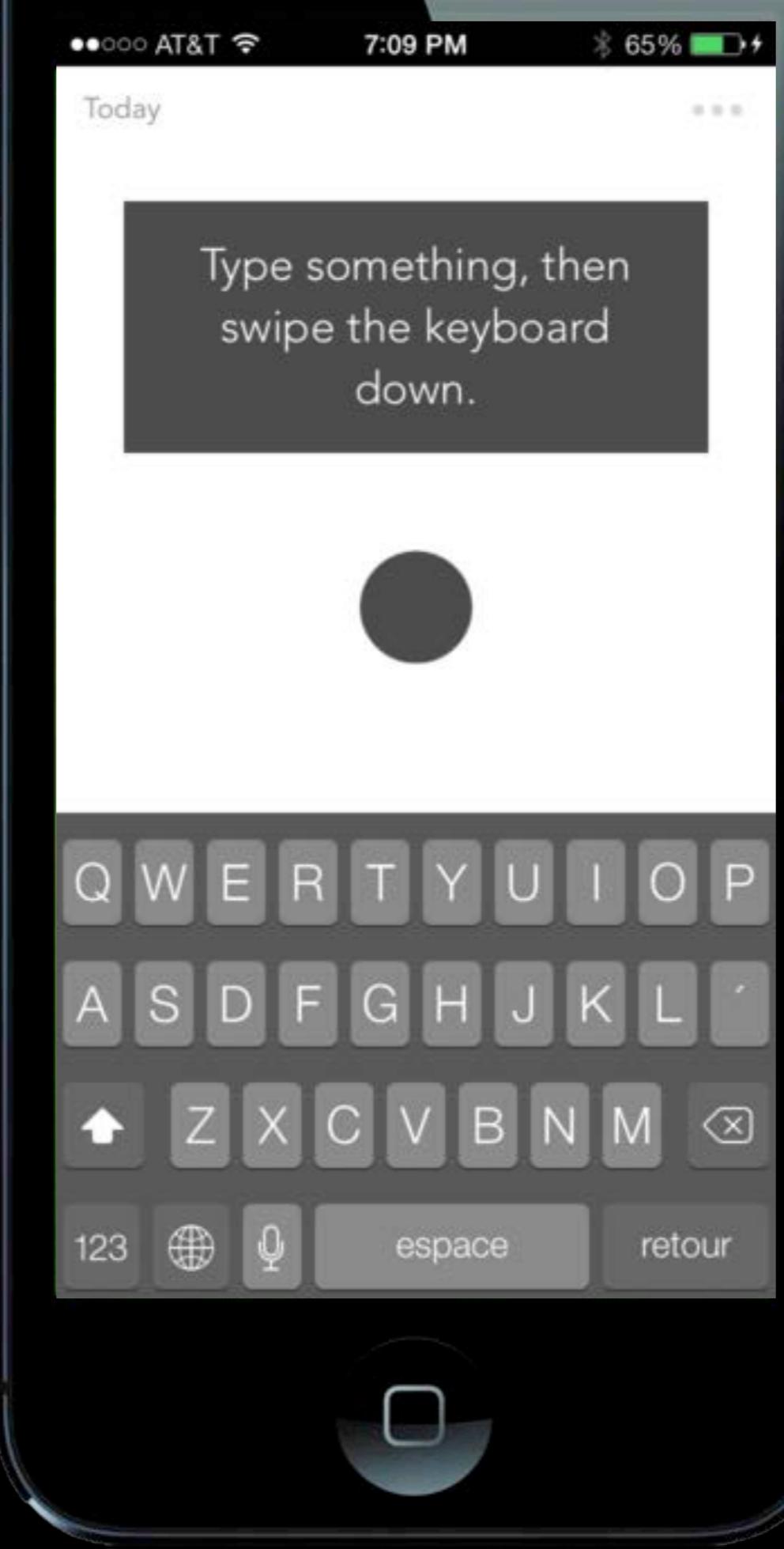
By contrast, the walkthrough teaches by taking you through the actual app,
with actual content.

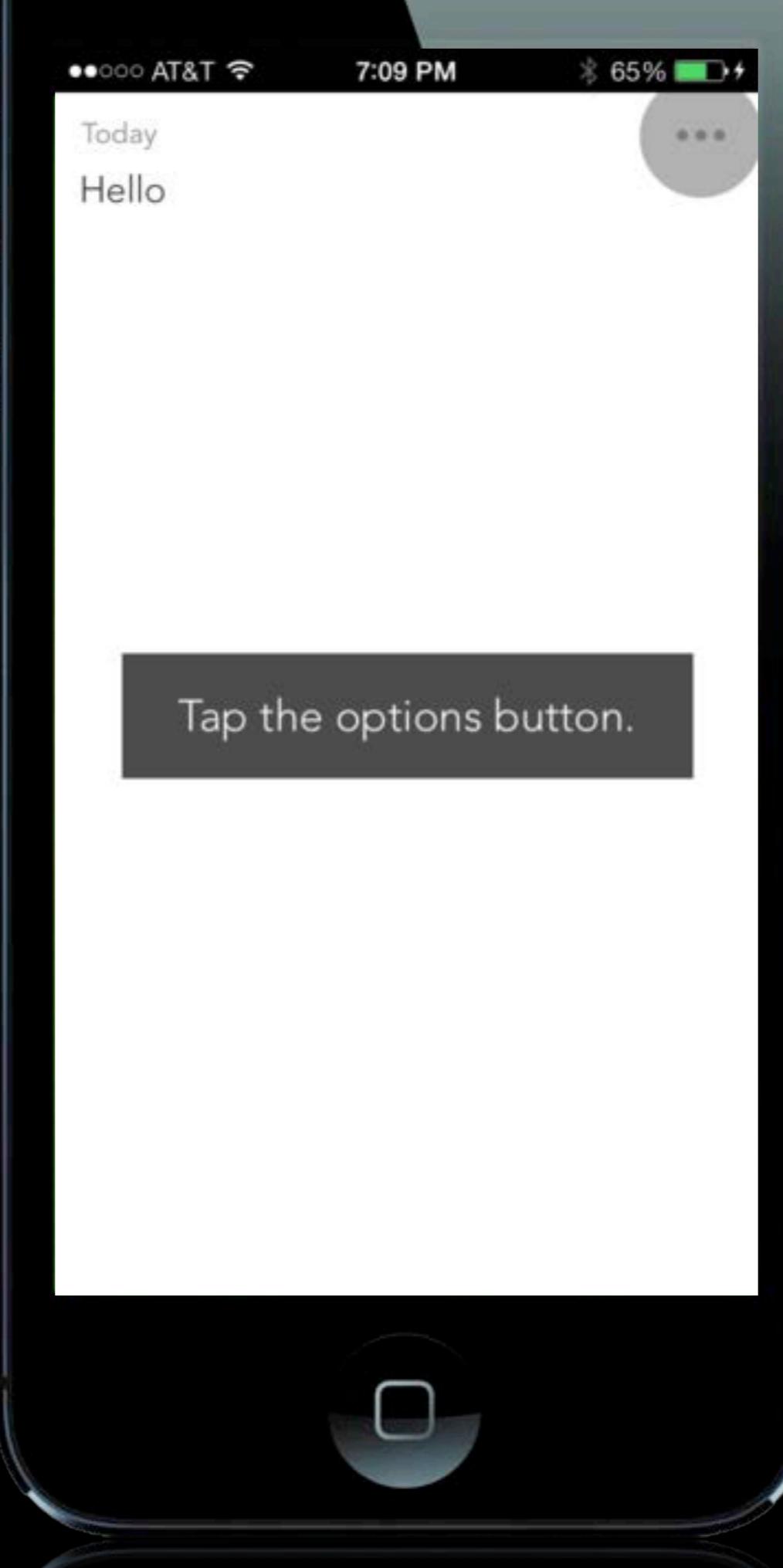
In most cases, walkthroughs restrict you to a rigid path of narrowly
defined features.

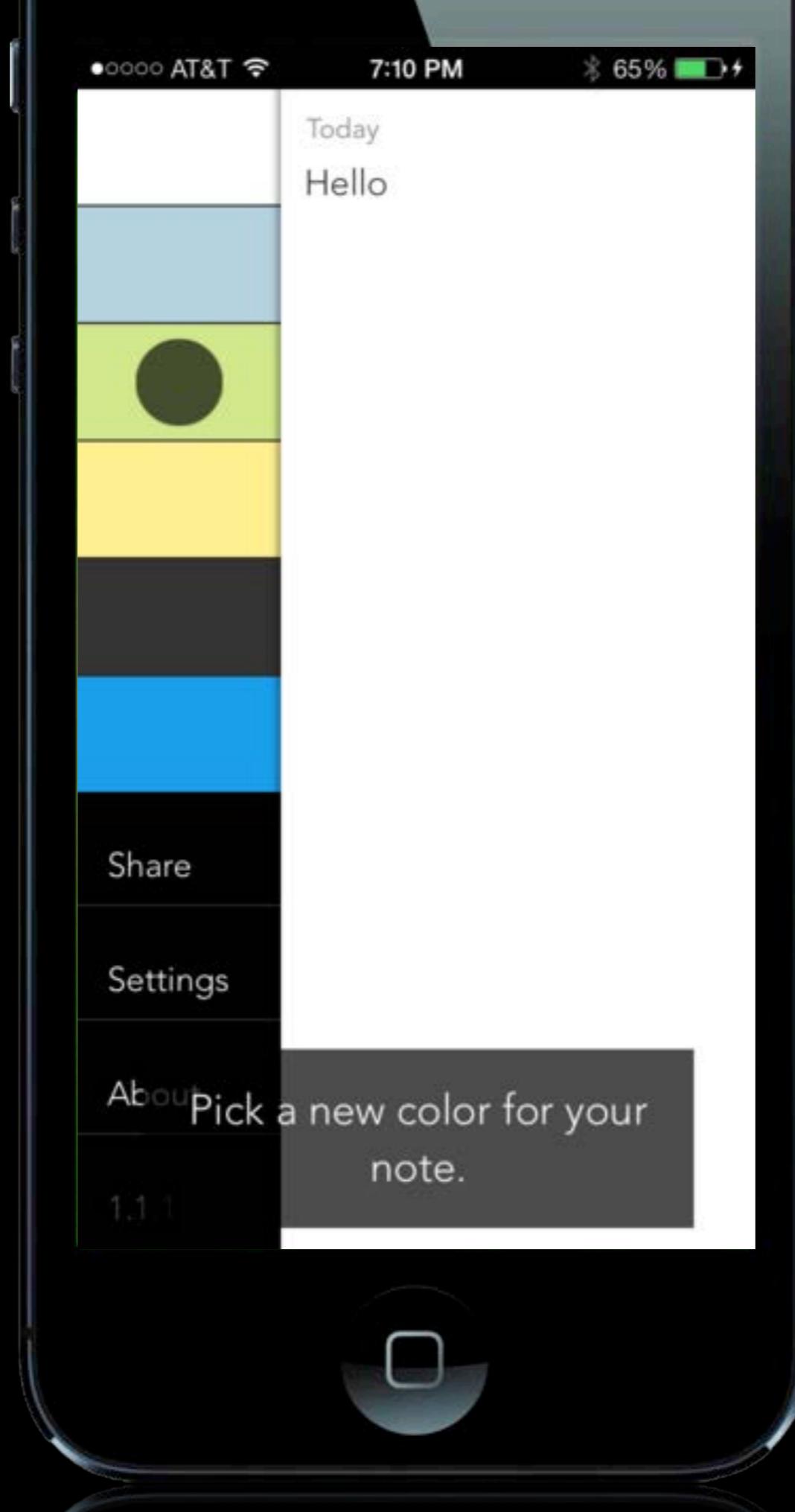
It's like training wheels: you're moving and going on your own,
but with a few constraints to keep you from falling.



App: Noted.

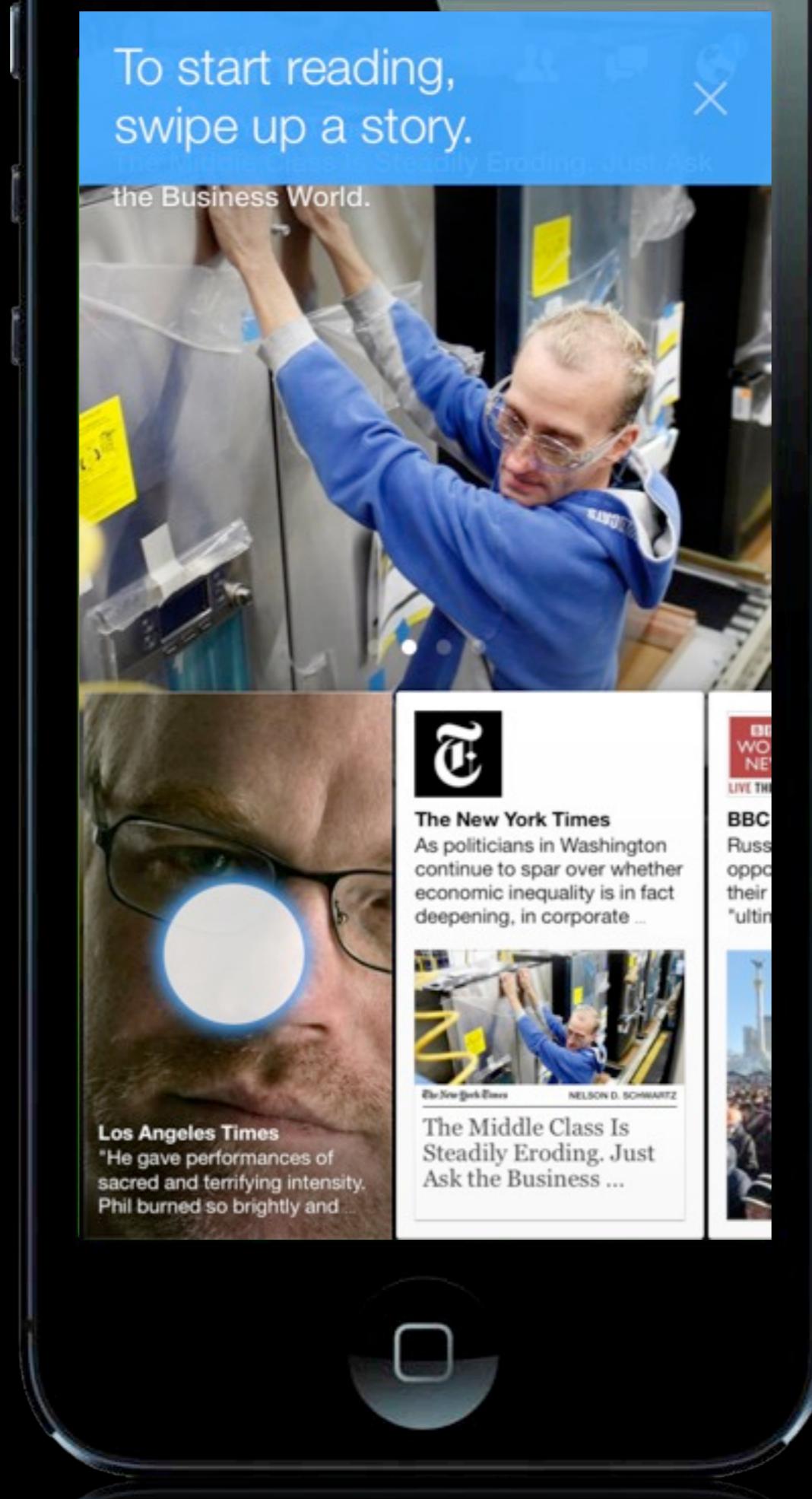






So you're actually USING the app while it walks you through. Now this is also a set of steps you have to follow. Can't really do anything on your own.

So another approach leans on sending you notes as you encounter them.



Facebook Paper. Your actual content, you can use it as you like. But when you hit the context, it tells you what to do.

To explore the photo,
gently tilt your phone.



To move to the next story, swipe left.



Los Angeles Times

"He gave performances of sacred and terrifying intensity. Phil burned so brightly and with such unrelent... Continue Reading

11 HRS · PUBLIC



2K Likes 188 Comments

Write a comment



To read this article,
swipe up and unfold it. X

The New York Times

As politicians in Washington continue to spar over whether economic inequality is in fact deepening, in corporate America there really is no debate at all.

2 HRS · PUBLIC



The New York Times

BY NELSON D. SCHWARTZ

The Middle Class Is Steadily Eroding. Just Ask the Business World.

The post-recession reality is that the customer base for businesses that appeal to the middle class is shrinkin...



852 Likes 91 Comments

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- Home
- Starred 
- All items
- Trash
- Owned by me
- My collections
 - No collections
- Collections shared with me

New! You can now upload folders

Upload entire folders from your computer to the cloud. You can also drag files from your desktop into the Documents List (Chrome or Firefox only).

[Close](#)[Remind me later](#)[Learn more](#)

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No item selected

-   G51 outline Shared
-   1-Discovery-Kickoff-Recap Shared
-   Asthmapolis Requirements Matrix Shared
- MODIFIED EARLIER THIS YEAR**
-   Tapworthy iPhone Design and User Experience Survey Shared
-   contacts Shared
- OLDER**
-   GDD 2010: Excellence in the Android User Experience Shared
-   360iDev - Think First, Code Later Shared
- MODIFIED LONG AGO**
-   BIA Event Shared
-   Video "bits" Shared BIA Event
-   Award categories Shared BIA Event
-   Paris Air Show.csv
-   This is my presentation
-   Letter
-   Paris Air Show.csv

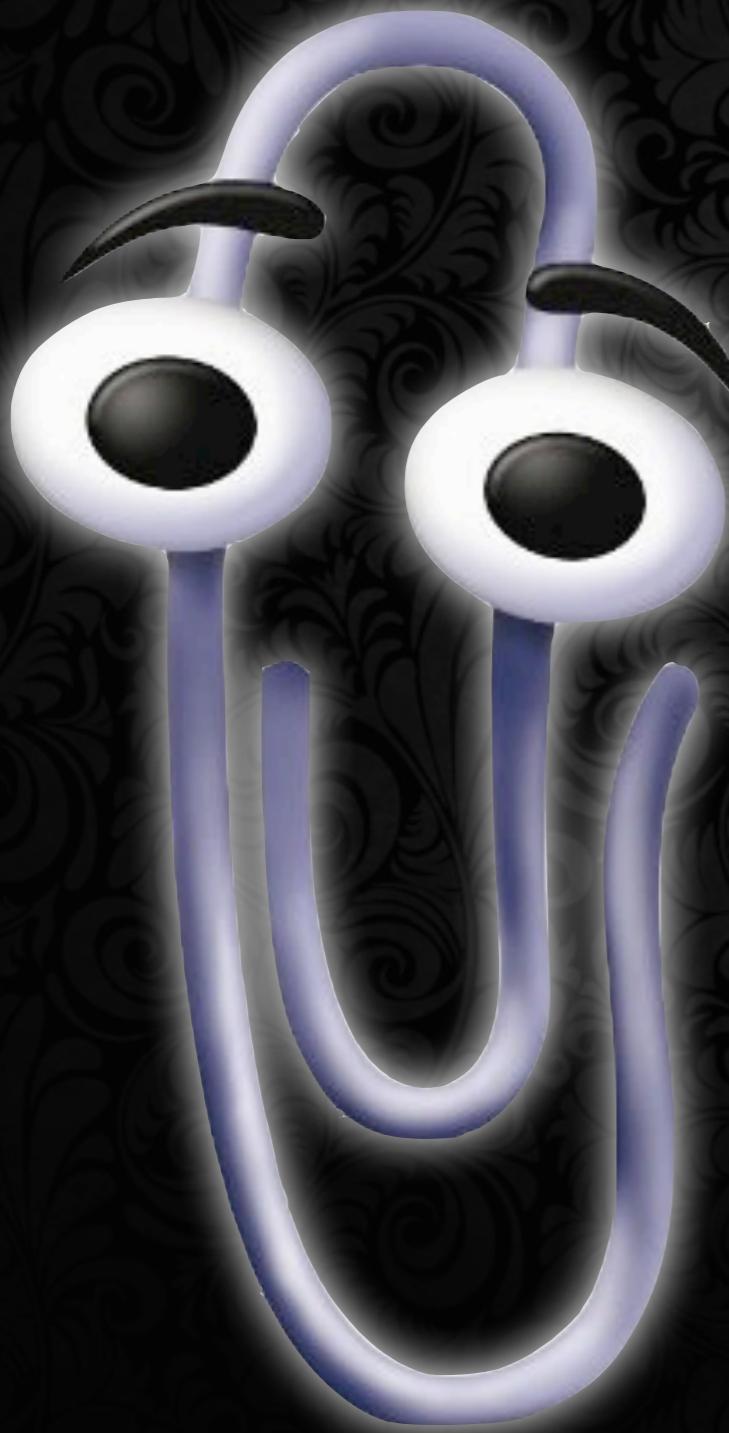
Same principle for these little tutorial boxes in many websites.

Gmail uses them in getting-started tours of an app,
as well as to call out a new feature.
Facebook does something similar.

Your app can, too.

Some of you might be squirming a little bit,
because this might seem a little bit like a certain interface flop.

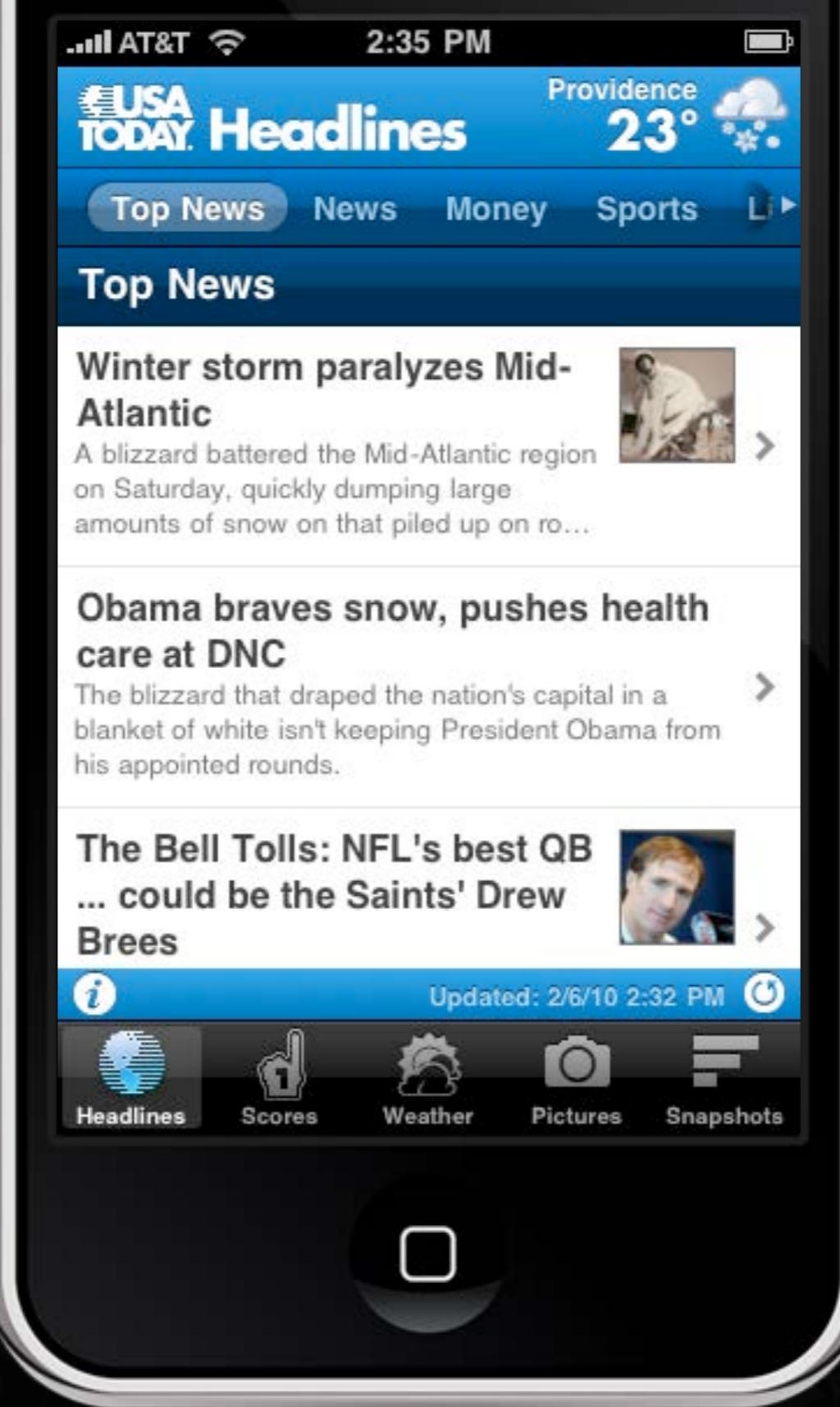
Take our
survey!



Are you trying to
write a letter?

A flop named Clippy.

Clippy was never helpful.
He was only a distraction,
popping up at the most inconvenient moments.



But you can be more subtle, too, and animation can be useful coaching.

USA Today animation.

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An important component of coaching:
you don't teach everything all at once.

We learn best by getting it in doses.
Build on the basics and then reveal more as you go.
Teaching a kid football, you don't hand him the 200-page rulebook.
You start with the basics and gradually build,
teaching skills only as they're needed.

Ease players into the app.
Introduce one element at a time.
Encourage people to master the controls and features a little at a time.

Best time to learn a skill is right at the moment when you discover it's needed.
That's when we're most motivated, most engaged.



Like, for example, when you encounter a gigantic and hugely scary guy with a big-ass sword.

This is Inifinity Blade for iPad.
Crazy sophisticated combat system,
but easy to learn by teaching you one step at a time,
introducing challenges that are specifically designed to test those skills.

The game pauses itself right here, freezes it,
when you're about to get your ass kicked,
to tell you, hey, hold this shield to block.

When you do, the action starts up again,
and whatty know, you've blocked.
Your first try is a guaranteed success.
Now you're ready to try it yourself.

In games, levels that introduce a new feature
should focus on teaching that feature.
Likewise, when people first encounter a feature is when you should offer coaching.



In some very important cases,
should interrupt people to force them
to demonstrate they've learned before continuing.
That's whole principle of a fire drill. Show me you know how.

That's what Infinity Blade does over and over again,
pausing the action at incredibly convenient times
to teach you how to use a move to beat your opponent.

It waits until you demonstrate you understand.
Again, first time is always a success.



OS X Lion does this when it first installs,
explaining you must swipe up to scroll down,
instead of the old way. It MAKES you do it.
Actually scroll before you can see the continue button.

Boom, you've completed the first level of the OS X Lion game.

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Coaching

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Whole concept of levels is about evolving from beginner to expert, and expertise is where the fancy moves come in... the power ups.



In video games, power ups like the super mushrooms
in super mario brothers give you some kind of superpower.
They turbo-boost your game, giving you shortcuts or some other advantage.

Power ups are the keyboard shortcuts of video games,
usable by anyone but especially efficient in the hands of an expert.

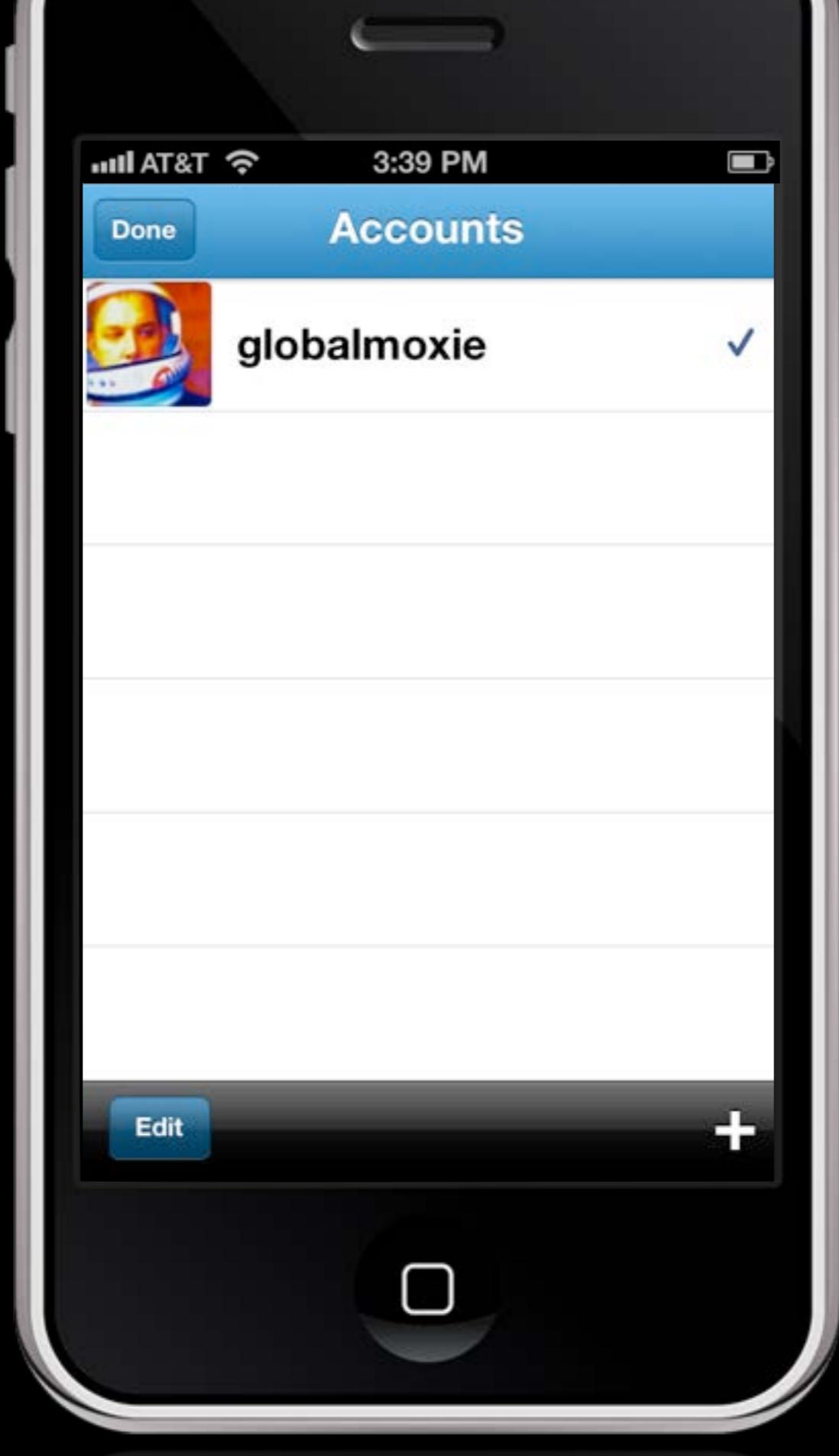
But it's also a reward. It's an achievement.
There's a thrill to that. A thrill to discovering new features.
This is true of the tools we use every day.

And that's what gestures are, too.



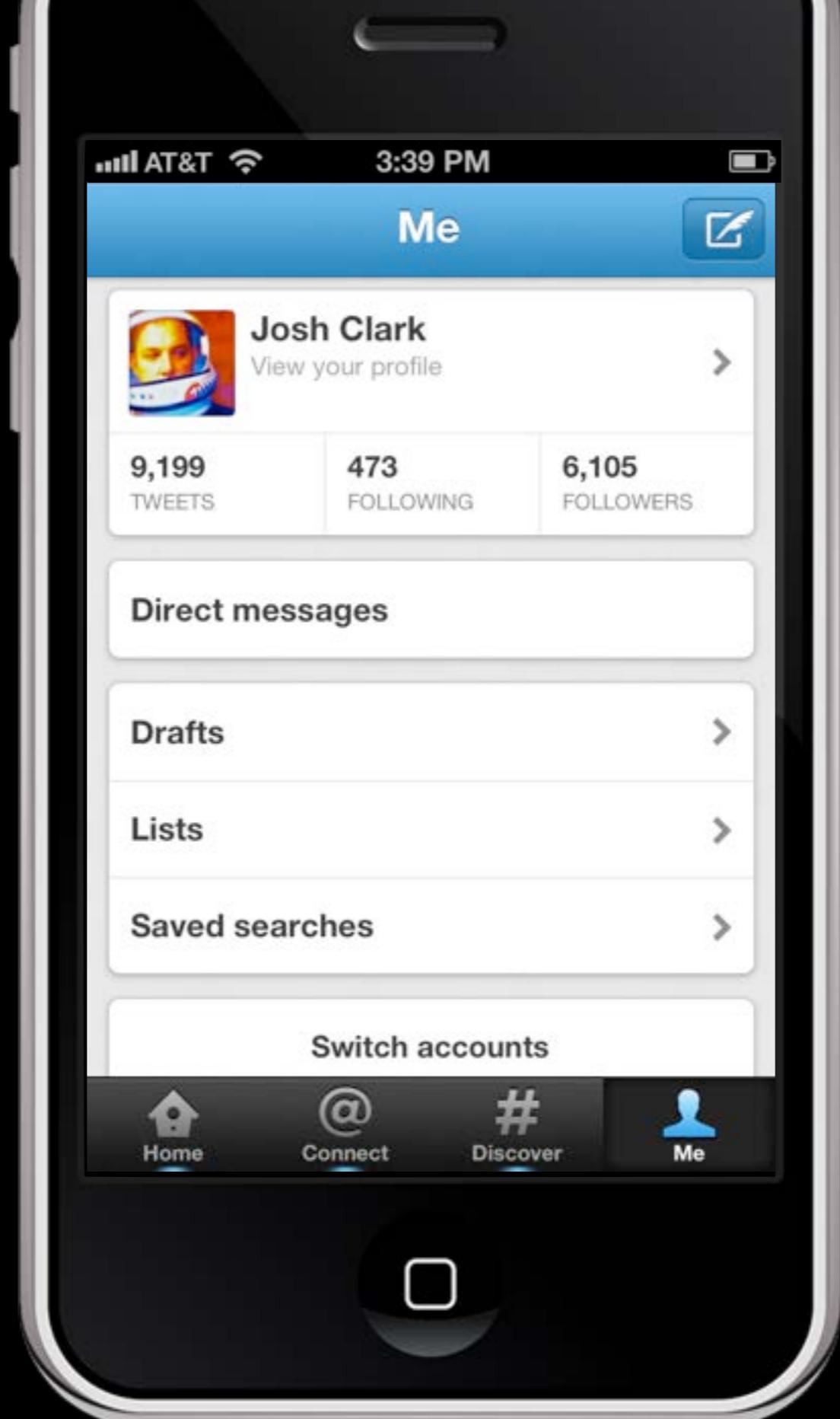
So you have to make things discoverable.

The need for this kind of help again points up the fact that we don't yet have gesture conventions.



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Be generous



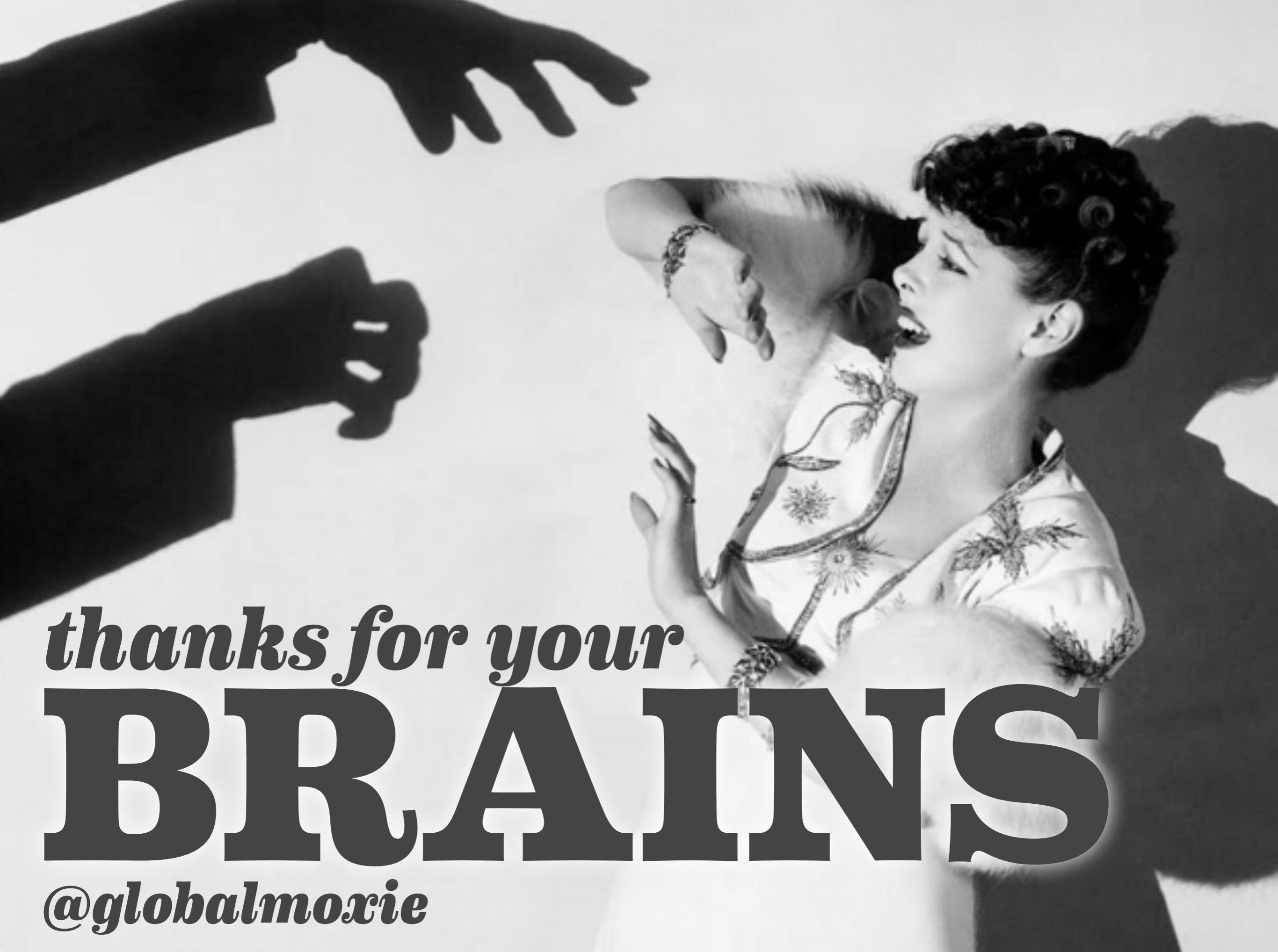
That means that it's more important than ever to share.
Pick up on what Eric said.
This stuff is hard. Don't go it alone. We have to talk about it.

Gestures are invisible and have to be learned.
We'll stagger at this.

Don't assume anyone else has nailed it or tested it,
or thought about it.
Everyone's flying by seat of their pants right now.
This is very early, and it's dangerous to lock in on half-baked conventions.

Experiment. Ask questions. Find out if this is solid.
Need to help each other, we need to have conversations.

[slow] This is a time to be generous.



thanks for your
BRAINS

@globalmoxie