BEYOND MOBILE

WHERE NO GEEK HAS GONE BEFORE

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We're all here to share what's possible with software,
with the web, with digital interfaces.
To see what we can do now,
and what our responsibilities to our users are,
especially with the wide range of devices available to us.

I thought a good way to frame that is also to look ahead a bit.
To look at what mobile is making possible in the very near future.

Hurtling into an era of science fiction RIGHT NOW.
For me, a lot of that started with iPhone.

1st time: childhood ideas of future actually became reality.
A personal computer. In your pocket. Packed with sensors.

Devoted last 5 years to mobile software.
What we can do with it. How to design it.
What it lets us do that's truly new and different.

There's a lot to think about there.
But lately, the stuff that's been keeping me up is:

WHAT'S NEXT?
Lots of talk about post-PC. That's where many of us are entrenched.

I'm interested in post-mobile.
What comes after mobile as we know it?
Where is all of this headed?

So let's get started.

Friends, I propose an expedition.
Where no geek has gone before.

Exploring the hazy edges of the technology universe
for emerging tech trends changing the way we
interact with devices, with information.

We're looking to the future to see how we should
think about our work now.

YOU ARE HERE

We're start our mission with where we are now.
[next]

What it is that this new era of computing gives to us that we haven't had before?

Days of disco.
iPhone and the smartphones that came after:
first true personal computers.

Not because always with us, though that's part of it.

It's because they're packed with sensors.
Our smartphones and tablets hold so much personal info,
but it's the sensors that give rich context and insight to that info and tasks.

I mean, look what they can do.
GPS, camera, audio, touch, light detector
accelerometer, compass, a GYROSCOPE.

Mobile is often considered companion, lite.

Wrong. The question is not how to strip down an experience.
Not less, more.
These devices can do more than the desktop.

Often we use sensors for immediate proximity, maps.
Where to eat dinner nearby. When the next train at my station is leaving.

But I encourage you to think beyond just geography with these sensors.
Not just what's nearby but what's in front of you.

[twitter]Mobile isn't a lite version. Don't ask how to do less w/mobile, ask how to do MORE. Sensors let mobile do more than desktop.[/twitter]

INTO NOW

Key value of both examples: saving input effort.

I don't have to say where I am.
I don't have to say what I'm watching.
Sensors do the work for me.

[And for the visually impaired, audio provides an alternative interface.
Except that it's not an interface that's tuned just for those with disabilities.
It's an interface for everyone.
The popularity of audio and speech and gesture for the mainstream
is a huge opportunity for the accessibility community.
Instead of talking about designing for the blind,
you can talk about designing for speech, for sensors, for environment.]

So that's taking the environment and interpreting it.

To add new layers of understanding and insight,
by adding new visuals to what we can see with our puny human eyes and ears.

I think we have to be careful to use it correctly,
because it's something that can quickly become a gimmick.
A solution in search of a problem.

There are a lot of bad implementations of augmented reality.
Something that looks cool, but that you wouldn't actually find useful day to day.

There are a few areas, though, that have been quite compelling.
The first is games.

[twitter]Augmented reality is almost always a lame gimmick. But a few compelling uses are emerging: games and translation.[/twitter]

SKINVADERS

Skinvaders is a game that uses the front-facing camera
to turn your face into a game board.

Where, um, aliens invade your skin.

[twitter]Skinvaders augmented reality game has aliens, um, invade your skin: http://bit.ly/skinvaders[/twitter]

WORD LENS

Word lens is an augmented reality app that uses computer vision
and optical character recognition to translate text in real time
from one language to another.
[next]

It's a boon for travelers. You'll never order tripe by mistake again.
No internet connection required.
Even keeps the same general font style and color.

TABLE DRUM

We're used to augmented reality as being entirely visual,
camera based. Table Drum takes a different approach.

Table Drum is a drum machine app. There are lots of those.
What makes Table Drum different is that it doesn't force you to use
the screen. Pushes its interface into the world around you,
so that you can actually "play" the table in front of you.

[next]

The developers call it augmented audio.
The software uses its sensors to push beyond the screen.
Every object in front of you is suddenly a sensor, an input.

Do you see the commonalities between these apps?
Most of these examples are replacements for traditional input.
We think of iOS devices as touch interfaces, and that's awesome. Lots of possibility.

But crafty use of onboard sensors means you don't have to interact directly at all.

[twitter]Table Drum uses sensors to shift interface off screen, into environment. Whole desk is a drumset. http://bit.ly/tabledrum[/twitter]

ANYTOUCH
A TACTILE OBJECTS PROTOTYPE

AnyTouch is a prototype probject that uses camera vision
to turn any object or surface into a game controller.
The whole world is the app's interface.

http://vimeo.com/43108191

Who needs physical objects at all.
That's the case with natural gesture of course.
You know this stuff from Kinect

But: emerging open projects
with far more accuracy and sensitivity.

[twitter]Who needs a screen? Anytouch prototype uses camera vision to turn any object into game controller. http://bit.ly/anytouch[/twitter]
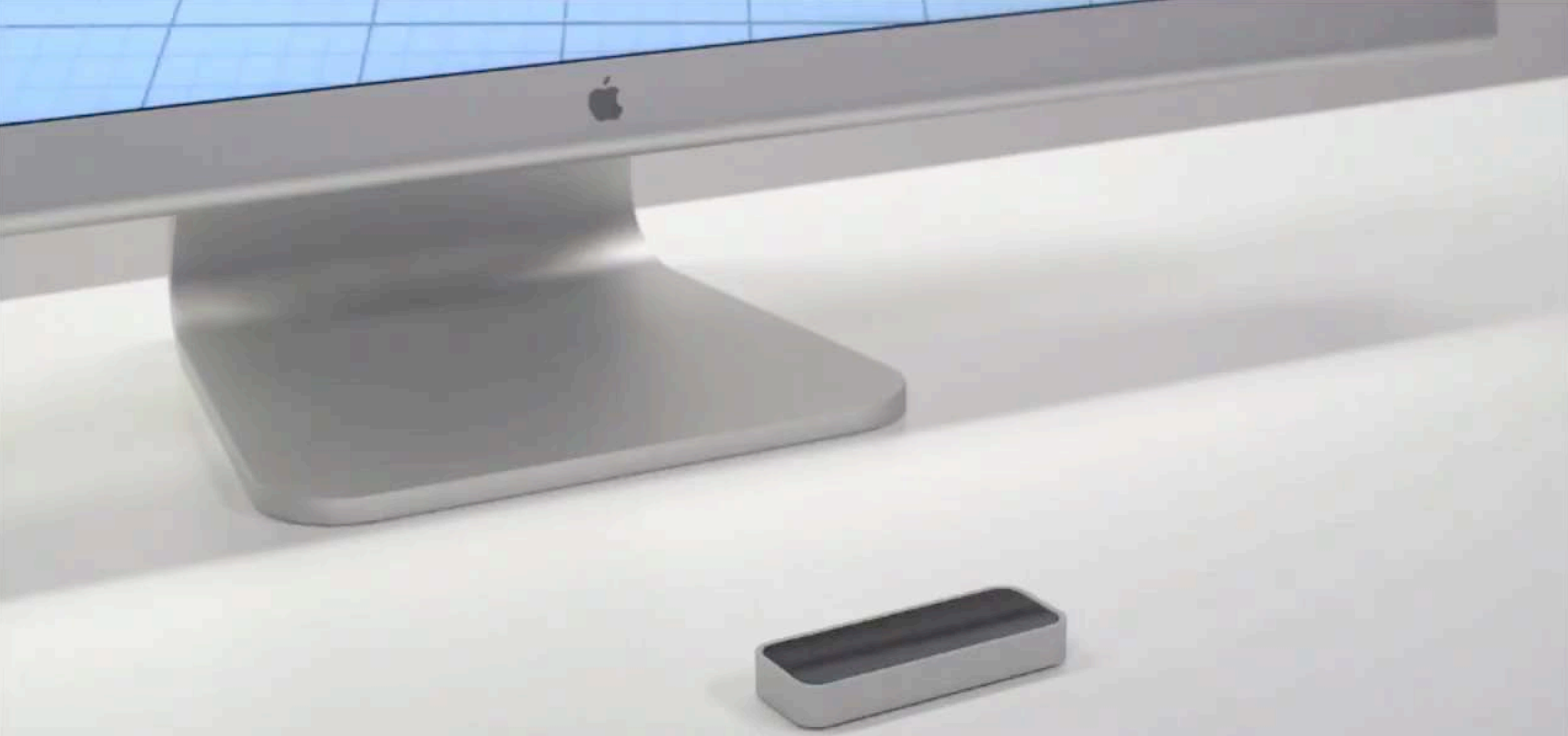
LEAP MOTION
leapmotion.com

Leap Motion
http://leapmotion.com

Incredibly detailed accuracy even within 1cm of motion.
And of course there's an API, like Kinect, where you can integrate this stuff into your own application.
All these built-in, pre-coded gestures to push, squeeze, mold, rotate.

[coarse gestures instead of fine-tuned control of fussy, precise interactions.
great possibilities for those with motor control issues]

Launches this year,
distributed these gizmos to 12,000 developers to seed the market

ASUS, the computer maker,
has committed to integrating them into laptops and desktops.

Intel likewise says it's going to start integrating its own Kinect-style
gadget into its computers.

So this stuff is slated to go mainstream this year.

Devices and UI that require no interaction with the device itself.
I've been occupied with touch interfaces for the past five years.

[twitter]Next-gen Kinect: Leap Motion is a remarkable kit for turning your app into Minority Report. http://leapmotion.com[/twitter]

http://www.theverge.com/2012/12/18/3779310/leap-ships-10000-developer-units-paving-the-way-for-a-2013-launch

http://www.theverge.com/2013/1/3/3830394/leap-motion-asus-pc-deal

http://www.theverge.com/2013/1/7/3848012/intel-nuance-voice-face-interface

THE
BEST TOUCH
INTERFACE

IS SOMETIMES

NO TOUCH
AT ALL

But I'm realizing...

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

Speech.
One of the powerful things about sensors is that we can
communicate with machines in new ways. Often in more human ways.

Touch is just the first, it's finally mature.
But obviously speech and natural gesture are ready to pop, too.
Facial recognition.

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.

The combinations are especially intriguing.
Speech and gesture will necessarily develop together.

Say a word to tell the machine start to pay attention to your gestures.

When you start to combine speech and gesture, you know what you get?

[twitter]Siri is still marked "beta" by Apple, and alas, it still feels like it. [/twitter]

GESTURE
+
SPEECH
=
MAGIC

This is the world we're designing for. Spells.
Working at a distance to transform information and,
with the internet of things...

objects.

So... Pushing sensors lets us push our interfaces off the screen
and into the world around us.

That's just the onboard sensors...

[twitter]We won't design for new inputs (touch, gesture, speech) independently but in combos. Speech plus gesture: spells.[twitter]

CUSTOM SENSORS

Stuff gets really interesting as engineers create custom sensors
for the interfaces. Let devices talk to any arbitrary object.

The **ingestible sensor** is technology you swallow. Integrated into the medications you take and the products you use, it's made entirely of ingredients found in food and activated upon ingestion. Today, the sensor aids in capturing the time, identity and characteristics of what you swallow. Tomorrow, the sensor will bring critical bodily measurements from the inside, out.

Your body powers the ingestible sensor. With no battery and no antenna, your stomach fluids complete the power source and your body transmits the digital heart beat generated with the sensor.

The **patch**, body-worn and disposable, captures and relays your body's physiological response and behaviors. It receives information from the ingestible sensor, detects heart rate, activity, and rest, and sends information to your mobile device.

Using the mobile device you already carry in your pocket or purse, you can access secure **applications** that display your data in context and support care in a variety of different ways.

Powered by you

You make informed choices about your health, connecting and sharing information with those who support you.

Healthcare field especially innovative in turning phones and tablets into
inexpensive medical devices.

http://www.popsci.com/bown/2012/innovator/proteus–digital–health–feedback–system
Proteus Digital Health Feedback System
Pill that doubles as a radio, so it can track whether you take it.

Sensor itself about the size of a grain of sand.
Same stuff you find in a vitamin.
Copper and magnesium hit your gastric acid, turning this thing into a battery.
Works like a potato battery

Transmits a snippet of code to a patch you wear on your stomach.,
which relays to your phone or tablet via bluetooth.

Pill's serial number, manufacturer, and ingredients.
saves that data to the cloud.

Whoa, right! This is some groovy Star Trek stuff here!
Like I said, we are living in a world of science fiction.
————
Advanced pulmonary disease.
Sensor inside the artery near the heart,
detects blood pressure changes.

Touch a sensor and it downloads the info THROUGH THE SKIN.
Shows the patient some information and tips,
relays the data to the doctor.

————

As sensors become more advanced,
there's more stuff we can do with our DATA,
with our content.
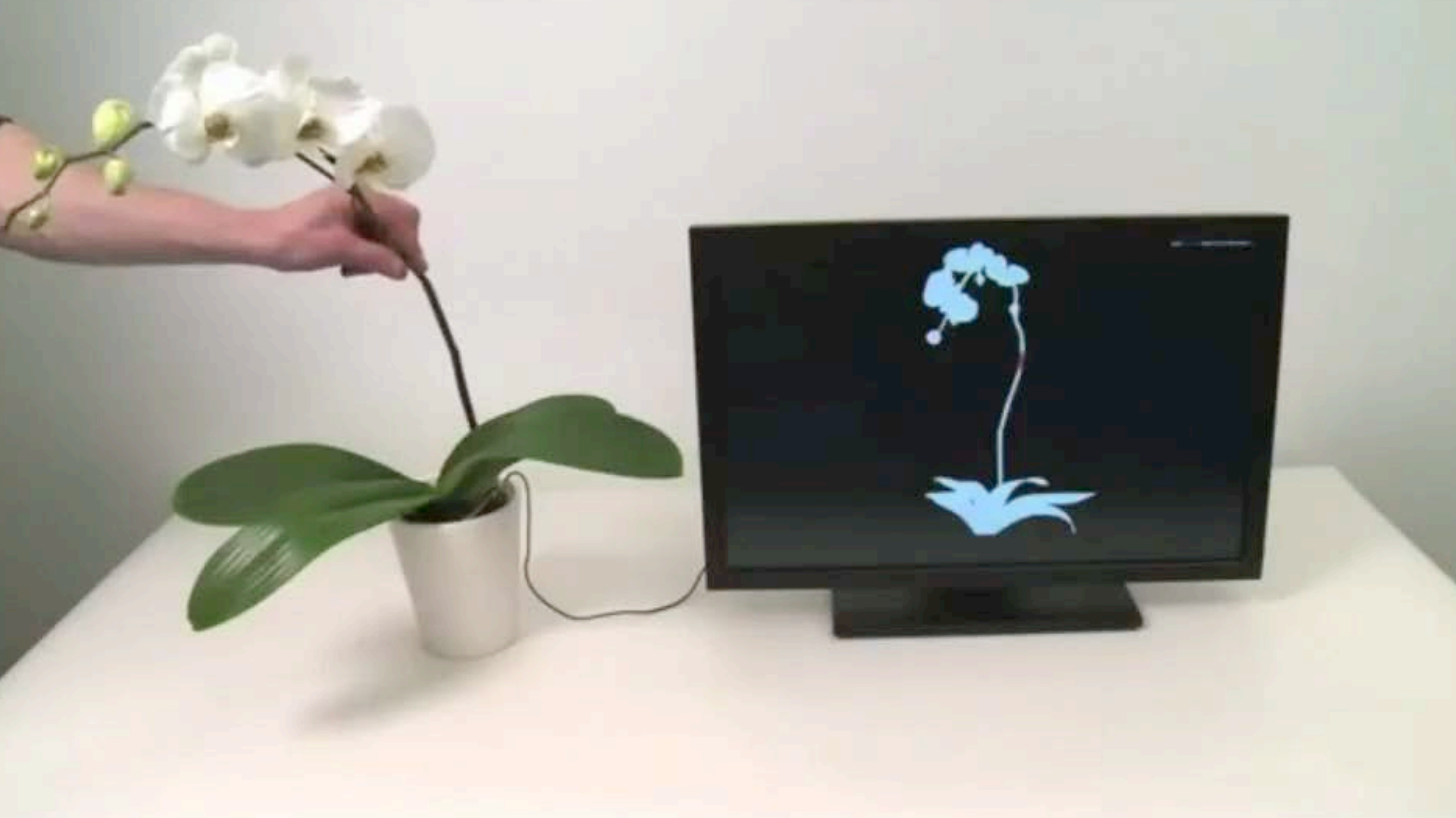
So that's amazing.
But taken to extremes, it can also get a little silly.
Here's a Mickey Mouse idea, honest to god,
that Disney Research came up with last month.
It's called Botanicus Interacticus.

PLANT UI! IMAGINE THE POSSIBILITIES!

[twitter]Plant UX! Botanicus Interacticus is a multitouch plant controller from Disney Research: http://bit.ly/botanicus[/twitter]

Farmers in Switzerland are trialing cow sensors.
These things detect when the cow is in heat
[play]

...and then send the farmer a text.
And these texts can go out in French, German, or Italian.
Cow love speaks all languages.

Forget internet of things, I want my internet of bovines.
We have cows texting when they're in heat. That's basically how I use SMS, too.

So we have this growing variety of sensors
sharing data in all kinds of ways with all kinds of devices.

At the same time touchscreen devices are making the digital world more physical,
sensors are making the physical world more digital.
Objects—and cows!—generating and sharing data.

[twitter]Sensors everywhere: even cows. Swiss cows send texts when they're in heat. http://j.mp/Rq5o8Z[/twitter]

SENSORS

MIRRORING

So I would say that the big marker of where we are now
are personal sensors. Things that make sense of our immediate environment.

Your device is not only a sensor for input...
but a broadcaster.
So if we embark on our mission with a quick hop...

We get to mirroring. For the most part, that simply means screen sharing.

That's the whole idea behind Airplay.
Mirror your screen via Apple TV to your television set.
To share photos, to share videos.

That begins to make it social.
It shares it display with other devices -- and, ultimately, with other people.

So, it's not just a sensor.
Your device broadcasts content to dumb devices.
It becomes the sensor and receiver for those dumb devices, like TV.

Apple's been a leader here.
But go figure, not everyone wants to build products that mirror Apple devices.

Google working on its own Airplay-like technology,
which it says it will make open to work with any device.
http://gigaom.com/video/google-open-airplay-alternative/

Samsung, one of the few hardware actually making a profit,
would prefer to remain independent of Apple stuff.

And so at the same time as we see this early mirroring trend,
we're also seeing a strong trend toward making more devices smart,
independent of other hardware.

Like Samsung's Smart TV.
A whole internet-enabled operating system, with speech and gesture.
Xbox built right into the tv.

And for forever we've been hearing about smart kitchens.
Futurists seem to be obsessed with the idea of smart refrigerators and smart toasters.

At CES this year, Samsung introduced its T9000 refrigerator with LCD and Evernote integration.

Maybe there is a place for smart appliances. But probably not as a browser or evernote client or twitter client.

Microwave ovens.

But here's the thing.

http://www.engadget.com/2013/01/07/samsung-debuts-t9000-refrigerator-with-lcd-and-evernote-integrat/

I DON'T WANT MORE OPERATING SYSTEMS IN MY LIFE.
I already have too many.

Too many patterns to learn, too many technologies, too many contexts.
I'm not sure that more smart devices is actually what I want.

So how do I get from here...

How do I make peace with all these devices and screens?

Let's push further out in our mission.
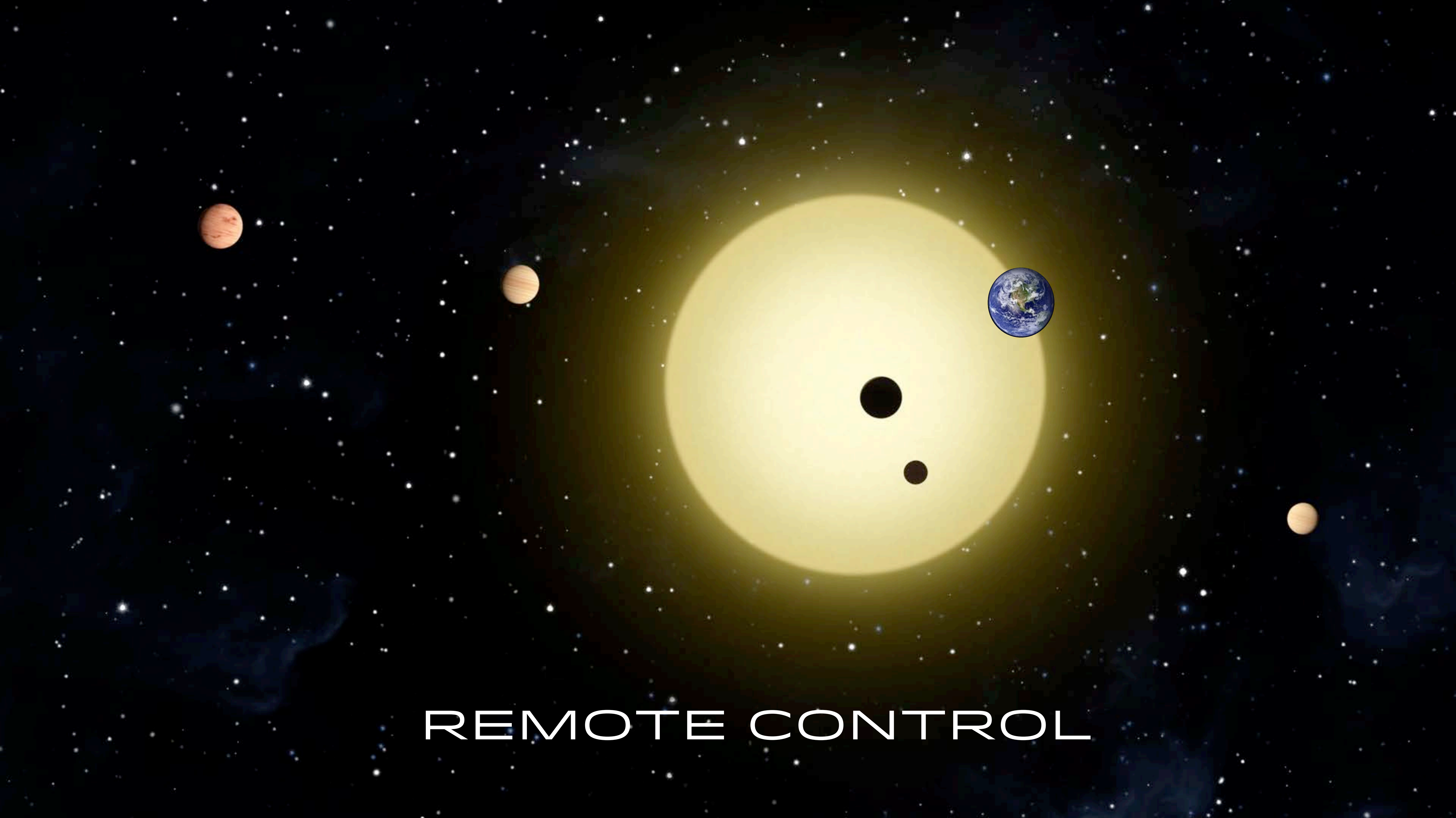
REMOTE CONTROL

Part of maintaining sanity is limiting the number of smart interfaces we have to deal with.

Have a handful of smart devices that can control all the dumb devices in our lives.

Drive everything, for example, with my phone or tablet.

[twitter]I don't want smart TV, smart toaster, smart fridge, each with own OS. Give me a few smart devices, lots of dumb displays.[/twitter]

METALSTORM: WINGMAN

Airplay lets you do that, too, though you see it far more rarely. Here's one example.
[next]
Metalstorm Wingman uses the iPad to fly your plane on the tv.

Beyond mirroring, obviously.
This is a generic device acting like a purpose-built controller or remote,
working with a dumb device, the TV.

Ecosystem is crucial here.
That's why Apple is so well suited for this era of what we're up to.

You have to have the devices, the software, the operating system and the API that can work together.
Innovation always happens in proprietary arenas.
That's why eras of change are so messy and fragmented.
You can't innovate with standards.

Standards come about after innovation settles enough to choose a solution.
Not always the best solution wins, but there's still a solution.

Until we arrive at standards for doing this stuff,
it happens in proprietary ecosystems.

Microsoft is very interested in trying to break Apple's grip here.
So this month, they introduced something they call SmartGlass.
Lets you control your xbox with your phone and tablet,
whether it's a Windows phone, iOS, or Android.

Here's how you'll be able to control internet explorer....

XBOX SMARTGLASS
bitly.com/smartglass-xbox

They're trying to build a standard, at least for xbox, that lets any device control it remotely.

Microsoft gets the importance of the ecosystem and also gets that they're behind Apple here.

That's why they unveiled Surface.
The first time ever that Microsoft is getting into the hardware side of the personal computer business.

That's why Google bought Motorola.
That's why I wouldn't be surprised if Microsoft buys Nokia.
That's why Amazon makes the Kindle.

It's not enough to have a service.
It's not enough to have software.
It's not enough to have hardware.

To win in this innovation stage where ecosystem matters, you have to have all three.

Eventually this stuff will settle into standards.
The web will be central here.
For now, the race is in private ecosystems.

MIGRATING
INTERFACES

So that's pretty much the state of the system as we know it.
This is where mainstream tech is pushing at the frontier.

In all of these cases, though, single smart device controlling the display.
Either its own display or a remote display on a dumb device.
Broadcast.

But let's push that and go further out in our expedition.
[next]
Here's where things get interesting...
An important element of the near future will be more ambiguous control.

Shared control among devices.
Primary shifting from one device to another depending on your context.

We know this concept already from the good old car phone.

[twitter]In device-to-device comms, remote control beats mirroring. But SHARED control that migrates among devices is even better.[/twitter]

Say you've got a car with a bluetooth phone system so that when you get a call on your mobile...

It comes through over your phone's speakers.
Your CAR starts ringing.
You answer without taking your eyes from the road.
The car itself is your interface.
And you continue your conversation.

Until you park.

MIGRATING INTERFACE

And then you grab the phone, mid conversation, turn off the car and continue your call, seamlessly on the phone itself.

Do you see what happened there? [next]

The interface itself shifted from one device to another.

The phone is still driving all the logic throughout,
but interaction happened elsewhere while you were driving.

The car had over control of the call, even though it's coming through the phone.
This invisible shift of control from one device to another.

[twitter]Migrating UI: In paired car phone, UI shifts from phone to car (the car rings!) and back to phone. Whoa.[/twitter]

Moving further in that direction with the new Eyes Free feature in iOS6,
where a Siri button is actually getting integrated into steering wheels.

Again, the logic is in one place, the phone, but the interface migrates.

Drive the phone from your car.
The specific hardware interface follows your context.

[equally important: speech rising as a mainstream interaction.
it's always been important as an output for the visually disabled.
but wow, suddenly everyone might be using a variation of the screen reader.
imagine the opportunities to convince those who have dismissed
accessibility work as too niche an audience. suddenly there's a big
audience for speech. and accessibility advocates can take advantage.]

Talked about Apple's ecosystem.
And there's opportunity there.
To flip control from one Apple device to another.

Surprisingly few experiments along those lines within iOS
but there are a few of these social hardware interfaces...

SCRABBLE
bitly.com/scrabble-4-ipad

Like this Scrabble game that came out a year or two ago.

Here, two iPad's sharing control over the single game.

And, perhaps more interesting, two iPhones holding your letter tiles and then playing them to the iPad board in the middle.

And there you have it: the world's most expensive board game.

But frankly the most interesting stuff is yet to come.
But it may not be a long wait.

[twitter]Scrabble with iPad and two iPhones. The world's most expensive board game. http://j.mp/OISaY3[/twitter]
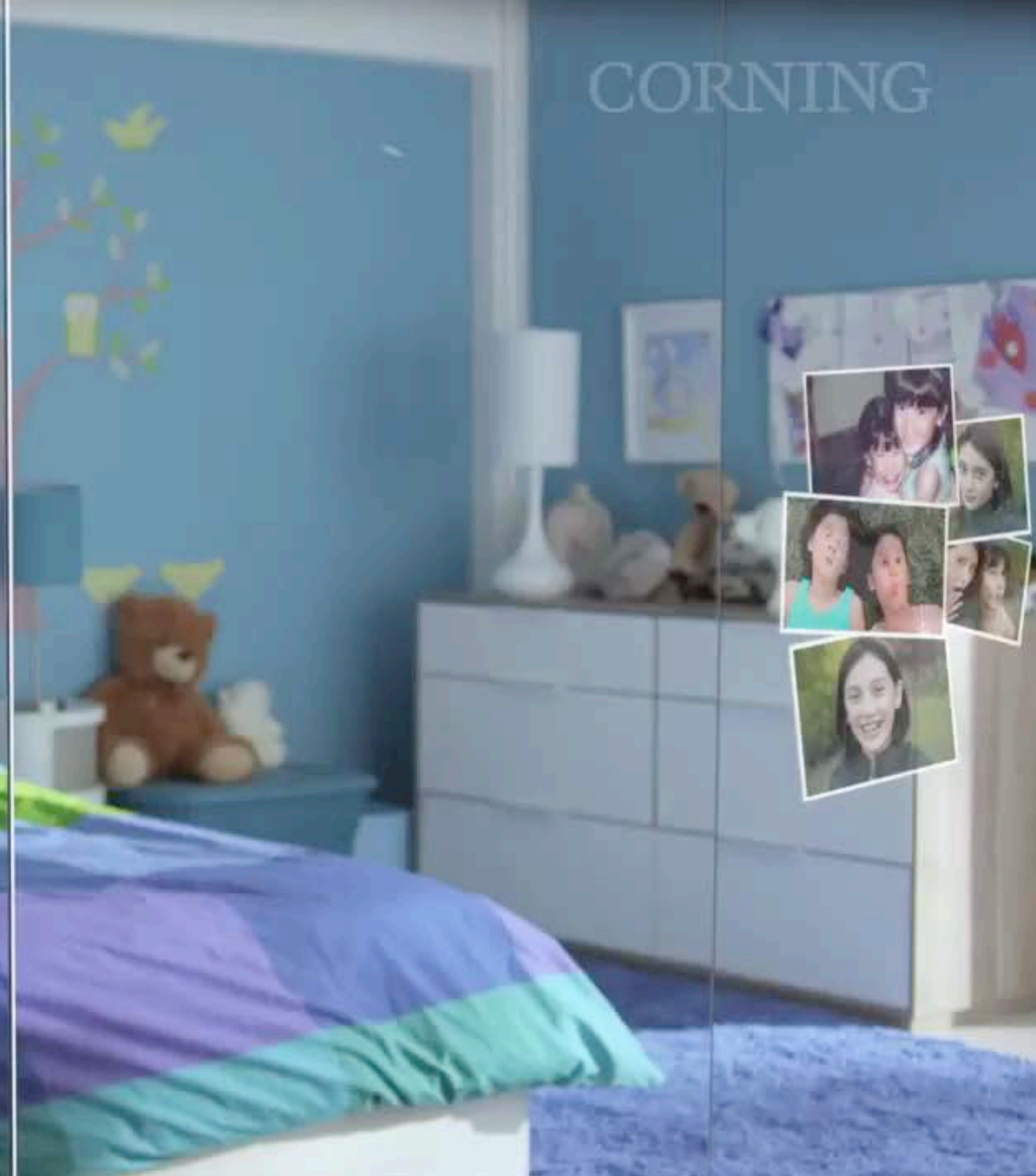
Corning is a glass company.
Gorilla glass.

Obviously very invested in the success of screens everywhere,
provided those screens are made of glass.

Concept video: A Day Made of Glass. They wish.

Normally, I don't much like concept videos, a little too speculative.
Often wishful thinking.

But this one unusual because it was very clear about what's possible and when.

So, let's start with this girl using a tablet in her bedroom.

[twitter]Corning's "Day Made of Glass" shows plausible near future: lots of dumb UI sharing control w/smart tablet: http://j.mp/day-glass[/twitter]

OH, IS THAT ALL?

OH... is that all that's missing?
Just the operating system. And apps that seamlessly scale and transfer.

That's a tall order, of course.
But wow, the hardware is here.
Now we just have to figure out how to code for it.

This is more than just mirroring, if you'll forgive the pun.
This is the tablet giving its interface control to the mirror.

I can have just one smart CPU with all my apps and content with me at all times,
and then just call up a screen wherever I am.

Corning thinks that could be just about anywhere.

Forget the tricorder. Now we're getting into holodeck territory.

Surfaces that morph into whatever we want them to be,
controlled by the devices we carry with us every day.

Now, this stuff actually exists in labs. We can do this now.
This is already with us, just not yet on the market.
But not at much scale and not in anything resembling an affordable price.

So when does it show up?

20 YEARS!

BILL BUXTON
@wasbuxton

This guy says 20 years.
Not necessarily 20 years from now,
but 20 years from when it's conceived in the lab.

This is Bill Buxton. He's at Microsoft Research.
He was one of the pioneers who invented the touchscreen in 1982.

He posits that it takes 20 years from the moment an idea is conceived in a lab
to when it can go big in the mass market.

That means, all the breakthrough technologies five years from now
were invented 15 years ago. Waiting for us.
They're already with us, if we just look around.

So. Let's follow this thread of social devices, sharing control and content.
How do we create or imagine interfaces that deal with this.

Well, game systems are already being pretty creative there.
Let's take a look at Nintendo's Wii U,
which has a touchscreen built into its controller.

[twitter]Bill Buxton @wasbuxton: it takes 20 years for tech to move from lab concept to mainstream force.[/twitter]

Dad wants the TV. So the kid just moves the game to
the controller and takes it with him.

In another game, the controller provides a second screen with
additional info and fine-tuned control.

And it can also drive a web browser, like Microsoft's Smart Glass.

Wow, flipping content from place to place is pretty sexy, right?
In fact, it's even sexier with natural gesture.
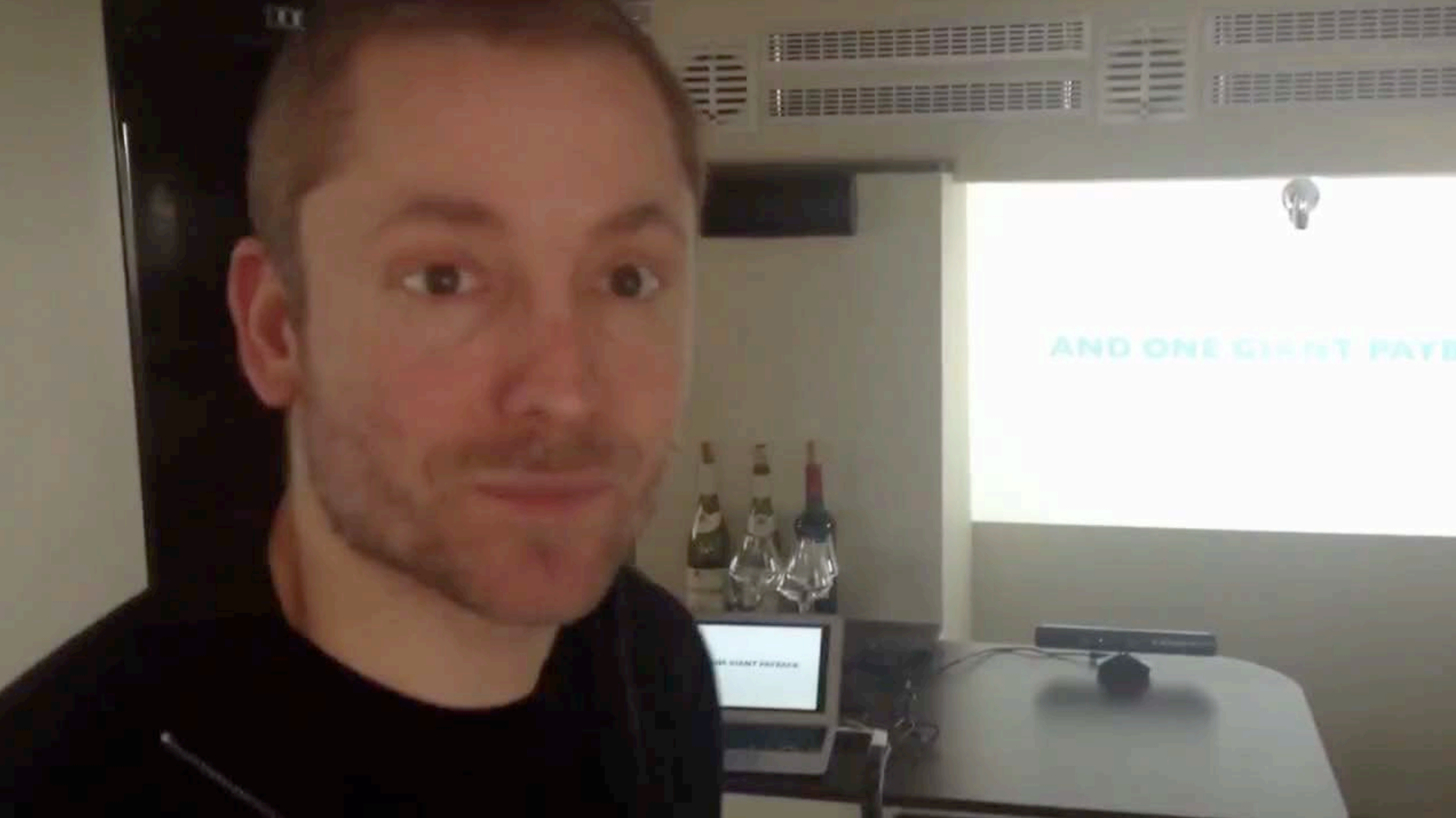
This is my friend Aral Balkan.
Overnight hackathon.
Content sharing hack with a kinect, a mac, and an iphone.

In both examples, Wii U and Aral's hack,
not so much a matter of migrating control but sharing it.
Partner devices, equal peers, each with a role.

Often that's what we'll be looking for. Easy ways to swap info between devices.

It actually was pretty easy with Palm devices in the late 90s, just beam contacts and meetings to another device. Somehow got a bit harder, but I'm sure we'll fix that.

Let's look at another vision of how that sharing might work.

[twitter]My pal @aral hacked together Kinect, Mac, TV, phone for amazing demo of moving data among devices http://bit.ly/grab-magic[/twitter]
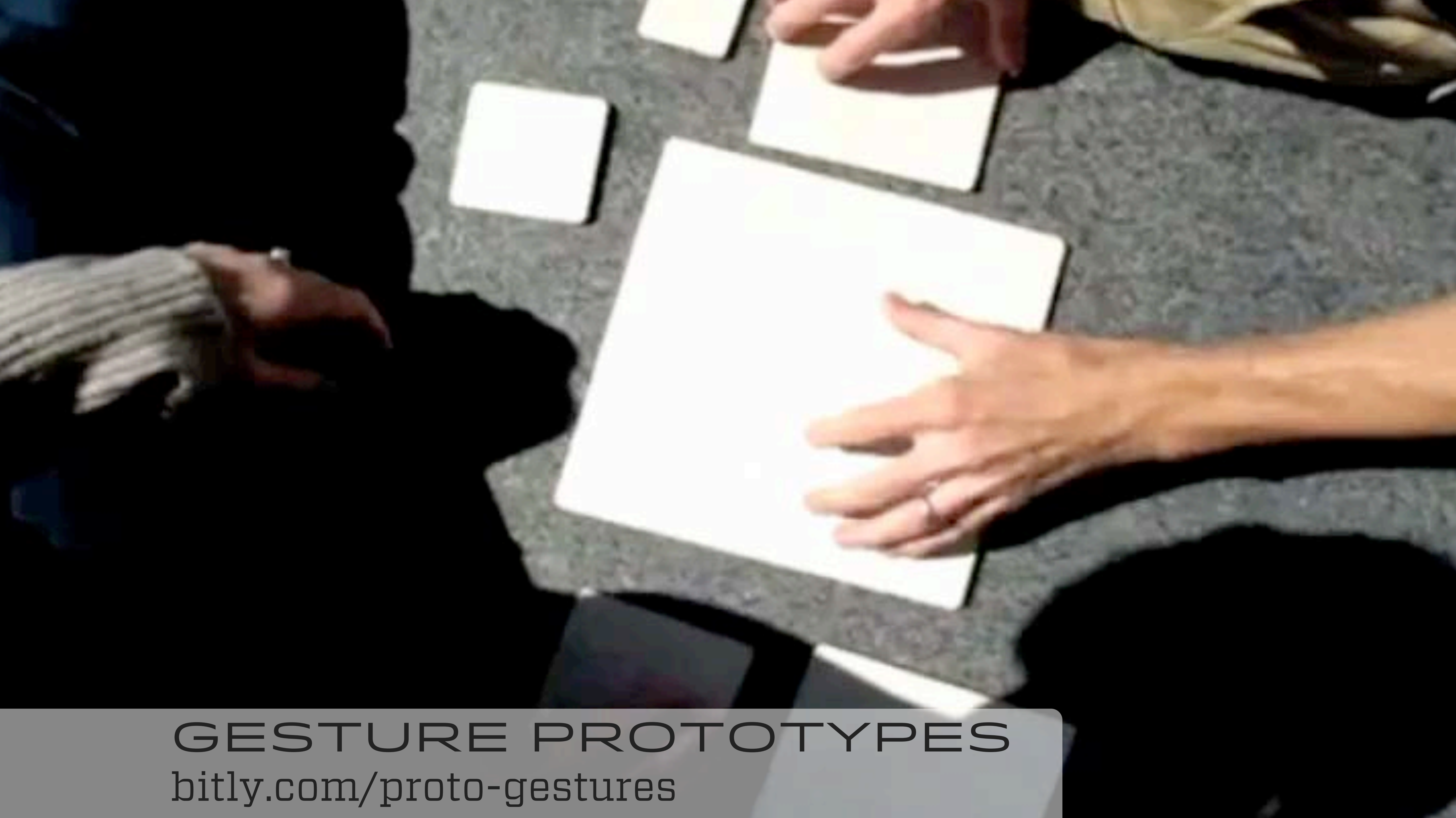
GESTURE PROTOTYPES
bitly.com/proto-gestures

Three years ago, a few design students put together a video
of paper prototypes for how smart devices
might interact. And so they looked at what screen-based gestures might evolve.

I edited it down and thought you might find it fun.
--
That's pretty charming, right, but seems kind of far-fetched.
Shaking content from one to another, just sliding stuff from one screen to another?

Actually, we've already got it.

http://vimeo.com/7055121
Jenny Redd, Kenny Hopper, Nicholas Riddle
California College of the Arts, 2009

[twitter]Fun touch-gesture concepts for moving data from device to device: http://bit.ly/proto-gestures[/twitter]

The game runs on your PC.
Connects to these guys via bluetooth.
They are the interface for the game that runs on the PC.

They can detect each other's proximity.
They have accelerometers: tip and tilt content inside them,
pour it from one to another.

It's a complete little ecosystem, made for games.

Also, the little cubes download the software they need only when they need it.
This is also an element that may be part of the future.

[twitter]Sifteo an example of simple social devices: toys that detect each other's presence and interact, share. http://bit.ly/sifteo-cubes[/twitter]

JUST IN TIME,
NOT
JUST IN CASE

Stephanie Rieger says that the web as we know it right now
is a "just in case" web.
Shove everything in the attic.

Our phone are clogged with apps. We have to garden them, weed them out.

But what about machines that download the software as they need them.
Grab the software, use it, discard it.
We have this with music and movies increasingly.
Keep the media at bay until we need it.

Starts to get pretty Matrix.

Machines that are smart enough to grab software when they need it.

And that kind of basic, almost reflexive intelligence,
brings us to the next stop as we move farther out into the future of computing.

PASSIVE INTERFACES

Passive interfaces.

What I mean by this is devices that just do their work and talk to one another without even needing us to intervene.

If devices are already smart enough to talk to each other, share control, then they can also start doing that on their own.

We're incidental to their behavior. We're just the legs that bring the devices into proximity.

The Nest thermostat.
Proximity sensors to know when you're home.
Humidity sensor.
Temperature.
Wifi.
Internet connection to get the weather outside.

Talks to apps and website.
Remote control and reporting.

And it's a THERMOSTAT.
A relatively dumb device but wow, fully loaded, and in constant communication.

These loaded dumb devices are an important piece.
Fuelband. Wear it on your wrist. Tracks your activity throughout the day.

Not super smart. Just gives these points for your motion.
But then it talks to your phone or your computer whenever it comes into contact.
It pairs when it can, communicates when it can.

It also has its own display.
Doesn't do much.
But it could. Those other devices could information back.
You could see news headlines on the thing.

A relatively dumb computer with a dumb sensor with a dumb display.
But that talks on its own to the machines around it.

MEET LUMO

Lumo is a sensor you strap onto your waist and it buzzes if you've got bad posture.
That's its own simple interface, a screenless gizmo.

But it also talks to your phone. And it has a developer API so you can build your own apps to monitor human movement.

Meet HAPIfork

Speaking of dumb devices.
At CES this month, the Hapifork was unveiled.

Monitors how much and how quickly you eat.

http://www.hapilabs.com/products-hapifork.asp
http://www.youtube.com/watch?feature=player_embedded&v=boM3EAuz-oU

We tend to think that our devices are always going to keep getting smarter. More sophisticated.

DUMB
DEVICES

But in fact, devices are just as likely to get dumber.
And that's a good thing.

More dumb devices doing work for us,
talking to the handful of smart devices we actually interact with.

[twitter]Future isn't just smart devices. It's a network of dumb, passive devices, too: Nest, Fuelband, Lumo etc.[/twitter]

Philips makes a new wifi-enabled lightbulb called Hue.

They connect to a little wifi hub that you can in turn control via web or app.

World's most expensive replacement for the clapper.

But that's not all it does.

Choose colors from photos and the light will change to match the hue.

This isn't just happening in the home.
In summer 2011, City of Westminster in London approved upgrade of 14000 lights
to internet-controlled lighting. They can actually dim the city's lights from an iPad.
They expect to save 1M pounds in the district.

As component parts become cheaper
—wifi in a lightbulb—
it becomes trivially inexpensive to connect just about anything.

Often WITHOUT a screen—like a lightbulb or the Lumo—
or with a very simple screen like Fuelband or Nest... or get this...

Westminster lights:
http://www.westlondontoday.co.uk/wlt/content/ipads-make-street-lights-smarter

Visa and MasterCard both have credit cards with screens and keypads.
Visa unveiled theirs in Europe in 2010.
MasterCard unveiled theirs in Singapore in November 2012.

Idea is to make online payments more secure by ensuring you're holding the actual card, not stolen card numbers.

Basically for creating one-time passwords.
You make up a numeric password and type it into the card.
And then you type that same number into a web interface.

But wait a second. If our content is going to show up on little displays,
how do we deal with that.

Hey, how does your website look on a 10-character LED display
on a credit card or a fuelband.
Or by speech, how does it sound?

Right now, we're badly equipped for this. Our content is a mess,
not ready for the multidevice present, let alone the future.

How do we design content and experiences for devices we haven't even imagined yet?
If we can't know the future, we can't be future-proof,
but we can at least be future-friendly.

And frankly, that means starting with our content.

http://www.visaeurope.com/en/newsroom/news/articles/2010/visa_codesure_gets_green_light.aspx
http://newsroom.mastercard.com/press-releases/mastercard-introduces-next-generation-display-card-technology-a-first-for-singapore/

YOUR API
IS THE
APPLICATION

It's the underlying service that we need to provide,
focus on the format of the raw content.

Chunked up, well described, stripped of presentation,
so that even dumb devices can take the content they need and present it appropriately.

Your website or app can consume the API too,
to present very

METADATA IS THE NEW ART DIRECTION

—ETHAN RESNICK
@STUDIP101

If we can do a better job of structuring our content, describing it, so that we can have meaningful APIs that let devices grab just the content they want,

that's creative control in an uncertain world.

And it means that we'll also make our own job easier.

LET ROBOTS
DO THE WORK

Because w can let the robots do the work.
Metadata gives the machines information about how to pick and choose content, format it appropriately.

And a lot of times, we can have the robots manage that metadata, too.

[twitter]Content strategy is for all of us: structured content, editorial workflow, smart API critical to future mix of social devices.[/twitter]

Guardian.
Newspaper layout = editorial judgment.
Placement/size of articles provides semantic meaning.
Primary, secondary, tertiary tiers. [point out]

[slow] THERE IS CONTENT IN DESIGN CHOICES.
So: how do we cook design choices into content,
so that editorial judgment can transition platforms?

[next] Experience reminds of print, but very iPad.
Box-like presentation of Flipboard. Works.
NOT JUST A LIST OF ARTICLES.
Layout/size reflects choices of editors from print. [show]

How? THEY AUTOMATE IT.
Script reads original indesign files where print issue designed.
Reads size & placement of each article,
encodes that into metadata of the content API.

Give the robots metadata for editorial priority,
based on judgment of Guardian's editors.
iPad app uses that info to make device-appropriate
decisions for how to place articles in app.

Result: app uniquely iPad but carries meaning/values of print.

So our final stop on this journey lands us here.
In the cloud.

The cloud as we know it is part of it.
A lot of this stuff has to be stored and accessible out in the interwebs.

But the cloud I'm talking about is a cloud of social devices.
You take all these trends:
sensors
mirroring
remote control
migrating control
passive interfaces

and you have a set of truly social devices that are in our face when we need them,
out of the way when we don't but still doing our work.

So that means that we are doing a lot more than building applications.
Those are just the container.
We're building services.

[twitter]Future UX: design for sensors, design UI that migrates among devices and off devices completely. No screen required.[/twitter]

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You have to think beyond the single interface.
That's what occupies us, though.
We focus on the one gadget that confronts us at any given moment.

Look beyond the one application you're working on today.
That's just a single window into your service.

Applications are just containers.
Temporary containers: because presentation deprecates.
We throw these containers out all the time.
Websites, apps of two years ago, out of date. Need new presentation.

Service and content is more lasting.
Think about services... Design services.

Whole systems that can support lots of devices.
Because that's the way to prepare for this future of social devices.

What I've tried to do here.
Pull together the themes that we see now.

[next]
This is imperfect. Making these connections is hard.
Steve Jobs: "You can't connect the dots looking forward, you can only connect them looking backwards."

Still: This stuff already in labs.
And I think we can see enough of the coming changes that we can
see what we have to start building now
to be ready in three or five years.

[twitter]Steve Jobs: "You can't connect the dots looking forward, you can only connect them looking backwards."[/twitter]

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★PUSH SENSORS

★THINK SOCIAL

★YOUR ECOSYSTEM

★WE'RE ALL CLOUD DEVELOPERS

★MIND YOUR METADATA

★NEW INPUT METHODS

★THE FUTURE IS HERE

This is where we are now, right? This is where we began.
So how do we prepare for where we're going?

Sensors are the superpowers.
Push the limits: What does this let me do with my data.
Or to save time.
Or to provide accessible alternatives to traditional visual/touch UI.

Think social. For once, not FB or Twitter.
Interact with other devices. What are the opportunities to share not only content but control.
Start thinking about that future of social devices.
Again, for accessibility: alternative devices all feeding the same data store.

Your ecosystem.
Most of us are not Apple or Amazon or Microsoft or Google.
We don't get to control the big-picture ecosystem.
But we can control our own. You are not building an app.
You are building a system. Prepare for multidevice future.

This means we have to think cloud. Most of us are. But it's crucial.
Web apps vs native apps a constant debate.
Important decision and conversation for builders.
But less important for our users. It's an implementation detail for them.
Web, native, browser, app, iPhone or Android,
it all converges in the cloud. The data and interaction is there.

New inputs. Start planning for the future of speech, gesture, facial recogntion.
Is your content ready for this? How do those things work in combination?
Huge opportunities for accessibility advocates, now that these
technologies aren't perceived as serving niche audiences.

The future is here.
Bill Buxton's 20 year rule.

MAY
THE FORCE
BE WITH YOU

JOSH CLARK
@GLOBALMOXIE
BIT.LY/BEYOND-MOBILE

[twitter]Slides for my talk "Beyond Mobile: Where No Geek Has Gone Before" (pdf): http://j.mp/beyond-mobile[/twitter]