



Not in My Castle:

Why the Open Web, Not App Platforms, Should Form the Basis of the
“Internet of Things” in Our Homes, Our Bodies & Our Information Spaces

Max Van Kleek, University of Southampton
USEWOD’15

| O T

IoT



Things Working Together to Improve Your Life

By turning virtually anything into a connected object, we will uncover new opportunities to make everything we own that much more useful.



Imagine a network of ordinary, physical objects equipped with sensors and actuators that have the capacity to observe and collect information about their environments and then share that data with each other—and any other device or person connected to the Internet. The image you have in mind is the concept of the Internet of Things. Now, let's think of how data gathered by these connected objects can be analyzed and used to improve our household environments.

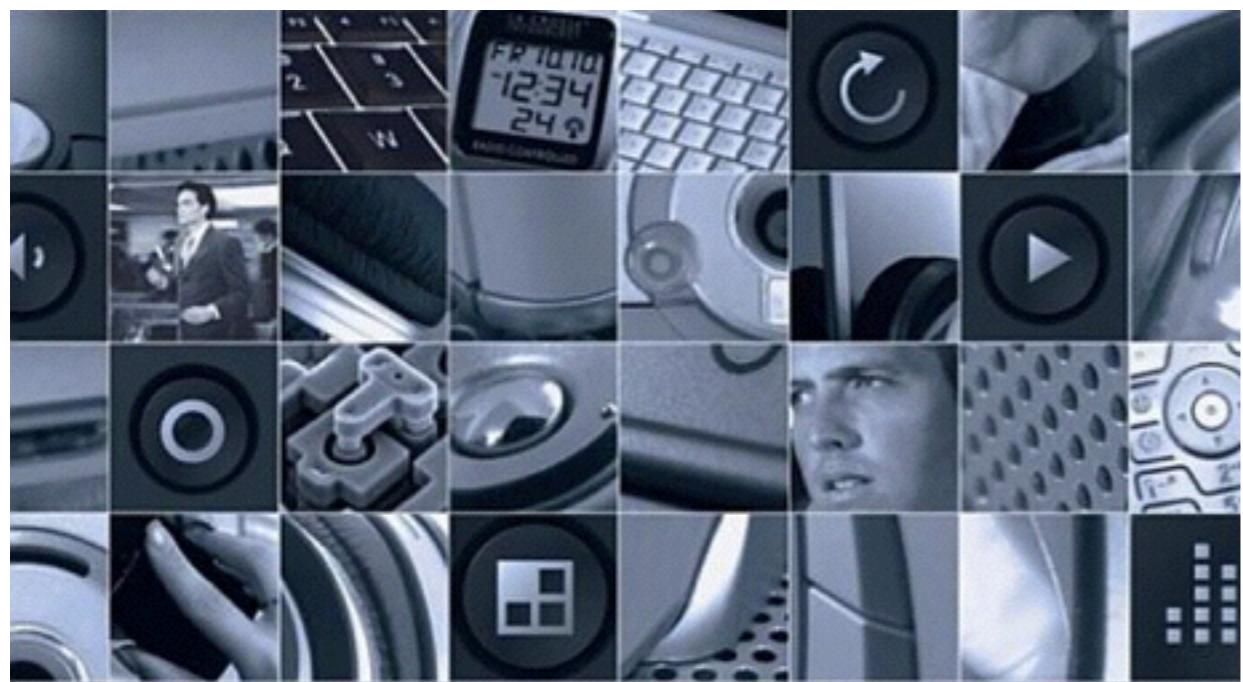
Equipped with sensors and Internet connectivity, these objects communicate with other objects within their network and perform based on their collective knowledge. The [Nest Learning Thermostat](#) is probably the most well-known example of a connected object that can learn from monitoring the climate preferences of a home and set itself accordingly at different times during the day. Nurun partnered with Nest to create a website that brings the company's ethos to life while

sensing, processing, storage, & acting

- **automate** (doing things for you) so you don't have to
- **support** situational awareness



- energy & resource conservation
- safety & security
- health & wellbeing



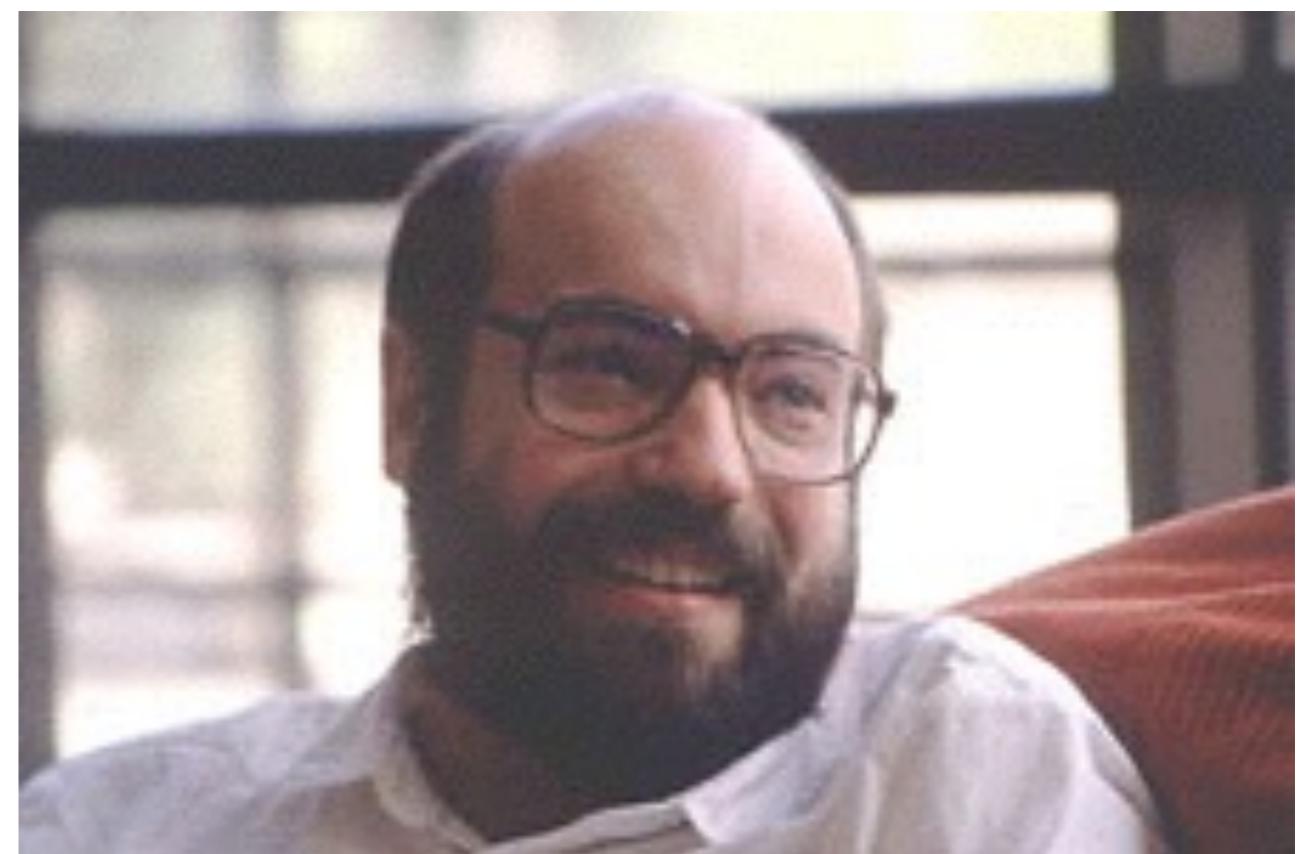
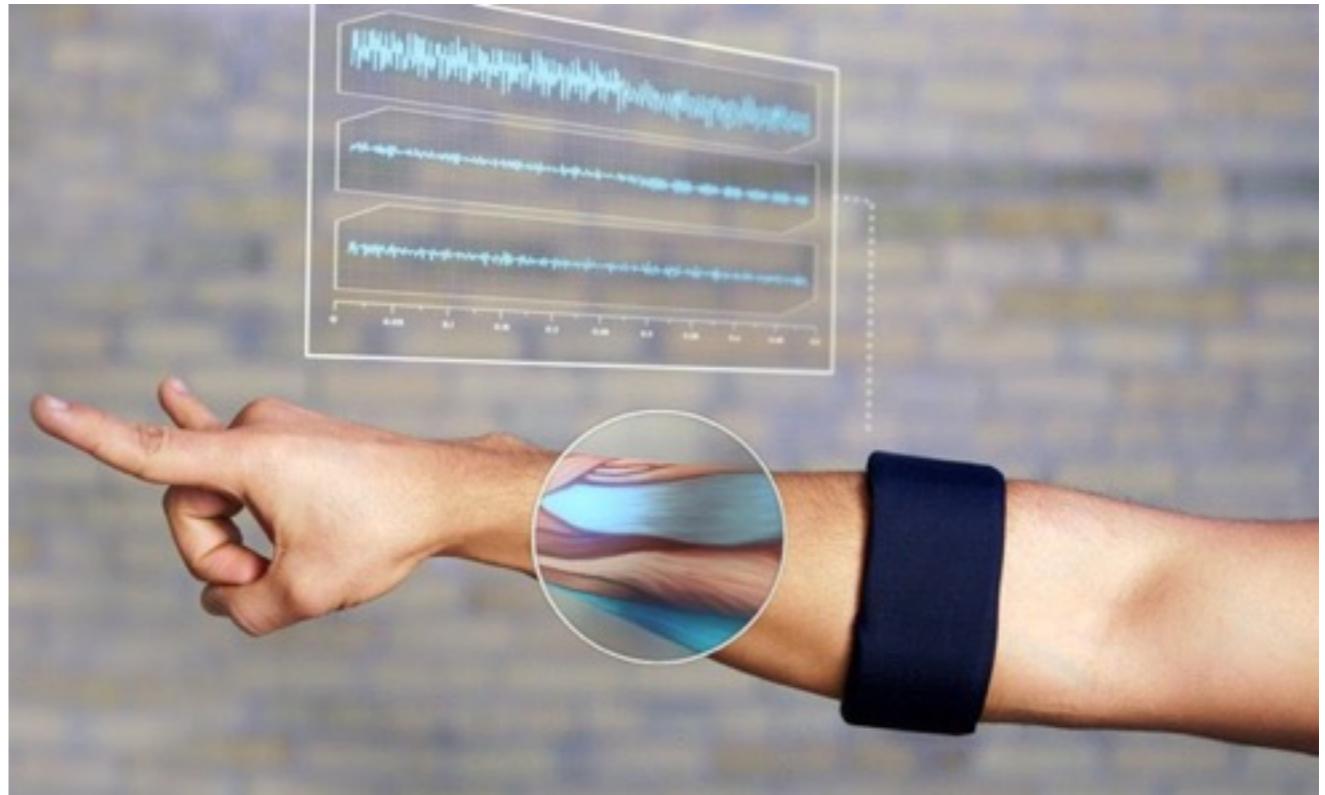
Ubiquitous Computing

Smart Devices, Environments and Interactions

Stefan Poslad



WILEY



Mark D. Weiser (July 23, 1952 – April 27, 1999)
Xerox PARC Ubiquitous Computing Project









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Even when you're miles away, keep an eye on your home, kids and mischievous pets in beautiful HD.

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LIVE



9:18:49 PM PDT

dropcam



Lock

```
"deadbolt": {  
    "lockStatus": "locked",  
    "batteryPct": 82  
}
```

Camera

```
"name": "camera.takePicture",  
"parameters": {  
    "exposureMode": "manual",  
    "iso": 200,  
    "shutterSpeed": 1000,  
    "aperture": 2.8  
}
```

Soil Moisture Sensor

```
"moisturecontent": {  
    "percentage": 20  
}
```

This Is Precisely What Didn't Want To Happen.

THE VERGE  TRENDING NOW
The 12 most important announcements from Google I/O 2015

LOG IN | SIGN UP LONGFORM REVIEWS VIDEO TECH SCIENCE ENTERTAINMENT CARS DESIGN US & WORLD FORUMS

PREVIOUS STORY Android M adds USB-C support, Doze mode for extending battery life

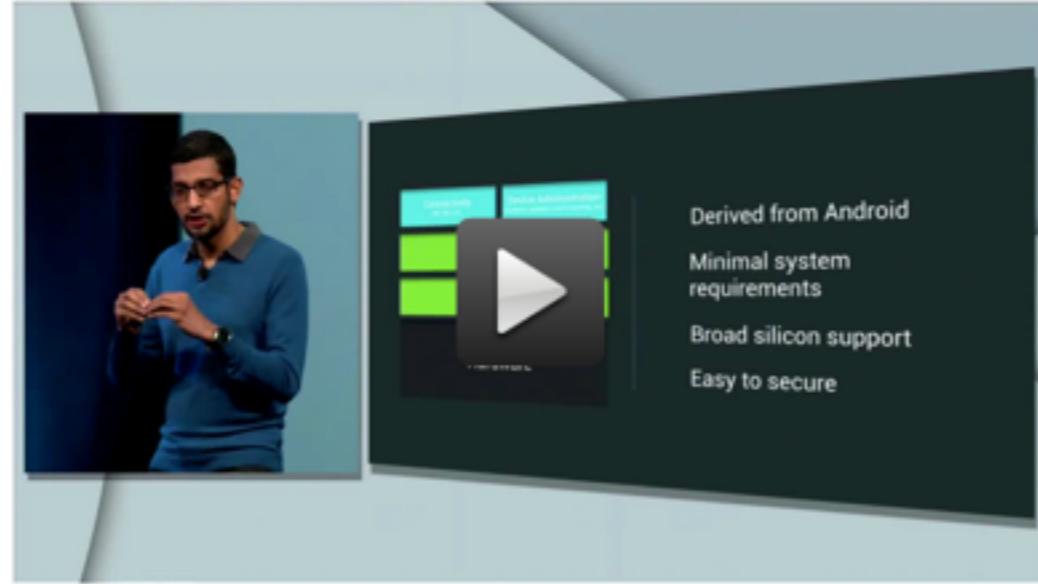
NEXT STORY Android Wear becomes more powerful with Uber and Foursquare

GOOGLE TECH

Google announces Brillo, an operating system for the Internet of Things

Developer preview coming in Q3

By Ross Miller on May 28, 2015 01:20 pm Email @ohnorosco



PART OF THIS **STORYSTREAM**



21 UPDATES TO Google I/O 2015: everything you need to know

MAY 28 Hands-on with Google's first Android M preview

MAY 28 Google Jump is an entire ecosystem for virtual reality filmmaking

MAY 28 Google's new Jump 3D videos are as trippy as the camera rig that makes them

MAY 28 Android M's easter egg is `_,(')_`

MAY 28 The 12 most important announcements from Google I/O 2015

MAY 28 Now on Tap is the coolest Android feature in a long time

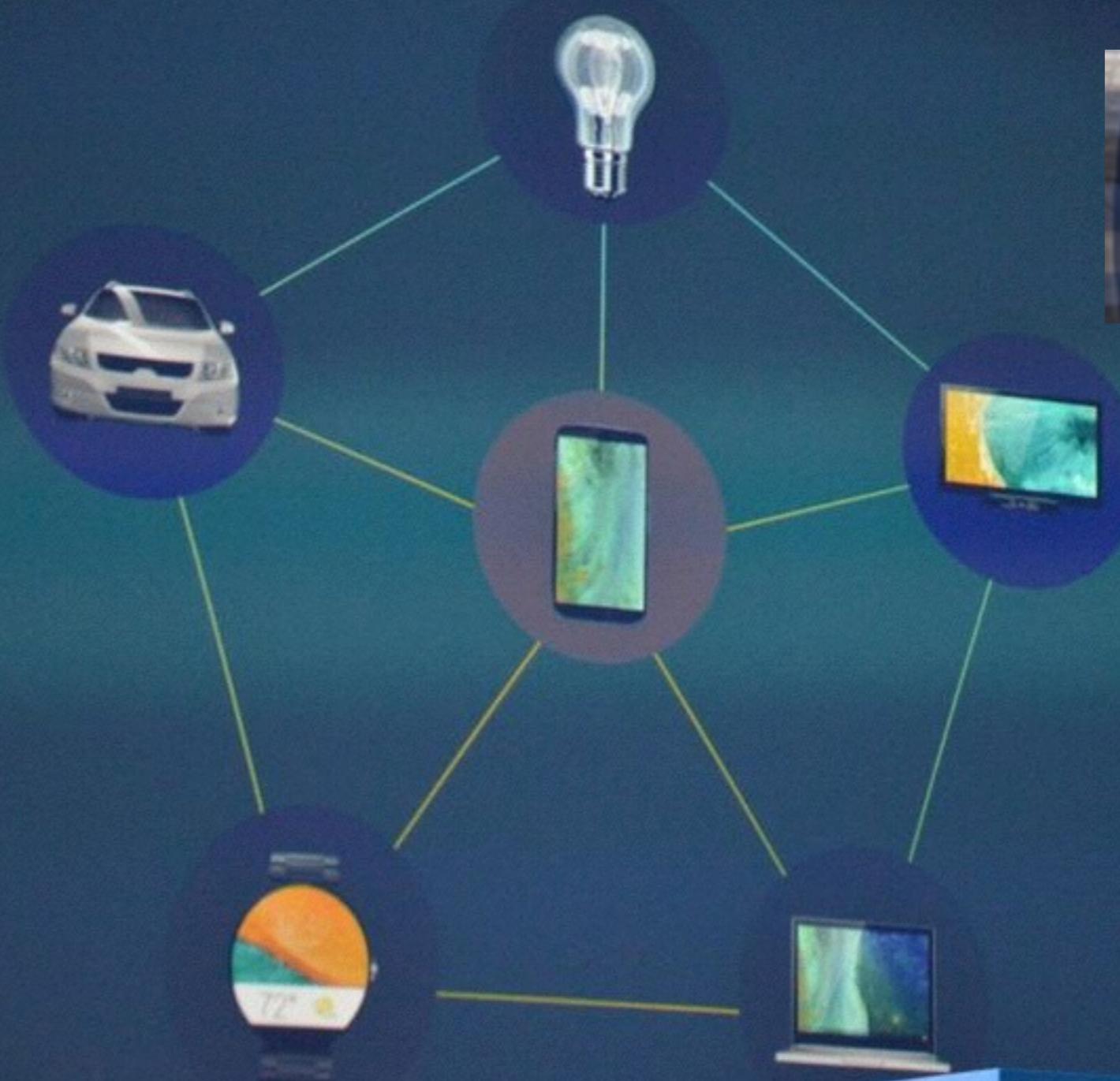
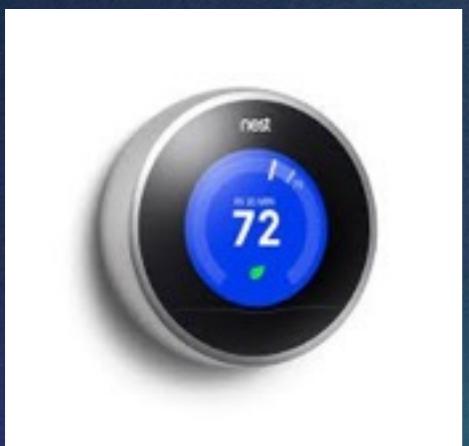
15 MORE UPDATES

f Share on Facebook (3,754) t Tweet (848) in Share (320) p Pin

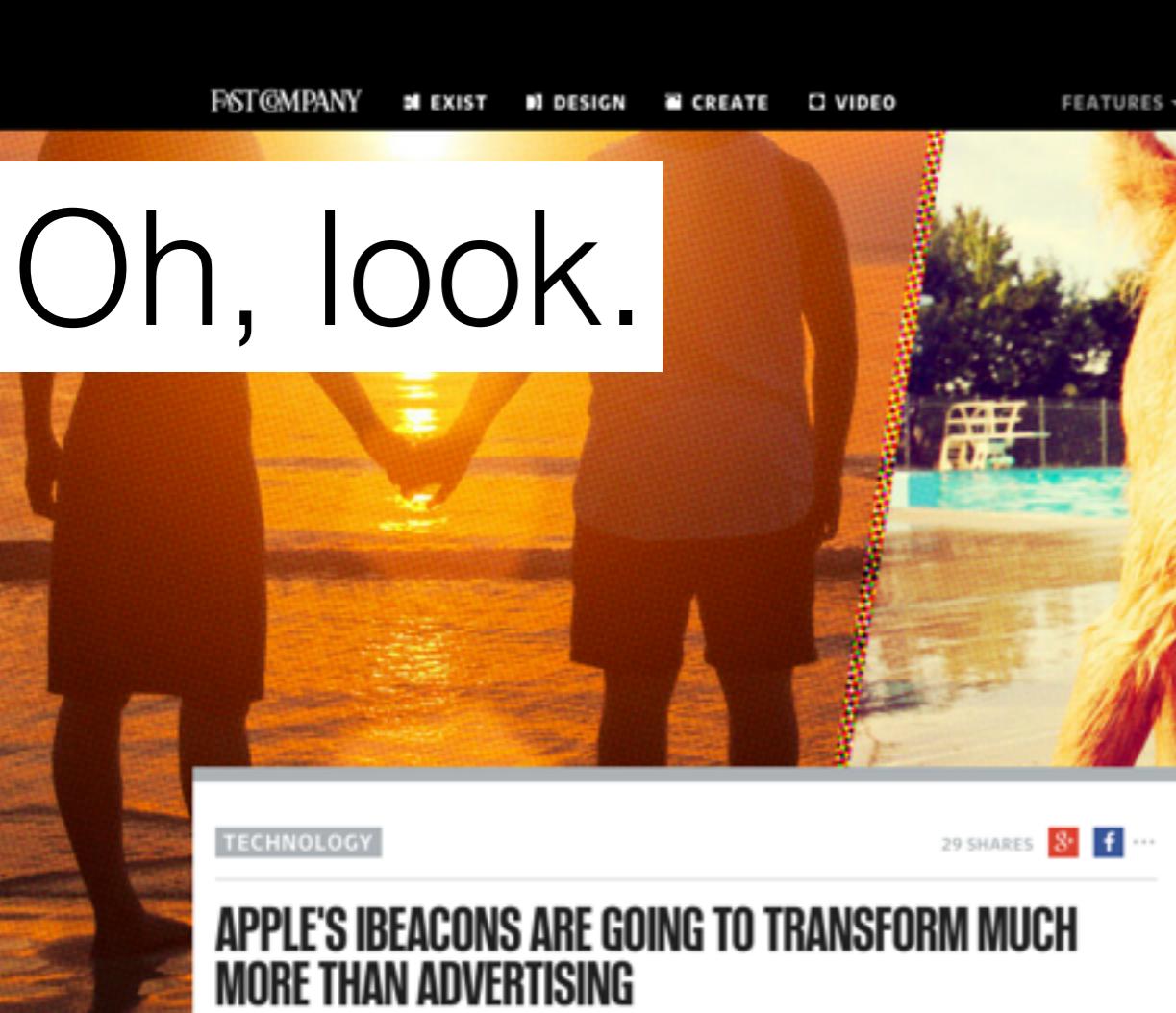
Google is rejoining the Internet of Things platform wars. Today at its I/O conference, the company announced Brillo, the "underlying operating system for the internet of things," with a developer preview coming in Q3 of this year. Brillo is "derived" from Android but "polished" to just the lower levels. It supports Wi-Fi, Bluetooth Low Energy, and other Android things.

Additionally there's Weave, the (cross platform) common language that will let Brillo

<http://www.theverge.com/2015/5/28/8677119/google-project-brillo-iot-google-io-2015>



Oh, look.



TECHNOLOGY

29 SHARES 

APPLE'S iBEACONS ARE GOING TO TRANSFORM MUCH MORE THAN ADVERTISING

STARTUPS ARE BETTING THAT APPLE'S MICRO-LOCATION TECHNOLOGY CAN IMPROVE EVERYTHING FROM DATING TO YOUR PET COLLAR.

BY MICHAEL GROTHAUS

Apple's iBeacons will be a boon to retailers who want to target their in-store customers with advertisements and special deals. But while the technology has generated a lot of excitement in the retail industry, it's understandably not caught the imagination of consumers, who generally aren't thrilled about the new ways they'll be marketed to in the future.

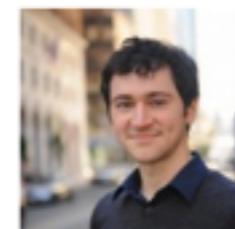
Yet, as I discovered, in-store advertising is just one use of iBeacon technology. Innovative developers are applying Apple's iBeacons to improve our social lives, make our smartphones more intuitive, and save us money on electric bills.

HOW iBEACONS WORK

iBeacons are Apple's implementation of Bluetooth beacon technology. A Bluetooth beacon is simply a low-energy chip enclosed in a small plastic housing. The beacon can only send data—not receive it—and is generally used to just broadcast micro-location coordinates (in a radius as small as 10 centimeters) to your iPhone.

Because iBeacons can only send data, they have no way of controlling anything on your phone. The technology relies on apps collecting the data from an iBeacon and using it to do something. In the case of retailers, a store may place an iBeacon on a

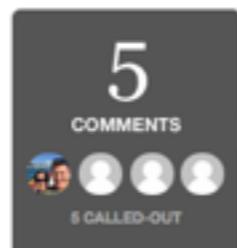
This story contains interviews with [Joel Ayala](#), cofounder of [Mingleton](#); [Bernd Plontsch](#), cofounder of [Aww Apps](#); [Sid Bhargava](#), founder & CTO of [Zuli](#); and [Steve Cheney](#), cofounder of [Estimote](#).



Aaron Tilley
Forbes Staff

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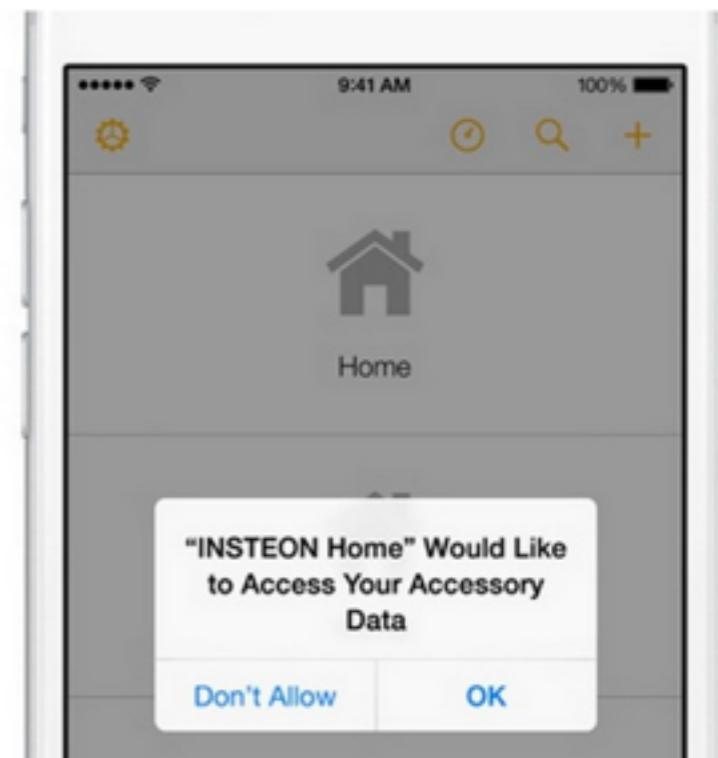
I cover hardware and chipmakers.
[full bio →](#)

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TECH 1/09/2015 @ 5:09PM | 23,797 views

Apple Emerges As A Promising Internet Of Things Platform At CES 2015

[+ Comment Now](#) [+ Follow Comments](#)



The whole "Internet of Things" theme reached a fever pitch at this year's CES in Las Vegas. Many of the big tech players are trying to become the platform for how to connect together the growing list of devices with wireless technology inside of them—everything from your car to your thermostat.

Google's [GOOGL -1.52%](#) Nest announced an additional 15 partners in "Work With Nest," its developer program for hooking up third-party devices to Nest's thermostat or smoke alarm. Samsung made SmartThings, which develops a hub and cloud infrastructure for connecting devices together, the [focal point of its keynote](#) and massive exhibition space in the Las Vegas Convention Center. And Apple [AAPL -1.11%](#), even though it wasn't there, had some successes too.



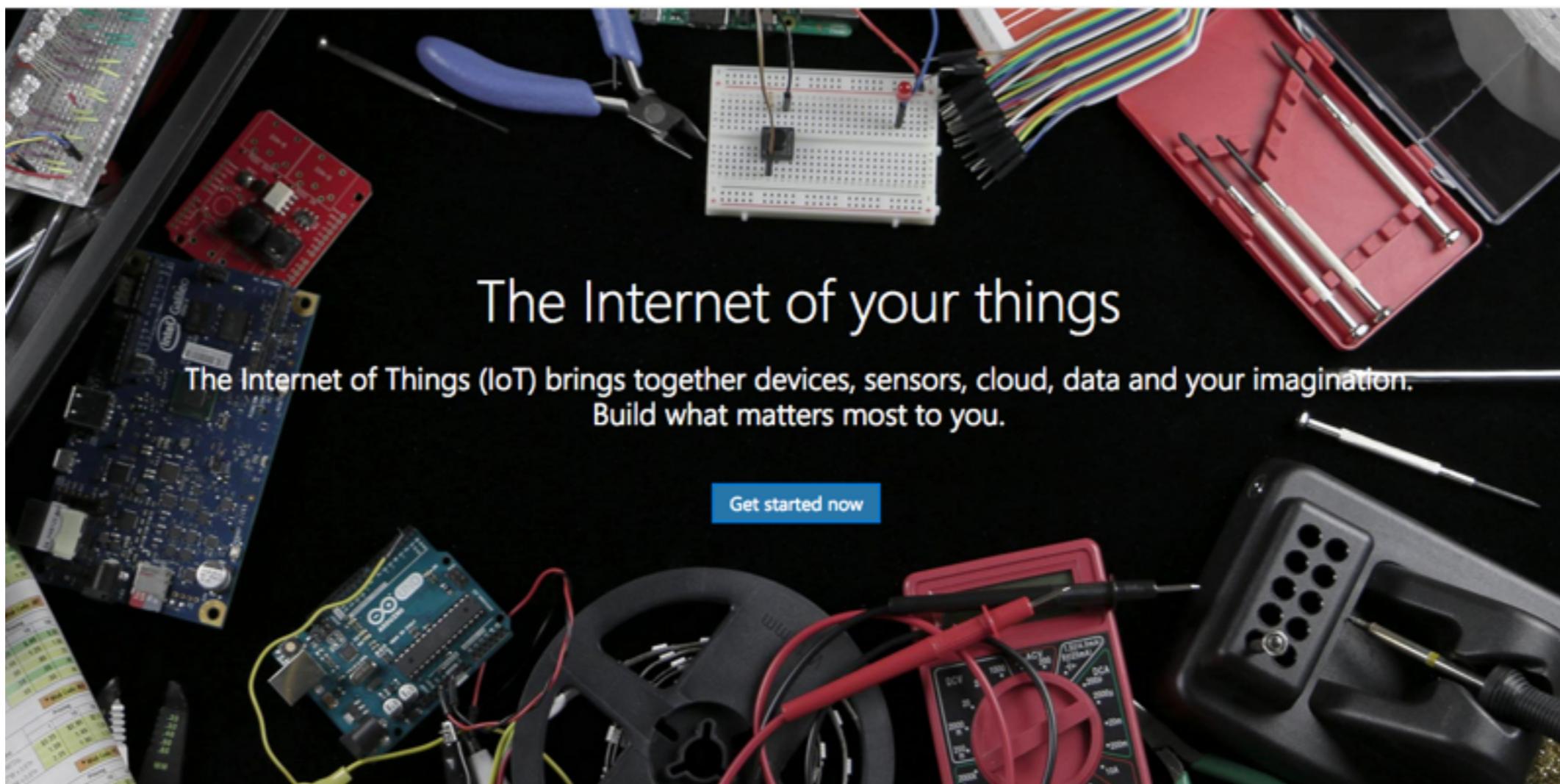
Apple TV Is Now Armed And Ready To Be The Hub For The Smart Home

Aaron Tilley
Forbes Staff

REFERENCES AND MORE

Apple stopped officially exhibiting at CES back in 1992, but you could find the first batch of devices that are HomeKit certified, which is Apple's protocol it announced last June for making smart home devices working safely and securely in iOS.

There were quite a "smart outlets" that basically allow you to control an outlet through your Apple product from iHOME, Incipio, GridConnect and iDevices. There was a Bluetooth-connected lock made by Schlage called the Schlage

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The Internet of your things

The Internet of Things (IoT) brings together devices, sensors, cloud, data and your imagination.
Build what matters most to you.

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Windows IoT device

Rapidly prototype and build your Windows IoT solutions on a variety of devices running Windows 10 IoT Core. Windows 10 gives you powerful tools that let you develop fast and deploy to your device.



Device connectivity

Leverage the power of open frameworks like Connect-the-Dots to help connect your devices to Microsoft Azure. Microsoft Azure allows you to implement great solutions by leveraging advanced analytics services.



Maker community

Connect with other makers to share code and make contributions through GitHub. Join the community to influence future releases of the SDK.



Device connectivity

Leverage the power of open frameworks like Connect-the-Dots to help connect your devices to Microsoft Azure. Microsoft Azure allows you to implement great solutions by leveraging advanced analytics services.



Maker community

Connect with other makers and contribute to open source contributions through GitHub to influence future releases.

Windows IoT
Running Windows 10
Powerful tools that let
you connect your device.

the cloud

virtualisation of computing resources to
simplify management and enable
provision on demand

but what business really means

outsourcing of IT (infrastructure & support)
outsourcing of *information controller* status
harvesting & consolidating personal data
so that it may be exploited for other purposes

big data

analysis of large quantities of digital
traces & evidence for insight and
understanding

but what business really means

assimilating as much information about people
as possible

to *monetise* such insights
(some for efficiency, some for exploitation)

internet of things

embedded devices everywhere!
sensin' and doin' things
(or, “*ubiquitous computing*”)

but what business really means

assimilating as much information about people
in their homes, cars, on their bodies

monetising this information

locking out competitors from doing the same

what this means for end-users...

cool devices that blink

unwanted high-fidelity data logging about me
& my family

unwanted delegation of control
loss of control and autonomy

proprietary vendor lock-in



<http://www.gojiaccess.com/>

<http://august.com/>

vendor lock-in

if left to their “own devices”
you will have only two options:

option 1: buy in completely to a single “ecosystem”

option 2: suffer. a lot.







Experimental evidence of massive-scale emotional contagion through social networks

Adam D. I. Kramer^{a,1}, Jamie E. Guillory^{b,2}, and Jeffrey T. Hancock^{b,c}

^aCore Data Science Team, Facebook, Inc., Menlo Park, CA 94025; and

Departments of ^bCommunication and

^cInformation Science, Cornell University, Ithaca, NY 14853

Edited by Susan T. Fiske, Princeton University, Princeton, NJ, and approved March 25, 2014 (received for review October 23, 2013)

Significance

We show, via a massive ($N = 689,003$) experiment on Facebook, that emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. We provide experimental evidence that emotional contagion occurs without direct interaction between people (exposure to a friend expressing an emotion is sufficient), and in the complete absence of nonverbal cues.

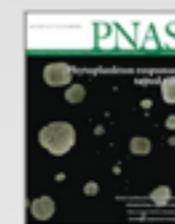
Abstract

Emotional states can be transferred to others via emotional contagion, leading people to experience the same emotions without their awareness. Emotional contagion is well established in laboratory experiments, with people transferring positive and negative emotions to others. Data from a large real-world social network, collected over a 20-y period suggests that longer-lasting moods (e.g., depression, happiness) can be transferred through networks [Fowler JH, Christakis NA (2008) *BMJ* 337:a2338], although the results are controversial. In an experiment with people who use Facebook, we test whether emotional contagion occurs outside of in-person interaction between individuals by reducing the amount of emotional content in the News Feed. When positive expressions were reduced, people produced fewer positive posts and more negative posts; when negative expressions were reduced, the opposite pattern occurred. These results indicate that emotions expressed by others on Facebook influence our own emotions, constituting experimental evidence for massive-scale contagion via social networks. This work also suggests that, in contrast to prevailing assumptions, in-person interaction and nonverbal cues are not strictly necessary for emotional contagion, and that the observation of others' positive experiences constitutes a positive experience for people.

computer-mediated communication | social media | big data

Emotional states can be transferred to others via emotional contagion, leading them to experience the same

This Issue



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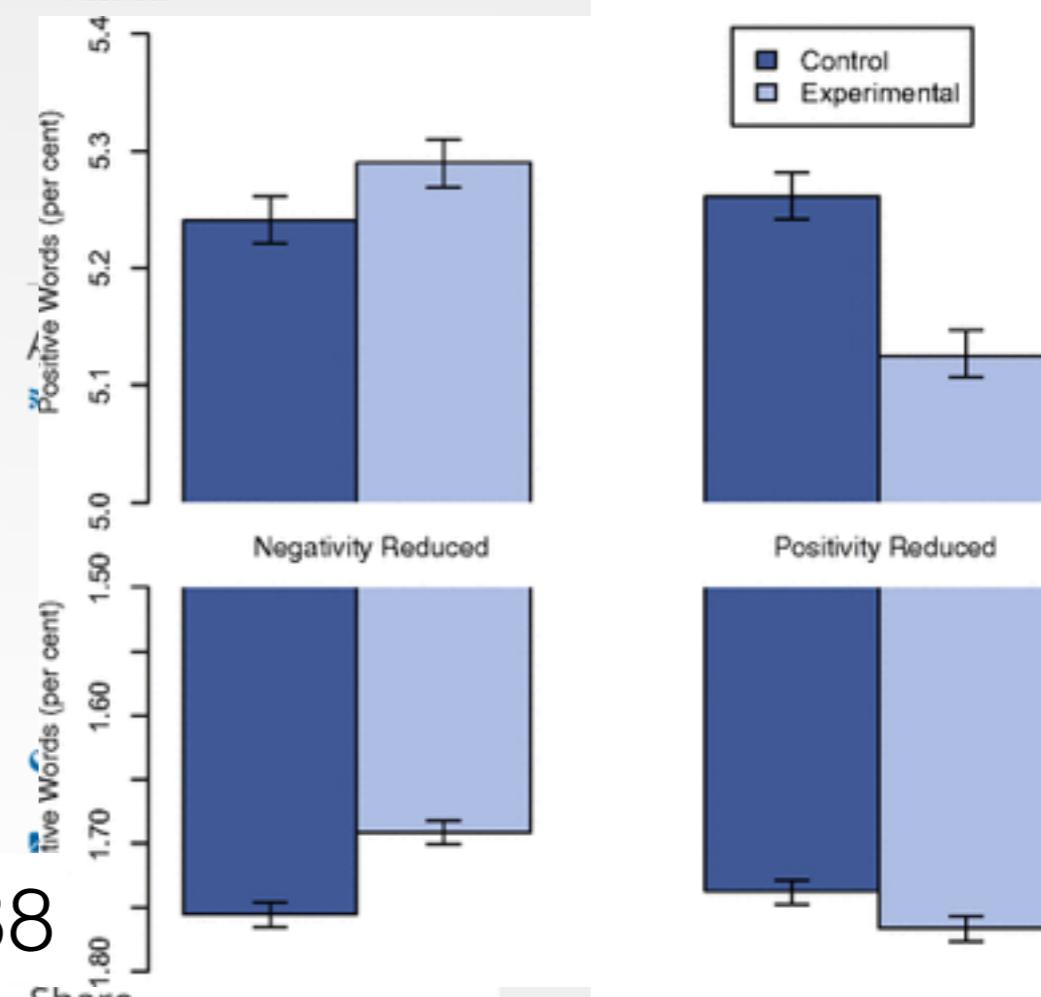
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THEY'RE LISTENING

All the personal data that Verizon FiOS uses to keep you from canceling



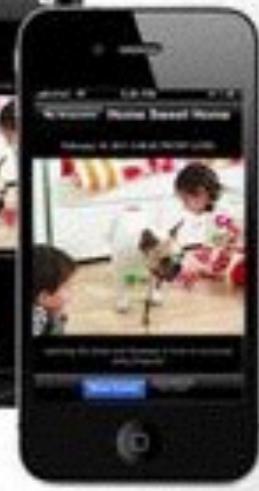
Thanks for calling Verizon, how can I help you? (AP/Alden Pellett)

SHARE

When you call Verizon FiOS, the customer service representative on the

<http://qz.com/413441/all-the-personal-data-that-verizon-fios-uses-to-keep-you-from-cancelling>

consume. it knows whether your household spars over DVR contents



TAG Snapchat , privacy , online privacy , Security , Photo Sharing

Snapchat tells FTC that your private photos never actually got deleted

By [Mike Lata](#), Tech Times | May 12, 6:58 AM[SHARE\(\)](#)[TWEET\(88\)](#)

0 COMMENTS



Snapchat was caught with its pants down by the FTC misrepresenting its customers. It billed itself as a private photo and video sharing app that allowed users send images that disappeared shortly after use, but it wasn't actually so.

(Photo : YouTube)

The FTC has caught Snapchat creators in a bind due to their false promises of security and privacy. The company apparently lied to its customers and was caught with its pants down. Due to this, a recent false-claim ruling was settled due to the misrepresentations coming from the company.

The company billed its service as a way for friends, particularly teenagers it was marketed to, can share photos or short videos that disappear within seconds after being viewed (due to sender's discretion of time length). The idea that permanent records of images wouldn't stay on a server or the recipient's cache caused many users to send embarrassing or explicit photos. So when the company was caught lying it was a big deal to many users who compromised their private lives.

Many non-tech-savvy users thought that their photos are private and secure from preying eyes, so the company definitely has some explaining to do. In essence, it relied on the fact that because the photos disappear from the sender's mobile devices once sent to them, users thought they were secure from anyone else looking at them.

"It looks like it's gone," security expert Nico Sell [said](#). "If you don't understand the underlying technology of the Internet, and aren't thinking about what is going on behind the scenes, it looks like it disappeared."

The fact of the matter is that photos or videos sent using Snapchat could be recovered on a user's phone through tricks or hacks. The [workaround](#) involves another app, called Poke. Also deceiving was the fact that Snapchat secretly collected users' private information through the "Find Friends" feature, which included contact information and location data. The company settled with the FTC and promises to be more forthcoming with its user base in the future.

Of course, for anyone who is Internet-savvy, taking photos that would be too compromising or revealing and



<http://www.techtimes.com/articles/6853/20140512/snapchat-image-sharing-images-photos-videos-fcc-privacy-online-privacy.htm>

superflux



Uninvited Guests is a short film that explores the frictions between an elderly man and his smart home.

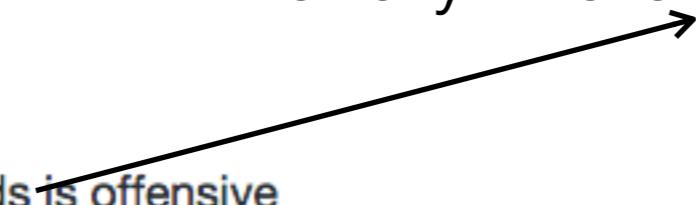
<http://www.superflux.in/work/uninvited-guests>



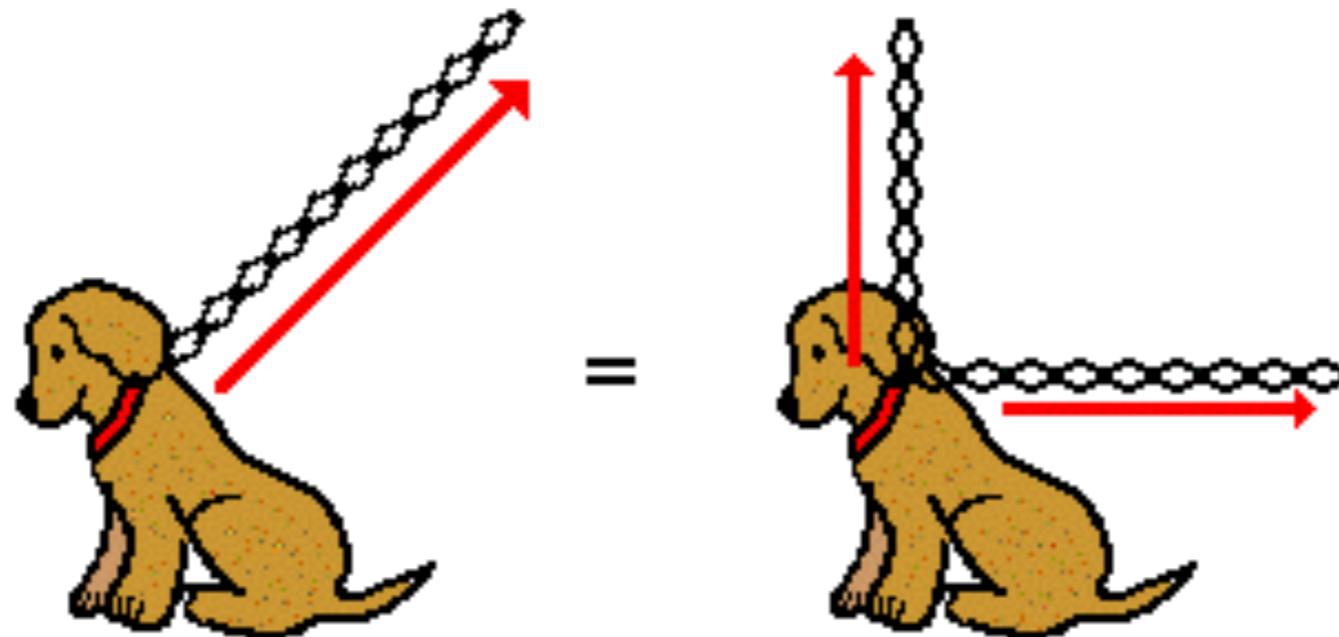
Amy Dentata @AmyDentata · 10h

- This ad is irrelevant
- This ad is misleading
- This ad is offensive
- The very concept of ads is offensive

everywhere in my home



misaligned incentives



people want to
text, chat, call, post
privately share photos,
keep things forever
joke, troll, experiment,
look up sensitive info,
buy embarrassing stuff

facebook wants to
run experiments on you
understand everything
you like and dislike
infer what you might buy
predict what you might do



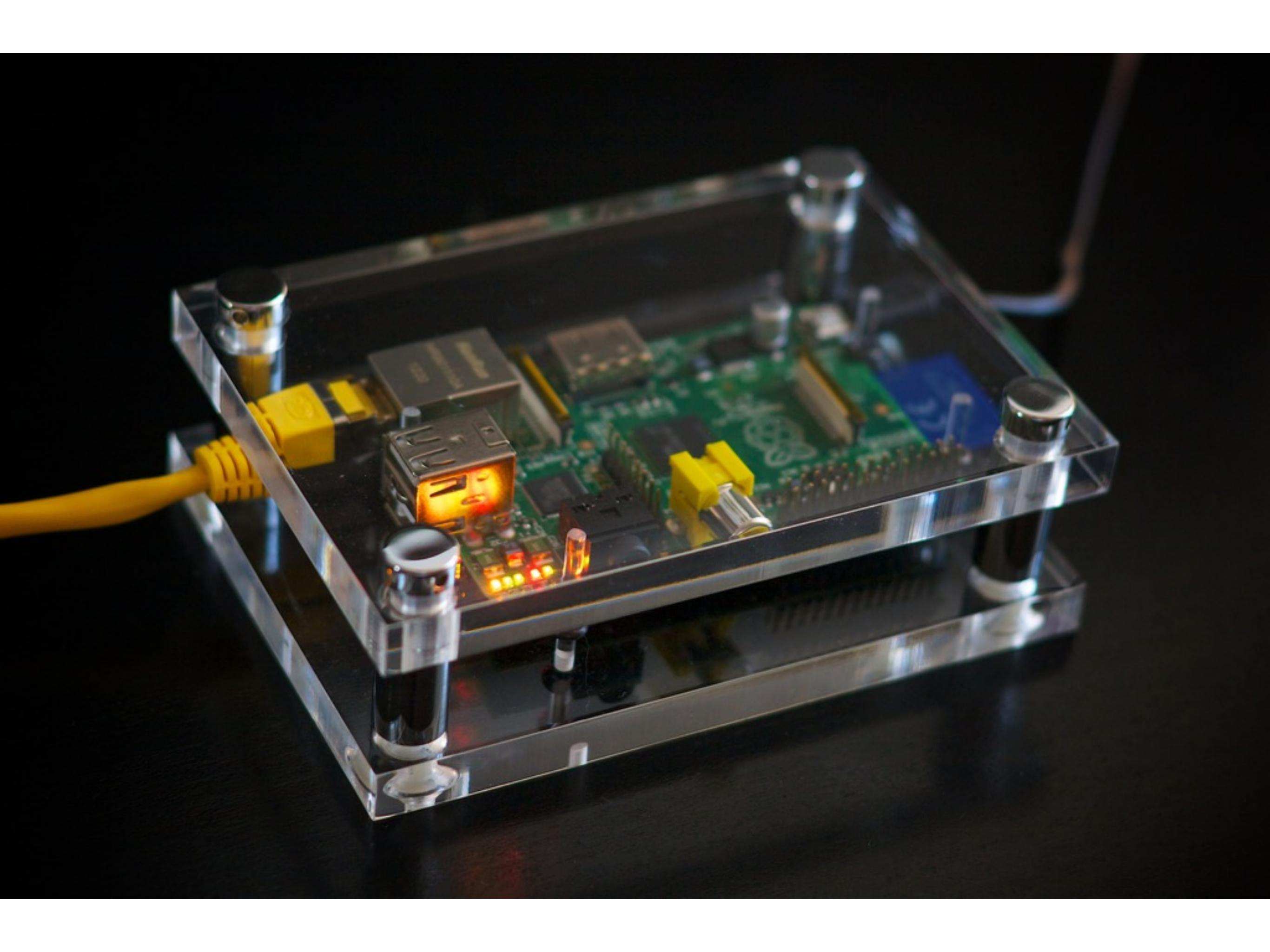
“living in an ikea”

Decentralise -

to distribute the administrative powers or functions of (a central authority) over a less concentrated area such as among its constituents.

Democratise -

To vest the governing power of a system with the people, to be exercised directly by them (or through elected representatives).





<https://www.kickstarter.com/projects/acrobotic/the-smart-citizen-kit-crowdsourced-environmental-m>



Nest Thermostat Channel

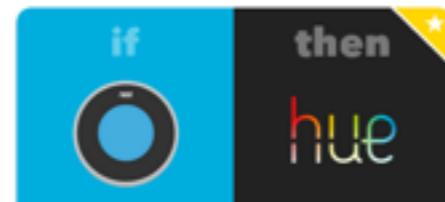
IFTTT enables you to connect the Nest Thermostat Channel to 188 different Channels. [View all Channels](#)



Nest takes the unloved products of your home and makes them simple, beautiful, thoughtful things. The **Nest Thermostat** learns your schedule and the temperatures you like. It keeps you comfortable and saves energy when you're away.

[Connect](#)

Popular Nest Thermostat Recipes

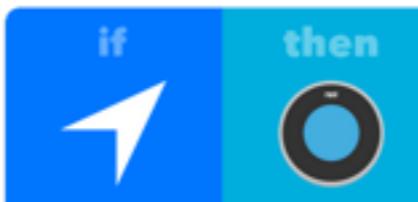


Set to Away and turn your Philips hue bulbs off

by nest

2.1k

504

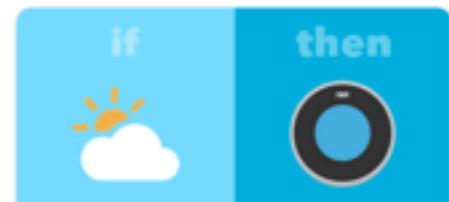


When you exit a specific area set your Nest Thermostat to ___ degrees

by nest

1.3k

262

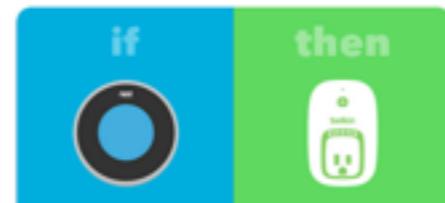


If the temperature outside drops below ___ then set your Nest Thermostat to ___

by nest

753

98

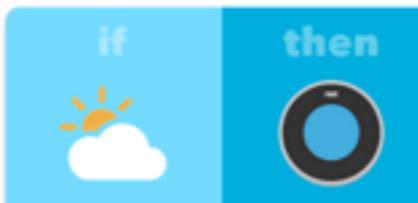


Set to Home and turn your WeMo Switch on

by nest

145

36



At sunset set your Nest Thermostat to ___ degrees

by nest

212

39

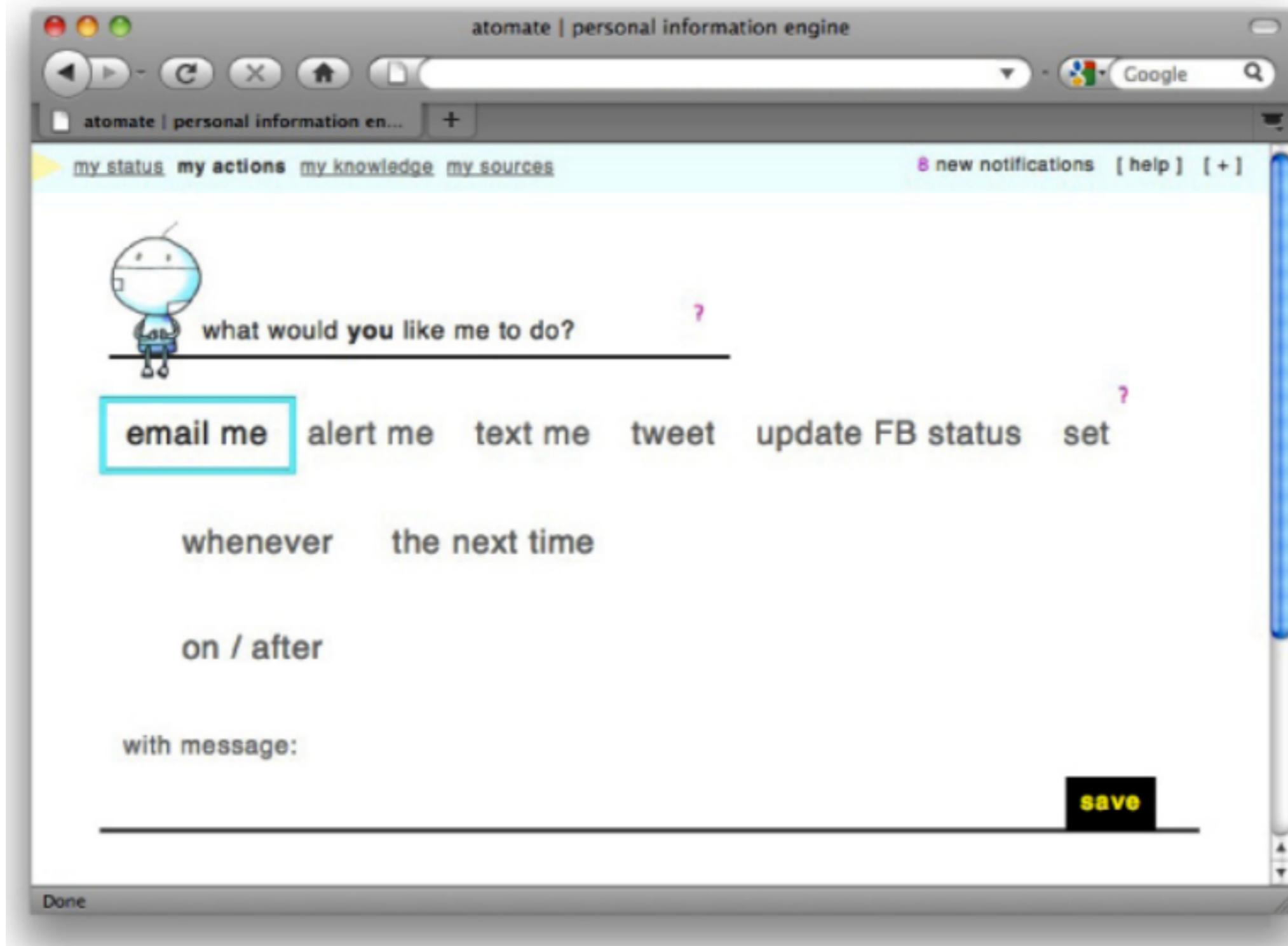


Set to Home and get a notification via Android

by nest

649

27



Atomate it! end-user context-sensitive automation using heterogeneous information sources on the web
<http://dl.acm.org/citation.cfm?id=1772787>



add feed

name Harvest Feed

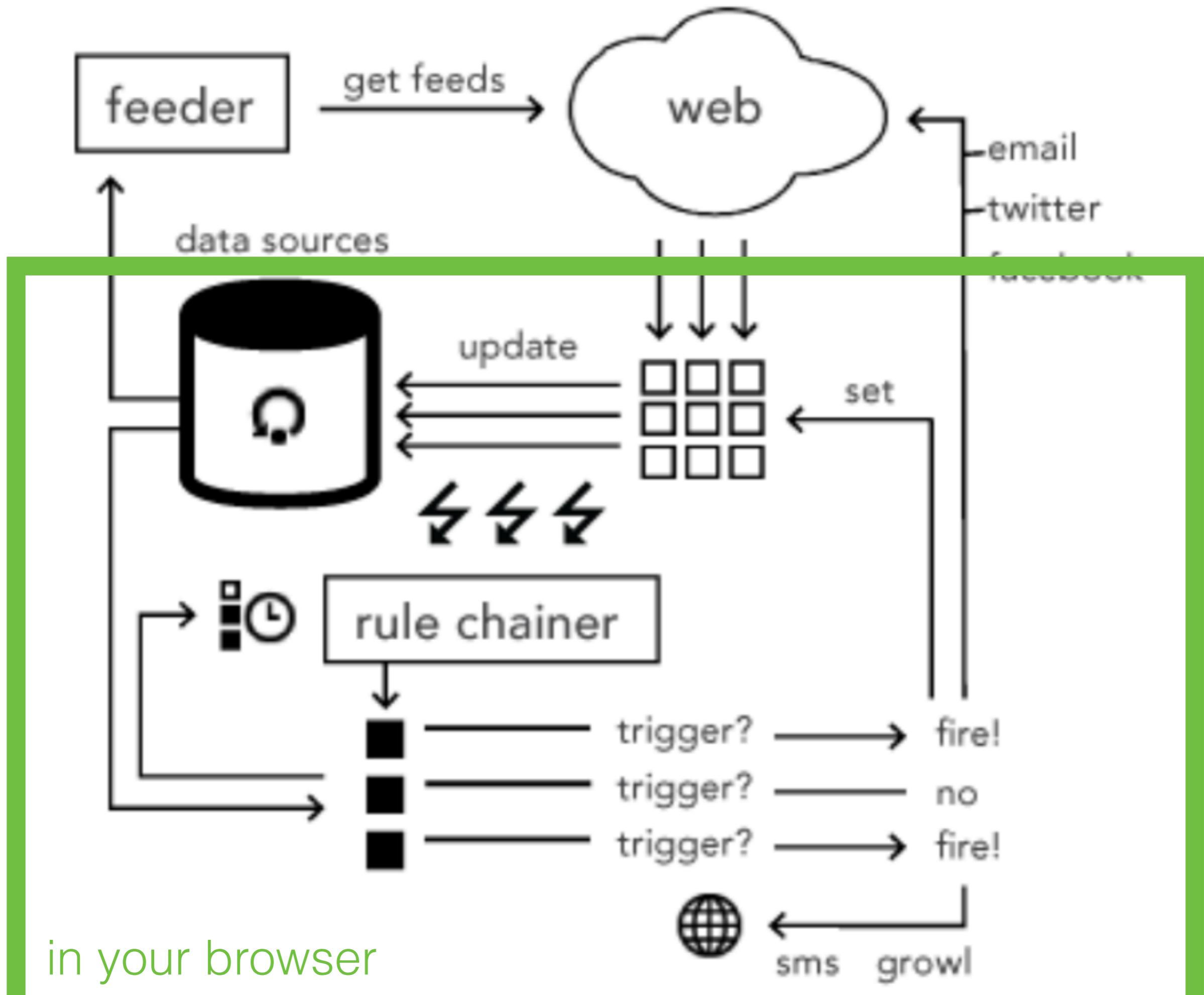
url `rg_description[] = price&extraArg_fixDates=1&v_item=pasta`

type new type Fresh Produce

new Fresh Produce item

property	value	type
description	, La Moderna Spaghetti, 16 oz, \$0.86 (\$0.05 per oz)	text
posted date	Mon, 02 Nov 2009 20:15:02 -0500	text
Fresh produce item	La Moderna Spaghetti, 16 oz	text

save new feed





How can we build truly **Open Internet of Things?**

can we use the Web of Data to make things
truly interoperable
smarter
self-managing
(so we don't have to rely on clouds)

... so that the web that was can be the web that will be
once again?

Let's do this together. I'm @emax.

<https://github.com/electronicmax/usewod15-not-in-my-castle>

söciäm